BID DOCUMENTS

Downey Unified
SCHOOL DISTRICT

Agreement No. 202122-215

Columbus High School Welding Project

September 13, 2021

DOCUMENT 00 01 10

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DRAWINGS

Sheet number	Description
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0.0	COVER SHEET
0.1	SYMBOLS AND ABBREVIATIONS
0.2	GENERAL NOTES
0.3	SURVEY (FOR REFERENCE ONLY)
A1.0	OVERALL EXISTING SITE PLAN
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A1.2	PROPOSED SITE PLAN
A1.3	DETAILS
ELECTRICAL	
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E0.4	PARTIAL SINGLE LINE DIAGRAM
E1.1	ELECTRICAL SITE PLAN
E2.1	ELECTRICAL PLAN
E4.1	ELECTRICAL DETAILS
E5.1	PANEL SCHEDULES

END OF DOCUMENT

DOCUMENT 00 11 16

NOTICE INVITING INFORMAL BIDS

Notice is hereby given that the governing board ("Board") of the Downey Unified School District ("District") will receive sealed bids for the following project, **Columbus High School Welding Project, Agreement No. 202122-215** ("Project" or "Contract"). To bid on this Project, the Bidder is required to be registered as a public works contractor with the Department of Industrial Relations and to possess an A or B State of California Contractor License. The Bidder's license(s) must remain active and in good standing throughout the term of the Contract.

Documents are available as of September 10, 2021 for review if requested via email to Kay Domingo at kdomingo@dusd.net and may be downloaded from the District's Bids/RFP website, https://web.dusd.net/bids-rfps/.

Sealed Bids will be received until **9:00 a.m., Friday, October 15, 2021** at the District's Facilities Planning and Development Office, 11627 Brookshire Ave., Attn: Kay Domingo, Downey, CA 90241 at or after which time the bids will be opened and publicly read aloud. All bids shall be on the form provided by the District and must be responsive.

A mandatory pre-bid conference and site visit will be held on Friday, September 10, 2021 at 2:30 p.m. at Columbus High School, 12330 Woodruff Ave., Downey, California 90241 ("Site Visit"). All participants are required to sign-in. Failure to attend or tardiness may render bid ineligible. The Site Visit Certification will be provided at the end of the Site Visit and must be submitted with the Bid.

The successful Bidder shall be required to furnish a 100% Performance Bond and a 100% Payment Bond if it is awarded the contract for the Work. The successful Bidder may substitute securities for any monies withheld by the District to ensure performance under the Contract, in accordance with the provisions of section 22300 of the Public Contract Code.

The successful Bidder shall comply with all requirements of Division 2, Part 7, Chapter 1, of the Labor Code and Title 8 of the California Code of Regulations. For all work performed pursuant to this Contract, the Contractor and all subcontractors shall pay all workers not less than the general prevailing rate of per diem wages and for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, ("DIR") for the type of work performed and the locality in which the work is to be performed within the boundaries of the District, pursuant to sections 1770 et seq. of the California Labor Code. Prevailing wage rates are also available from the District or the DIR website at: http://www.dir.ca.gov. This Project is subject to labor compliance monitoring and enforcement by the DIR.

The Board reserves the right to reject any and all bids and/or waive any irregularity in any bid received. Unless otherwise required by law, no bidder may withdraw its bid for ninety (90) days after the date of the bid opening.

END OF DOCUMENT

DOCUMENT 00 21 13

INSTRUCTIONS TO BIDDERS

Bidders shall follow the instructions in this document, and shall submit all documents, forms, and information required for consideration of a bid.

Downey Unified School District ("District") will evaluate information submitted by the apparent low Bidder and, if incomplete or unsatisfactory to District, Bidder's bid may be rejected at the sole discretion of District.

1. Bids are requested for a general construction contract, or work described in general, for the following project ("Project" or "Contract"):

   Columbus High School Welding Project

2. A Bidder and its subcontractors must possess the appropriate State of California contractors' license and must maintain the license throughout the duration of the project. Bidders must also be registered as a public works contractor with the Department of Industrial Relations pursuant to the Labor Code. Bids submitted by a contractor who is not properly licensed or registered shall be deemed nonresponsive and will not be considered.

3. District will receive sealed bids from bidders as stipulated in the Notice to Bidders.

   a. All bids must be sealed in an envelope, marked with the name and address of the Bidder, name of the Project, the Project Number and/or bid number, and time of bid opening.

   b. Bids must be submitted to the District Office by date and time shown in the Notice to Bidders.

   c. Bids must contain all documents as required herein.

4. Bidders are advised that on the date that bids are opened, telephones will not be available at the District Offices for use by bidders or their representatives.

5. Bids will be opened at or after the time indicated for receipt of bids.

6. Bidders must submit bids on the documents titled Bid Form and Proposal, and must submit all other required District forms. Bids not submitted on the District's required forms shall be deemed nonresponsive and shall not be considered. Additional sheets required to fully respond to requested information are permissible.

7. Bidders shall not modify the Bid Form and Proposal or qualify their bids. Bidders shall not submit to the District a re-formatted, re-typed, altered, modified, or otherwise recreated version of the Bid Form and Proposal or other District-provided document.

8. Bids shall be clearly written and without erasure or deletions. District reserves the right to reject any bid containing erasures, deletions, or illegible contents.

9. Bidders must supply all information required by each Bid Document. Bids must be full and complete. District reserves the right in its sole discretion to reject any bid as nonresponsive as a result of any error or omission in the bid. Bidders must complete and submit all of the following documents with the Bid Form and Proposal:

    a. Bid Bond on the District's form, or other security.

    b. Designated Subcontractors List.

    c. Site Visit Certification, if a site visit was required.

    d. Non-Collusion Declaration.

10. Bidders must submit with their bids cash, a cashier's check or a certified check payable to District, or a bid bond by an admitted surety insurer of not less than ten percent (10%) of amount of Base Bid, plus all additive alternates ("Bid Bond"). If Bidder chooses to provide a Bid Bond as security, Bidder must use the required form of corporate surety provided by District. The Surety on Bidder's Bid Bond must be an insurer admitted in the State of California and authorized to issue surety bonds in the State of California. Bids submitted without necessary bid security will be deemed nonresponsive and will not be considered.

11. If Bidder to whom the Contract is awarded fails or neglects to enter into the Contract and submit required bonds, insurance certificates, and all other required documents, within **SEVEN (7)** calendar days after the date of the Notice of Award, District may deposit Bid Bond, cash, cashier's check, or certified check for collection, and proceeds thereof may be retained by District as liquidated damages for failure of Bidder to enter into Contract, in the sole discretion of District. It is agreed that calculation of damages District may suffer as a result of Bidder's failure to enter into the Contract would be extremely difficult and impractical to determine and that the amount of the Bidder's required bid security shall be the agreed and conclusively presumed amount of damages.

12. Bidders must submit with the bid the Designated Subcontractors List for those subcontractors who will perform any portion of Work, including labor, rendering of service, or specially fabricating and installing a portion of the Work or improvement according to detailed drawings contained in the plans and specifications, in excess of one half of one percent (0.5%) of total bid. Failure to submit this list when required by law shall result in bid being deemed nonresponsive and the bid will not be considered.

13. All of the listed subcontractors are required to be registered as a public works contractor with the Department of Industrial Relations pursuant to the Labor Code.

    a. An inadvertent error in listing the California contractor license number on the Designated Subcontractors List shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive if the correct contractor's license number is submitted to the District within 24 hours after the bid opening and the corrected number corresponds with the submitted name and location for that subcontractor.

b. An inadvertent error listing an unregistered subcontractor shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive provided that any of the following apply:

(1) The subcontractor is registered prior to the bid opening.

(2) The subcontractor is registered and has paid the penalty registration fee within 24 hours after the bid opening.

(3) The subcontractor is replaced by another registered subcontractor pursuant to Public Contract Code section 4107.

14. If a mandatory pre-bid conference and site visit ("Site Visit") is required as referenced in the Notice to Bidders, then Bidders must submit the Site Visit Certification with their Bid. District will transmit to all prospective Bidders of record such Addenda as District in its discretion considers necessary in response to questions arising at the Site Visit. Oral statements shall not be relied upon and will not be binding or legally effective. Addenda issued by the District as a result of the Site Visit, if any, shall constitute the sole and exclusive record and statement of the results of the Site Visit.

15. Bidders shall submit the Non-Collusion Declaration with their bids. Bids submitted without the Non-Collusion Declaration shall be deemed nonresponsive and will not be considered.

16. The Contractor and all Subcontractors under the Contractor shall pay all workers on all work performed pursuant to the Contract not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, for the type of work performed and the locality in which the work is to be performed within the boundaries of the District, pursuant to sections 1770 et seq. of the California Labor Code. Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the Department of Industrial Relations, are available upon request at the District's principal office. Prevailing wage rates are also available on the internet at http://www.dir.ca.gov.

17. Submission of bid signifies careful examination of Contract Documents and complete understanding of the nature, extent, and location of Work to be performed. Bidders must complete the tasks listed below as a condition to bidding, and submission of a bid shall constitute the Bidder's express representation to District that Bidder has fully completed the following:

a. Bidder has visited the Site, if required, and has examined thoroughly and understood the nature and extent of the Contract Documents, Work, Site, locality, actual conditions, as-built conditions, and all local conditions and federal, state and local laws, and regulations that in any manner may affect cost, progress, performance, or furnishing of Work or that relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto;

b. Bidder has conducted or obtained and has understood all examinations, investigations, explorations, tests, reports, and studies that pertain to the subsurface conditions, as-built conditions, underground facilities, and all other physical conditions at or contiguous to the Site or otherwise that may affect the cost, progress, performance, or furnishing of Work, as Bidder considers necessary for the performance or furnishing of Work at the Contract Sum, within the Contract Time, and in accordance with the other terms and conditions of Contract Documents, including specifically the provisions of the General Conditions; and no additional examinations, investigations, explorations, tests, reports, studies, or similar information or data are or will be required by Bidder for such purposes;

c. Bidder has correlated its knowledge and the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Contract Documents;

d. Bidder has given the District prompt written notice of all conflicts, errors, ambiguities, or discrepancies that it has discovered in or among the Contract Documents and the actual conditions, and the written resolution(s) thereof by the District is/are acceptable to Bidder;

e. Bidder has made a complete disclosure in writing to the District of all facts bearing upon any possible interest, direct or indirect, that Bidder believes any representative of the District or other officer or employee of the District presently has or will have in this Contract or in the performance thereof or in any portion of the profits thereof;

f. Bidder must, prior to bidding, perform the work, investigations, research, and analysis required by this document and that Bidder represented in its Bid Form and Proposal and the Agreement that it performed prior to bidding. Contractor under this Contract is charged with all information and knowledge that a reasonable bidder would ascertain from having performed this required work, investigation, research, and analysis. Bid prices must include entire cost of all work "incidental" to completion of the Work.

g. Conditions Shown on the Contract Documents: Information as to underground conditions, as-built conditions, or other conditions or obstructions, indicated in the Contract Documents, e.g., on Drawings or in Specifications, has been obtained with reasonable care, and has been recorded in good faith. However, District only warrants, and Bidder may only rely, on the accuracy of limited types of information.

    (1) As to above-ground conditions or as-built conditions shown or indicated in the Contract Documents, there is no warranty, express or implied, or any representation express or implied, that such information is correctly shown or indicated. This information is verifiable by independent investigation and Bidder is required to make such verification as a condition to bidding. In submitting its Bid, Bidder shall rely on the results of its own independent investigation. In submitting its Bid, Bidder shall not rely on District-supplied information regarding above-ground conditions or as-built conditions.

(2) As to any subsurface condition shown or indicated in the Contract Documents, Bidder may rely only upon the general accuracy of actual reported depths, actual reported character of materials, actual reported soil types, actual reported water conditions, or actual obstructions shown or indicated. District is not responsible for the completeness of such information for bidding or construction; nor is District responsible in any way for any conclusions or opinions that the Bidder has drawn from such information; nor is the District responsible for subsurface conditions that are not specifically shown (for example, District is not responsible for soil conditions in areas contiguous to areas where a subsurface condition is shown).

h. Conditions Shown in Reports and Drawings Supplied for Informational Purposes: Reference is made to the document entitled Geotechnical Data, and the document entitled Existing Conditions, for identification of:

(1) Subsurface Conditions: Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that have been utilized by Architect in preparing the Contract Documents; and

(2) Physical Conditions: Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that has been utilized by Architect in preparing the Contract Documents.

(3) These reports and drawings are **not** Contract Documents and, except for any "technical" data regarding subsurface conditions specifically identified in Geotechnical Data and Existing Conditions, and underground facilities data, Bidder may not in any manner rely on the information in these reports and drawings. Subject to the foregoing, Bidder must make its own independent investigation of all conditions affecting the Work and must not rely on information provided by District.

18. Bids shall be based on products and systems specified in Contract Documents or listed by name in Addenda. Whenever in the Specifications any materials, process, or article is indicated or specified by grade, patent, or proprietary name, or by name of manufacturer, that Specification shall be deemed to be followed by the words "or equal." Bidder may, unless otherwise stated, offer any material, process, or article that shall be substantially equal or better in every respect to that so indicated or specified. The District is not responsible and/or liable in any way for a Contractor's damages and/or claims related, in any way, to that Contractor's basing its bid on any requested substitution that the District has not approved in advance and in writing. Contractors and materials suppliers who submit requests for substitutions prior to the award of the Contract must do so in writing and in compliance with Public Contract Code section 3400. All requests must comply with the following:

a. District must receive any notice of request for substitution of a specified item a minimum of **TEN (10)** calendar days prior to bid opening. The Successful Bidder will not be allowed to substitute specified items unless properly noticed.

b. Within 35 days after the date of the Notice of Award, the Successful Bidder shall submit data substantiating the request(s) for all substitution(s) containing sufficient information to assess acceptability of product or system and impact on Project, including, without limitation, the requirements specified in the Special Conditions and the Specifications. Insufficient information shall be grounds for rejection of substitution.

c. Approved substitutions, if any, shall be listed in Addenda. District reserves the right not to act upon submittals of substitutions until after bid opening.

d. Substitutions may be requested after Contract has been awarded only if indicated in and in accordance with requirements specified in the Special Conditions and the Specifications.

19. Bidders may examine any available "as-built" drawings of previous work by giving District reasonable advance notice. District will not be responsible for accuracy of "as-built" drawings. The document entitled Existing Conditions applies to all supplied "as-built" drawings.

20. All questions about the meaning or intent of the Contract Documents are to be directed via email to the District to Vince Madsen, vmadsen@dusd.net. Interpretations or clarifications considered necessary by the District in response to such questions will be issued in writing by Addenda and emailed, faxed, mailed, or delivered to all parties recorded by the District as having received the Contract Documents or posted on the District's website at https://web.dusd.net/bids-rfps/Questions received less than **SEVEN (7)** calendar days prior to the date for opening bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

21. Addenda may also be issued to modify other parts of the Contract Documents as deemed advisable by the District.

22. Each Bidder must acknowledge each Addendum in its Bid Form and Proposal by number or its Bid shall be considered non-responsive. Each Addendum shall be part of the Contract Documents. A complete listing of Addenda may be secured from the District.

23. This Contract may include alternates. Alternates are defined as alternate products, materials, equipment, systems, methods, or major elements of the construction that may, at the District's option and under terms established in the Contract and pursuant to section 20103.8 of the Public Contract Code, be selected for the Work.

24. The District shall award the Contract, if it awards it at all, to the lowest responsive responsible bidder based on the criteria as indicated in the Notice to Bidders. In the event two or more responsible bidders submit identical bids, the District shall select the Bidder to whom to award the Contract by lot.

25. Discrepancies between written words and figures, or words and numerals, will be resolved in favor of figures or numerals.

26. Bidders in contention for contract awards shall be required to attend a Post-Bid interview, which will be set within three (3) calendar days following bid opening. A

duly authorized representative of the apparent low bidder is required to attend the Post Bid Interview, in person. The apparent low bidder's authorized representative(s) must have (1) knowledge of how the bid submitted was prepared, (2) the person responsible for supervising performance of the Work, and (3) the authority to bind the apparent low bidder. Failure to attend the Post Bid Interview as scheduled will be considered just cause for the District to reject the Bid as nonresponsive.

27. Any bid protest by any Bidder regarding any other bid must be submitted in writing to the District, before 5:00 p.m. of the **THIRD (3rd)** business day following bid opening.

    a. Only a Bidder who has actually submitted a bid, and who could be awarded the Contract if the bid protest is upheld, is eligible to submit a bid protest. Subcontractors are not eligible to submit bid protests. A Bidder may not rely on the bid protest submitted by another Bidder.

    b. A bid protest must contain a complete statement of any and all bases for the protest and all supporting documentation. Materials submitted after the bid protest deadline will not be considered.

    c. The protest must refer to the specific portions of all documents that form the basis for the protest.

        (1) Without limitation to any other basis for protest, an inadvertent error in listing the California contractor's license number on the Designated Subcontractors List shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive if the correct contractor's license number is submitted to the District within 24 hours after the bid opening and the corrected number corresponds with the submitted name and location for that subcontractor.

        (2) Without limitation to any other basis for protest, an inadvertent error listing an unregistered subcontractor shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive provided that any of the following apply:

            (a) The subcontractor is registered prior to the bid opening.

            (b) The subcontractor is registered and has paid the penalty registration fee within 24 hours after the bid opening.

            (c) The subcontractor is replaced by another registered subcontractor pursuant to Public Contract Code section 4107.

    d. The protest must include the name, address and telephone number of the person representing the protesting party.

    e. The party filing the protest must concurrently transmit a copy of the protest and any attached documentation to all other parties with a direct financial interest that may be adversely affected by the outcome of the protest. Such parties shall include all other bidders or proposers who appear to have a

reasonable prospect of receiving an award depending upon the outcome of the protest.

f. The procedure and time limits set forth in this paragraph are mandatory and are each bidder's sole and exclusive remedy in the event of bid protest. Failure to comply with these procedures shall constitute a waiver of any right to further pursue the bid protest, including filing a Government Code Claim or legal proceedings.

28. The Bidder to whom Contract is awarded shall execute and submit the following documents by 5:00 p.m. of the **SEVENTH (7th)** calendar day following the date of the Notice of Award. Failure to properly and timely submit these documents entitles District to reject the bid as nonresponsive.

a. Agreement: To be executed by successful Bidder. Submit four (4) copies, each bearing an original signature.

b. Escrow of Bid Documentation: This must include all required documentation. See the document titled Escrow Bid Documentation for more information.

c. Performance Bond (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.

d. Payment Bond (Contractor's Labor and Material Bond) (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.

e. Insurance Certificates and Endorsements as required.

f. Workers' Compensation Certification.

g. Prevailing Wage and Related Labor Requirements Certification.

h. Disabled Veteran Business Enterprise Participation Certification.

i. Drug-Free Workplace Certification.

j. Tobacco-Free Environment Certification.

k. Hazardous Materials Certification.

l. Lead-Based Materials Certification.

m. Imported Materials Certification.

n. Criminal Background Investigation/Fingerprinting Certification.

o. Registered Subcontractors List: Must include Department of Industrial Relations (DIR) registration number of each subcontractor for all tiers.

29. Time for Completion: District may issue a Notice to Proceed within **NINETY (90)** days from the date of the Notice of Award. Once Contractor has received the Notice

to Proceed, Contractor shall complete the Work within the period of time indicated in the Contract Documents.

a. In the event that the District desires to postpone issuing the Notice to Proceed beyond this 90-day period, it is expressly understood that with reasonable notice to the Contractor, the District may postpone issuing the Notice to Proceed.

b. It is further expressly understood by Contractor that Contractor shall not be entitled to any claim of additional compensation as a result of the postponement of the issuance of the Notice to Proceed beyond a 90-day period. If the Contractor believes that a postponement of issuance of the Notice to Proceed will cause a hardship to the Contractor, the Contractor may terminate the Contract. Contractor's termination due to a postponement beyond this 90-day period shall be by written notice to District within **TEN (10)** calendar days after receipt by Contractor of District's notice of postponement.

c. It is further understood by the Contractor that in the event that Contractor terminates the Contract as a result of postponement by the District, the District shall only be obligated to pay Contractor for the Work that Contractor had performed at the time of notification of postponement and which the District had in writing authorized Contractor to perform prior to issuing a Notice to Proceed.

d. Should the Contractor terminate the Contract as a result of a notice of postponement, District shall have the authority to award the Contract to the next lowest responsive responsible bidder.

30. District reserves the right to reject any or all bids, including without limitation the right to reject any or all nonconforming, nonresponsive, unbalanced, or conditional bids, to re-bid, and to reject the bid of any bidder if District believes that it would not be in the best interest of the District to make an award to that bidder, whether because the bid is not responsive or the bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by District. District also reserves the right to waive any inconsequential deviations or irregularities in any bid. For purposes of this paragraph, an "unbalanced bid" is one having nominal prices for some work items and/or enhanced prices for other work items.

31. It is the policy of the District that no qualified person shall be excluded from participating in, be denied the benefits of, or otherwise be subjected to discrimination in any consideration leading to the award of contract, based on race, color, gender, sexual orientation, political affiliation, age, ancestry, religion, marital status, national origin, medical condition or disability. The Successful Bidder and its subcontractors shall comply with applicable federal and state laws, including, but not limited to the California Fair Employment and Housing Act, beginning with Government Code section 12900, and Labor Code section 1735.

32. Prior to the award of Contract, District reserves the right to consider the responsibility of the Bidder. District may conduct investigations as District deems necessary to assist in the evaluation of any bid and to establish the responsibility,

including, without limitation, qualifications and financial ability of Bidders, proposed subcontractors, suppliers, and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to District's satisfaction within the prescribed time.

END OF DOCUMENT

DOCUMENT 00 21 13.1

BIDDER INFORMATION AND FORMS

[INTENTIONALLY LEFT BLANK UNLESS PROVIDED IN SPECIAL CONDITIONS – SEPARATE PREQUALIFICATION PROCESS RECOMMENDED]

END OF DOCUMENT

DOCUMENT 00 31 19

EXISTING CONDITIONS

33. Summary

This document describes existing conditions at or near the Project, and use of information available regarding existing conditions. This document is **not** part of the Contract Documents. See General Conditions for definition(s) of terms used herein.

34. Reports and Information on Existing Conditions

a. Documents providing a general description of the Site and conditions of the Work may have been collected by the Downey Unified School District ("District"), its consultants, contractors, and tenants. These documents may, but are not required to, include previous contracts, contract specifications, tenant improvement contracts, as-built drawings, utility drawings, and information regarding underground facilities.

b. Information regarding existing conditions may be inspected at the District offices or the Construction Manager's offices, if any, and copies may be obtained at cost of reproduction and handling upon Bidder's agreement to pay for such copies. These reports, documents, and other information are **not** part of the Contract Documents. These reports, documents, and other information do **not** excuse Contractor from fulfilling Contractor's obligation to independently investigate any or all existing conditions or from using reasonable prudent measures to avoid damaging existing improvements.

c. Information regarding existing conditions may also be included in the Project Manual, but shall **not** be considered part of the Contract Documents.

d. Prior to commencing this Work, Contractor and the District's representative shall survey the Site to document the condition of the Site. Contractor will record the survey in digital videotape format and provide an electronic copy to the District within fourteen (14) days of the survey.

e. Contractor may also document any pre-existing conditions in writing, provided that both the Contractor and the District's representative agree on said conditions and sign a memorandum documenting the same.

f. The reports and other data or information regarding existing conditions and underground facilities at or contiguous to the Project are the following:

(1) Original Construction Drawings.
(2) Survey of Site.
(3) Geotechnical Report(s).
(4) Hazardous Material Report(s).
(5) Videotaped Survey(s).

35. Use of Information

a. Information regarding existing conditions was obtained only for use of District and its consultants, contractors, and tenants for planning and design and is **not** part of the Contract Documents.

b. District does not warrant, and makes no representation regarding, the accuracy or thoroughness of any information regarding existing conditions. Bidder represents and agrees that in submitting a bid it is not relying on any information regarding existing conditions supplied by District.

c. Under no circumstances shall District be deemed to warrant or represent existing above-ground conditions, as-built conditions, or other actual conditions, verifiable by independent investigation. These conditions are verifiable by Bidder by the performance of its own independent investigation that Bidder must perform as a condition to bidding and Bidder should not and shall not rely on this information or any other information supplied by District regarding existing conditions.

d. Any information shown or indicated in the reports and other data supplied herein with respect to existing underground facilities at or contiguous to the Project may be based upon information and data furnished to District by the District's employees and/or consultants or builders of such underground facilities or others. District does not assume responsibility for the completeness of this information, and Bidder is solely responsible for any interpretation or conclusion drawn from this information.

e. District shall be responsible only for the general accuracy of information regarding underground facilities, and only for those underground facilities that are owned by District, and only where Bidder has conducted the independent investigation required of it pursuant to the Instructions to Bidders, and discrepancies are not apparent.

36. Investigations/Site Examinations

a. Before submitting a bid, each Bidder is responsible for conducting or obtaining any additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and underground facilities) at or contiguous to the Site or otherwise, that may affect cost, progress, performance, or furnishing of Work or that relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or that Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of Contract Documents.

b. On request, District will provide each Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies, as each Bidder deems necessary for submission of a bid. Bidders must fill all holes and clean up and restore the Site to its former condition upon completion of its explorations, investigations, tests, and studies. Such investigations and

Site examinations may be performed during any and all Site visits indicated in the Notice to Bidders and only under the provisions of the Contract Documents, including, but not limited to, proof of insurance and obligation to indemnify against claims arising from such work, and District's prior approval.

END OF DOCUMENT

DOCUMENT 00 31 32

GEOTECHNICAL DATA

37. Summary

This document describes geotechnical data at or near the Project that is in the District's possession available for Contractor's review, and use of data resulting from various investigations. This document is **not** part of the Contract Documents. See General Conditions for definition(s) of terms used herein.

38. Geotechnical Reports

a. Geotechnical reports may have been prepared for and around the Site and/or in connection with the Work by soil investigation engineers hired by Downey Unified School District ("District"), and its consultants, contractors, and tenants.

b. Geotechnical reports may be inspected at the District offices or the Construction Manager's offices, if any, and copies may be obtained at cost of reproduction and handling upon Bidder's agreement to pay for such copies. These reports are **not** part of the Contract Documents.

c. The reports and drawings of physical conditions that may relate to the Project are the following:

_____

39. Use of Data

a. Geotechnical data were obtained only for use of District and its consultants, contractors, and tenants for planning and design and are **not** a part of Contract Documents.

b. Except as expressly set forth below, District does not warrant, and makes no representation regarding, the accuracy or thoroughness of any geotechnical data. Bidder represents and agrees that in submitting a bid it is not relying on any geotechnical data supplied by District, except as specifically allowed below.

c. Under no circumstances shall District be deemed to make a warranty or representation of existing above ground conditions, as-built conditions, geotechnical conditions, or other actual conditions verifiable by independent investigation. These conditions are verifiable by Bidder by the performance of its own independent investigation that Bidder should perform as a condition to bidding and Bidder must not and shall not rely on information supplied by District.

40. Limited Reliance Permitted on Certain Information

a. Reference is made herein for identification of:

Reports of explorations and tests of subsurface conditions at or contiguous to the Site that have been utilized by District in preparation of the Contract Documents.

Drawings of physical conditions in or relating to existing subsurface structures (except underground facilities) that are at or contiguous to the Site and have been utilized by District in preparation of the Contract Documents.

b. Bidder may rely upon the general accuracy of the "technical data" contained in the reports and drawings identified above, but only insofar as it relates to subsurface conditions, provided Bidder has conducted the independent investigation required pursuant to Instructions to Bidders, and discrepancies are not apparent. The term "technical data" in the referenced reports and drawings shall be limited as follows:

(1) The term "technical data" shall include actual reported depths, reported quantities, reported soil types, reported soil conditions, and reported material, equipment or structures that were encountered during subsurface exploration. The term "technical data" does not include, and Bidder may not rely upon, any other data, interpretations, opinions or information shown or indicated in such drawings or reports that otherwise relate to subsurface conditions or described structures.

(2) The term "technical data" shall not include the location of underground facilities.

(3) Bidder may not rely on the completeness of reports and drawings for the purposes of bidding or construction. Bidder may rely upon the general accuracy of the "technical data" contained in such reports or drawings.

(4) Bidder is solely responsible for any interpretation or conclusion drawn from any "technical data" or any other data, interpretations, opinions, or information provided in the identified reports and drawings.

41. Investigations/Site Examinations

a. Before submitting a bid, each Bidder is responsible for conducting or obtaining any additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and underground facilities) at or contiguous to the Site or otherwise, that may affect cost, progress, performance, or furnishing of Work or that relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or that Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of Contract Documents.

b. On request, District will provide each Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies, as each Bidder deems necessary for submission of a bid. Bidders must fill all holes and clean up and restore the Site to its former condition upon completion of its explorations, investigations, tests, and studies. Such investigations and Site examinations may be performed during any and all Site visits indicated in the Notice to Bidders and only under the provisions of the Contract Documents, including, but not limited to, proof of insurance and obligation to indemnify against claims arising from such work, and District's prior approval.

END OF DOCUMENT

DOCUMENT 00 41 13

BID FORM AND PROPOSAL

To: Governing Board of the Downey Unified School District ("District" or "Owner")

From: _____
(Proper Name of Bidder)

The undersigned declares that Bidder has read and understands the Contract Documents, including, without limitation, the Notice to Bidders and the Instructions to Bidders, and agrees and proposes to furnish all necessary labor, materials, and equipment to perform and furnish all work in accordance with the terms and conditions of the Contract Documents, including, without limitation, the Drawings and Specifications of Bid No. _____, for the following project known as:

_____

("Project" or "Contract") and will accept in full payment for that Work the following total lump sum amount, all taxes included:

_____ dollars $ _____ ***BASE BID***

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

42. The undersigned has reviewed the Work outlined in the Contract Documents and fully understands the scope of Work required in this Proposal, understands the construction and project management function(s) is described in the Contract Documents, and that each Bidder who is awarded a contract shall be in fact a prime contractor, not a subcontractor, to the District, and agrees that its Proposal, if accepted by the District, will be the basis for the Bidder to enter into a contract with the District in accordance with the intent of the Contract Documents.

43. The undersigned has notified the District in writing of any discrepancies or omissions or of any doubt, questions, or ambiguities about the meaning of any of the Contract Documents, and has contacted the Construction Manager before bid date to verify the issuance of any clarifying Addenda.

44. The undersigned agrees to commence work under this Contract on the date established in the Contract Documents and to complete all work within the time specified in the Contract Documents.

45. The liquidated damages clause of the General Conditions and Agreement is hereby acknowledged.

46. It is understood that the District reserves the right to reject this bid and that the bid shall remain open to acceptance and is irrevocable for a period of ninety (90) days.

47. The following documents are attached hereto:

- Bid Bond on the District's form or other security
- Designated Subcontractors List
- Site Visit Certification
- Non-Collusion Declaration

48. Receipt and acceptance of the following Addenda is hereby acknowledged:

No. _____, Dated _____	No. _____, Dated _____
No. _____, Dated _____	No. _____, Dated _____
No. _____, Dated _____	No. _____, Dated _____

49. Bidder acknowledges that the license required for performance of the Work is a _____ _____ license.

50. Bidder hereby certifies that Bidder is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the Work.

51. Bidder specifically acknowledges and understands that if it is awarded the Contract, that it shall perform the Work of the Project while complying with all requirements of the Department of Industrial Relations.

52. Bidder hereby certifies that its bid includes sufficient funds to permit Bidder to comply with all local, state or federal labor laws or regulations during the Project, including payment of prevailing wage, and that Bidder will comply with the provisions of Labor Code section 2810(d) if awarded the Contract

53. [Bidder agrees to comply with all requirements of the Project Labor Agreement].

54. Bidder specifically acknowledges and understands that if it is awarded the Contract, that it shall perform the Work of the Project while complying with the Davis Bacon Act, applicable reporting requirements, and any and all other applicable requirements for federal funding. If a conflict exists, the more stringent requirement shall control.

55. Bidder represents that it is competent, knowledgeable, and has special skills with respect to the nature, extent, and inherent conditions of the Work to be performed. Bidder further acknowledges that there are certain peculiar and inherent conditions existent in the construction of the Work that may create, during the Work, unusual or peculiar unsafe conditions hazardous to persons and property.

56. Bidder expressly acknowledges that it is aware of such peculiar risks and that it has the skill and experience to foresee and to adopt protective measures to adequately and safely perform the Work with respect to such hazards.

57. Bidder expressly acknowledges that it is aware that if a false claim is knowingly submitted (as the terms "claim" and "knowingly" are defined in the California False Claims Act, Gov. Code, § 12650 et seq.), the District will be entitled to civil remedies set forth in the California False Claim Act. It may also be considered fraud and the Contractor may be subject to criminal prosecution.

58. The undersigned Bidder certifies that it is, at the time of bidding, and shall be throughout the period of the Contract, licensed by the State of California to do the type of work required under the terms of the Contract Documents and registered as a public works contractor with the Department of Industrial Relations. Bidder further certifies that it is regularly engaged in the general class and type of work called for in the Contract Documents.

Furthermore, Bidder hereby certifies to the District that all representations, certifications, and statements made by Bidder, as set forth in this bid form, are true and correct and are made under penalty of perjury.

Dated this _____ day of _____ 20 ____

Name of Bidder: _____

Type of Organization: _____

Signed by: _____

Title of Signer: _____

Address of Bidder: _____

Taxpayer Identification No. of Bidder: _____

Telephone Number: _____

Fax Number: _____

E-mail: _____ Web Page: _____

Contractor's License No(s): No.: _____ Class: _____ Expiration Date: _____

No.: _____ Class:_____ Expiration Date: _____

No.: _____ Class:_____ Expiration Date: _____

Public Works Contractor Registration No.: _____

END OF DOCUMENT

DOCUMENT 00 43 13

BID BOND

(Note: If Bidder is providing a bid bond as its bid security, Bidder must use this form, NOT a surety company form.)

KNOW ALL PERSONS BY THESE PRESENTS:

That the undersigned,_____, as Principal ("Principal"),

and _____, as Surety ("Surety"), a corporation organized and existing under and by virtue of the laws of the State of California and authorized to do business as a surety in the State of California, are held and firmly bound unto the Downey Unified School District ("District") of Los Angeles County, State of California, as Obligee, in an amount equal to ten percent (10%) of the Base Bid plus alternates, in the sum of

_____ Dollars ($ _____)

lawful money of the United States of America, for the payment of which sum well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted a bid to the District for all Work specifically described in the accompanying bid for the following project: _____ ("Project" or "Contract").

NOW, THEREFORE, if the Principal is awarded the Contract and, within the time and manner required under the Contract Documents, after the prescribed forms are presented to Principal for signature, enters into a written contract, in the prescribed form in accordance with the bid, and files two bonds, one guaranteeing faithful performance and the other guaranteeing payment for labor and materials as required by law, and meets all other conditions to the Contract between the Principal and the Obligee becoming effective, or if the Principal shall fully reimburse and save harmless the Obligee from any damage sustained by the Obligee through failure of the Principal to enter into the written contract and to file the required performance and labor and material bonds, and to meet all other conditions to the Contract between the Principal and the Obligee becoming effective, then this obligation shall be null and void; otherwise, it shall be and remain in full force and effect. The full payment of the sum stated above shall be due immediately if Principal fails to execute the Contract within seven (7) days of the date of the District's Notice of Award to Principal.

Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or the call for bids, or to the work to be performed thereunder, or the specifications accompanying the same, shall in any way affect its obligation under this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or the call for bids, or to the work, or to the specifications.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorneys' fee to be fixed by the Court.

If the District awards the bid, the security of unsuccessful bidder(s) shall be returned within sixty (60) days from the time the award is made. Unless otherwise required by law, no bidder may withdraw its bid for ninety (90) days after the date of the bid opening.

IN WITNESS WHEREOF, this instrument has been duty executed by the Principal and Surety above named, on the _____ day of _____, 20___.

_____
Principal

_____
By

_____
Surety

_____
By

_____
Name of California Agent of Surety

_____
Address of California Agent of Surety

_____
Telephone Number of California Agent of Surety

Bidder must attach Power of Attorney and Certificate of Authority for Surety and a Notarial Acknowledgment for all Surety's signatures. The California Department of Insurance must authorize the Surety to be an admitted Surety Insurer.

END OF DOCUMENT

DOCUMENT 00 43 36

DESIGNATED SUBCONTRACTORS LIST
(Public Contact Code Sections 4100-4114)

PROJECT: _____

Bidder acknowledges and agrees that it must clearly set forth below the name, location and California contractor license number of each subcontractor who will perform work or labor or render service to the Bidder in or about the construction of the Work or who will specially fabricate and install a portion of the Work according to detailed drawings contained in the plans and specifications in an amount in excess of one-half of one percent (0.5%) of Bidder's total Base Bid and the kind of Work that each will perform. Vendors or suppliers of materials only do not need to be listed.

Bidder acknowledges and agrees that, if Bidder fails to list as to any portion of Work, or if Bidder lists more than one subcontractor to perform the same portion of Work, Bidder must perform that portion itself or be subjected to penalty under applicable law. In case more than one subcontractor is named for the same kind of Work, state the portion of the kind of Work that each subcontractor will perform.

If alternate bid(s) is/are called for and Bidder intends to use subcontractors different from or in addition to those subcontractors listed for work under the Base Bid, Bidder must list subcontractors that will perform Work in an amount in excess of one half of one percent (0.5%) of Bidder's total Base Bid plus alternate(s).

If further space is required for the list of proposed subcontractors, attach additional copies of page 2 showing the required information, as indicated below.

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Date: _____

Proper Name of Bidder: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 01

SITE VISIT CERTIFICATION

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID
IF SITE VISIT WAS MANDATORY

PROJECT: _____

Check option that applies:

_____ I certify that I visited the Site of the proposed Work, received the attached _____ pages of information, and became fully acquainted with the conditions relating to construction and labor. I fully understand the facilities, difficulties, and restrictions attending the execution of the Work under contract.

_____ I certify that _____ (Bidder's representative) visited the Site of the proposed Work, received the attached _____ pages of information, and became fully acquainted with the conditions relating to construction and labor. The Bidder's representative fully understood the facilities, difficulties, and restrictions attending the execution of the Work under contract.

Bidder fully indemnifies the Downey Unified School District, its Architect, its Engineers, its Construction Manager, and all of their respective officers, agents, employees, and consultants from any damage, or omissions, related to conditions that could have been identified during my visit and/or the Bidder's representative's visit to the Site.

I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Date: _____

Proper Name of Bidder: _____

Signature: _____

Print Name: _____

Title: _____

ATTACHMENTS:

1.

2.

3.

END OF DOCUMENT

DOCUMENT 00 45 19

NON-COLLUSION DECLARATION
(Public Contract Code Section 7106)

The undersigned declares:

I am the _____ of _____, the party making the foregoing bid.
[Title] [Name of Firm]

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. The bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder. All statements contained in the bid are true. The bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____,
[Date]

at _____, _____.
[City] [State]

Date: _____

Proper Name of Bidder: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 26

WORKERS' COMPENSATION CERTIFICATION

PROJECT/CONTRACT NO.: _____ between the Downey Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

Labor Code section 3700, in relevant part, provides:

> Every employer except the State shall secure the payment of compensation in one or more of the following ways:
>
> a. By being insured against liability to pay compensation by one or more insurers duly authorized to write compensation insurance in this state; and/or
>
> b. By securing from the Director of Industrial Relations a certificate of consent to self-insure, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his employees.

I am aware of the provisions of section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work of this Contract.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

(In accordance with Labor Code sections 1860 and 1861, the above certificate must be signed and filed with the awarding body prior to performing any Work under this Contract.)

END OF DOCUMENT

DOCUMENT 00 45 46.01

PREVAILING WAGE AND RELATED LABOR REQUIREMENTS CERTIFICATION

PROJECT/CONTRACT NO.: _____ between the Downey Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

I hereby certify that I will conform to the State of California Public Works Contract requirements regarding prevailing wages, benefits, on-site audits with 48-hours' notice, payroll records, and apprentice and trainee employment requirements, for all Work on the above Project including, without limitation, labor compliance monitoring and enforcement by the Department of Industrial Relations.

[IF THIS PROJECT USES FEDERAL FUNDS, DISTRICT SHOULD INCLUDE THE FOLLOWING] I hereby certify that I will also conform to the Federal Labor Standards Provisions regarding minimum wages, withholding, payrolls and basic records, apprentice and trainee employment requirements, equal employment opportunity requirements, Copeland Act requirements, Davis-Bacon and Related Act requirements, Contract Work Hours and Safety Standards Act requirements, and any and all other applicable requirements for federal funding for all Work on the above Project.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 46.02

DISABLED VETERAN BUSINESS ENTERPRISE PARTICIPATION CERTIFICATION

PROJECT/CONTRACT NO.: _____between the Downey Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

GENERAL INSTRUCTIONS

Section 17076.11 of the Education Code requires school districts using, or planning to use, funds allocated pursuant to the State of California School Facility Program ("Program") for the construction and/or modernization of school buildings to have a participation goal for disabled veteran business enterprises ("DVBE") of at least three percent (3%) per year of the overall dollar amount expended each year by the school district on projects that receive state funding. Therefore, the lowest responsive responsible Bidder awarded the Contract must submit this document to the District with its executed Agreement, identifying the steps contractor took to solicit DVBE participation in conjunction with this Contract. **Do not submit this form with your bids.**

PART I – Method of Compliance with DVBE Participation Goals. Check the appropriate box to indicate your method of committing the contract dollar amount.

YOUR BUSINESS ENTERPRISE IS:	**AND YOU WILL**	**AND YOU WILL**
A. ☐ Disabled veteran owned and your forces will perform at least 3% of this Contract	Include a copy of your DVBE letter from Office of Small Business and Disabled Veterans Business Enterprise Services ("OSDS")*	Complete Part 1 of this form and the Certification
B. ☐ Disabled veteran owned but is unable to perform 3% of this Contract with your forces	Use DVBE subcontractors /suppliers to bring the Contract participation to at least 3%	Include a copy of each DVBE's letter from OSDS (including yours, if applicable), and complete Part 1 of this form and the Certification
C. ☐ **NOT** disabled veteran owned	Use DVBE subcontractors /suppliers for at least 3% of this Contract	
D. ☐ Unable to meet the required participation goals after good faith efforts	Make good faith efforts, including contacts, advertisement and DVBE solicitation	Complete all of this form and the Certification

* A DVBE letter from OSDS is obtained from the participating DVBE.

You must complete the following table to show the dollar amount of DVBE participation:

	TOTAL CONTRACT PRICE
A. Prime Bidder, if DVBE (own participation)	$
B. DVBE Subcontractor or Supplier	
1.	
2.	
3.	
4.	
C. Subtotal (A & B)	
D. Non-DVBE	
E. Total Bid	

PART II – Contacts. To identify DVBE subcontractors/suppliers for participation in your contract, you must contact each of the following categories. You should contact several DVBE organizations.

CATEGORY	**TELEPHONE NUMBER**	**DATE CONTACTED**	**PERSON CONTACTED**
1. The District, if any			*
2. OSDS, provides assistance locating DVBEs at https://caleprocure.ca.gov/pages/PublicSearch/supplier-search.aspx	(916) 375-4940		*
3. DVBE Organization (List)			*

*Write "recorded message" in this column, if applicable.

PART III – Advertisement. You must advertise for DVBE participation in both a trade and focus paper. List the advertisement you place to solicit DVBE participation. Advertisements should be published at least fourteen (14) days prior to bid/proposal opening; if you cannot advertise fourteen (14) days prior, advertisements should be published as soon as possible. Advertisements must include that your firm is seeking DVBE participation, the project name and location, and your firm's name, your contact person, and telephone number. Attach copies of advertisements to this form.

FOCUS/TRADE PAPER NAME	**CHECK ONE**		**DATE OF ADVERTISEMENT**
	TRADE	**FOCUS**	

PART IV – DVBE Solicitations. List DVBE subcontractors/suppliers that were invited to bid. Use the following instructions to complete the remainder of this section (read the three columns as a sentence from left to right). If you need additional space to list DVBE solicitations, please use a separate page and attach to this form.

IF THE DVBE…..	**THEN…..**	**AND…..**
was selected to participate	Check "YES" in the "SELECTED" column	include a copy of their DVBE letter(s) from OSDS
was **NOT** selected to participate	Check "NO" in the "SELECTED" column	state why in the "REASON NOT SELECTED" column
did not respond to your solicitation	Check the "NO RESPONSE" column.	

DVBE CONTACTED	**SELECTED**		**REASON NOT SELECTED**	**NO RESPONSE**
	YES	**NO**		

A copy of this form must be retained by you and may be subject to a future audit.

CERTIFICATION

I, _____, certify that I am the bidder's _____ and that I have made a diligent effort to ascertain the facts with regard to the representations made herein. In making this certification, I am aware of section 12650 et seq. of the Government Code providing for the imposition of treble damages for making false claims.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 46.03

DRUG-FREE WORKPLACE CERTIFICATION

PROJECT/CONTRACT NO.: _____ between the Downey Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

This Drug-Free Workplace Certification form is required from the successful Bidder pursuant to Government Code section 8350 et seq., the Drug-Free Workplace Act of 1990. The Drug-Free Workplace Act of 1990 requires that every person or organization awarded a contract or grant for the procurement of any property or service from any state agency must certify that it will provide a drug-free workplace by doing certain specified acts. In addition, the Act provides that each contract or grant awarded by a state agency may be subject to suspension of payments or termination of the contract or grant, and the contractor or grantee may be subject to debarment from future contracting, if the contracting agency determines that specified acts have occurred.

The District is not a "state agency" as defined in the applicable section(s) of the Government Code, but the District is a local agency and public school district under California law and requires all contractors on District projects to comply with the provisions and requirements of the Drug-Free Workplace Act of 1990.

Contractor must also comply with the provisions of Health & Safety Code section 11362.3 which prohibits the consumption or possession of cannabis or cannabis products in any public place, including school grounds, and specifically on school grounds while children are present.

Contractor shall certify that it will provide a drug-free workplace by doing all of the following:

c. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in the person's or organization's workplace and specifying actions which will be taken against employees for violations of the prohibition.

d. Establishing a drug-free awareness program to inform employees about all of the following:

(1) The dangers of drug abuse in the workplace.

(2) The person's or organization's policy of maintaining a drug-free workplace.

(3) The availability of drug counseling, rehabilitation, and employee-assistance programs.

(4) The penalties that may be imposed upon employees for drug abuse violations.

e. Requiring that each employee engaged in the performance of the contract or grant be given a copy of the statement required above, and that, as a condition of employment on the contract or grant, the employee agrees to abide by the terms of the statement.

I, the undersigned, agree to fulfill the terms and requirements of Government Code section 8355 listed above and will publish a statement notifying employees concerning (a) the prohibition of controlled substance at the workplace, (b) establishing a drug-free awareness program, and (c) requiring that each employee engaged in the performance of the Contract be given a copy of the statement required by section 8355(a), and requiring that the employee agree to abide by the terms of that statement.

I also understand that if the District determines that I have either (a) made a false certification herein, or (b) violated this certification by failing to carry out the requirements of section 8355, that the Contract awarded herein is subject to termination, suspension of payments, or both. I further understand that, should I violate the terms of the Drug-Free Workplace Act of 1990, I may be subject to debarment in accordance with the requirements of the aforementioned Act.

I acknowledge that I am aware of the provisions of and hereby certify that I will adhere to the requirements of the Drug-Free Workplace Act of 1990 and Health and Safety Code section 11362.3.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 46.04

TOBACCO-FREE ENVIRONMENT CERTIFICATION

PROJECT/CONTRACT NO.: _____ between the Downey Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

This Tobacco-Free Environment Certification form is required from the successful Bidder.

Pursuant to, without limitation, 20 U.S.C. section 6083, Labor Code section 6400 et seq., Health & Safety Code section 104350 et seq., Business and Professions Code section 22950 et seq., and District Board policies, all District sites, including the Project site, are tobacco-free environments. Smoking and the use of tobacco products by all persons is prohibited on or in District property. District property includes school buildings, school grounds, school-owned vehicles and vehicles owned by others while on District property. The prohibition on smoking includes the use of any electronic smoking device that creates an aerosol or vapor, in any manner or in any form, and the use of any oral smoking device for the purpose of circumventing the prohibition of tobacco smoking. Further, Health & Safety Code section 11362.3 prohibits the smoking or use of cannabis or cannabis products in any place where smoking tobacco is prohibited.

I acknowledge that I am aware of the District's policy regarding tobacco-free environments at District sites, including the Project site and hereby certify that I will adhere to the requirements of that policy and not permit any of my firm's employees, agents, subcontractors, or my firm's subcontractors' employees or agents, to use tobacco and/or smoke on the Project site.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 46.05

HAZARDOUS MATERIALS CERTIFICATION

PROJECT/CONTRACT NO.: _____ between Downey Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

59. Contractor hereby certifies that no asbestos, or asbestos-containing materials, polychlorinated biphenyl (PCB), or any material listed by the federal or state Environmental Protection Agency or federal or state health agencies as a hazardous material, or any other material defined as being hazardous under federal or state laws, rules, or regulations, ("New Hazardous Material"), shall be furnished, installed, or incorporated in any way into the Project or in any tools, devices, clothing, or equipment used to affect any portion of Contractor's work on the Project for District.

60. Contractor further certifies that it has instructed its employees with respect to the above-mentioned standards, hazards, risks, and liabilities.

61. Asbestos and/or asbestos-containing material shall be defined as all items containing but not limited to chrysotile, crocidolite, amosite, anthophyllite, tremolite, and actinolite. Any or all material containing greater than one-tenth of one percent (0.1%) asbestos shall be defined as asbestos-containing material.

62. Any disputes involving the question of whether or not material is New Hazardous Material shall be settled by electron microscopy or other appropriate and recognized testing procedure, at the District's determination. The costs of any such tests shall be paid by Contractor if the material is found to be New Hazardous Material.

63. All Work or materials found to be New Hazardous Material or Work or material installed with equipment containing New Hazardous Material will be immediately rejected and this Work will be removed at Contractor's expense at no additional cost to the District.

64. Contractor has read and understood the document titled Hazardous Materials Procedures & Requirements, and shall comply with all the provisions outlined therein.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 46.06

LEAD-BASED MATERIALS CERTIFICATION

PROJECT/CONTRACT NO.: _____ between the Downey Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

This certification provides notice to the Contractor that:

(1) Contractor's work may disturb lead-containing building materials.

(2) Contractor shall notify the District if any work may result in the disturbance of lead-containing building materials.

(3) Contractor shall comply with the Renovation, Repair and Painting Rule, if lead-based paint is disturbed in a six-square-foot or greater area indoors or a 20-square-foot or greater area outdoors.

1. Lead as a Health Hazard

Lead poisoning is recognized as a serious environmental health hazard facing children today. Even at low levels of exposure, much lower than previously believed, lead can impair the development of a child's central nervous system, causing learning disabilities, and leading to serious behavioral problems. Lead enters the environment as tiny lead particles and lead dust disburses when paint chips, chalks, peels, wears away over time, or is otherwise disturbed. Ingestion of lead dust is the most common pathway of childhood poisoning; lead dust gets on a child's hands and toys and then into a child's mouth through common hand-to-mouth activity. Exposures may result from construction or remodeling activities that disturb lead paint, from ordinary wear and tear of windows and doors, or from friction on other surfaces.

Ordinary construction and renovation or repainting activities carried out without lead-safe work practices can disturb lead-based paint and create significant hazards. Improper removal practices, such as dry scraping, sanding, or water blasting painted surfaces, are likely to generate high volumes of lead dust.

Because the Contractor and its employees will be providing services for the District, and because the Contractor's work may disturb lead-containing building materials, CONTRACTOR IS HEREBY NOTIFIED of the potential presence of lead-containing materials located within certain buildings utilized by the District. All school buildings built prior to 1978 are presumed to contain some lead-based paint until sampling proves otherwise.

2. Overview of California Law

Education Code section 32240 et seq. is known as the Lead-Safe Schools Protection Act. Under this act, the Department of Health Services is to conduct a sample

survey of schools in the State of California for the purpose of developing risk factors to predict lead contamination in public schools. (Ed. Code, § 32241.)

Any school that undertakes any action to abate existing risk factors for lead is required to utilize trained and state-certified contractors, inspectors, and workers. (Ed. Code, § 32243, subd. (b).) Moreover, lead-based paint, lead plumbing, and solders, or other potential sources of lead contamination, shall not be utilized in the construction of any new school facility or the modernization or renovation of any existing school facility. (Ed. Code, § 32244.)

Both the Federal Occupational Safety and Health Administration ("Fed/OSHA") and the California Division of Occupational Safety and Health ("Cal/OSHA") have implemented safety orders applicable to all construction work where a contractor's employee may be occupationally exposed to lead.

The OSHA Regulations apply to all construction work where a contractor's employee may be occupationally exposed to lead. The OSHA Regulations contain specific and detailed requirements imposed on contractors subject to those regulations. The OSHA Regulations define construction work as work for construction, alteration, and/or repair, including painting and decorating. Regulated work includes, but is not limited to, the following:

a. Demolition or salvage of structures where lead or materials containing lead are present;

b. Removal or encapsulation of materials containing lead;

c. New construction, alteration, repair, or renovation of structures, substrates, or portions thereof, that contain lead, or materials containing lead;

d. Installation of products containing lead;

e. Lead contamination/emergency cleanup;

f. Transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed; and

g. Maintenance operations associated with the construction activities described in the subsection.

Because it is assumed by the District that all painted surfaces (interior as well as exterior) within the District contain some level of lead, it is imperative that the Contractor, its workers and subcontractors fully and adequately comply with all applicable laws, rules and regulations governing lead-based materials (including title 8, California Code of Regulations, section 1532.1).

Contractor shall notify the District if any Work may result in the disturbance of lead-containing building materials. Any and all Work that may result in the disturbance of lead-containing building materials shall be coordinated through the District. A signed copy of this Certification shall be on file prior

to beginning Work on the Project, along with all current insurance certificates.

3. Renovation, Repair and Painting Rule, Section 402(c)(3) of the Toxic Substances Control Act

   The EPA requires lead safe work practices to reduce exposure to lead hazards created by renovation, repair and painting activities that disturb lead-based paint. Pursuant to the Renovation, Repair and Painting Rule (RRP), renovations in homes, childcare facilities, and schools built prior to 1978 must be conducted by certified renovations firms, using renovators with training by a EPA-accredited training provider, and fully and adequately complying with all applicable laws, rules and regulations governing lead-based materials, including those rules and regulations appearing within title 40 of the Code of Federal Regulations as part 745 (40 CFR 745).

   The RRP requirements apply to all contractors who disturb lead-based paint in a six-square-foot or greater area indoors or a 20-square-foot or greater area outdoors. If a DPH-certified inspector or risk assessor determines that a home constructed before 1978 is lead-free, the federal certification is not required for anyone working on that particular building.

4. Contractor's Liability

   If the Contractor fails to comply with any applicable laws, rules, or regulations, and that failure results in a site or worker contamination, the Contractor will be held solely responsible for all costs involved in any required corrective actions, and shall defend, indemnify, and hold harmless the District, pursuant to the indemnification provisions of the Contract, for all damages and other claims arising therefrom.

   If lead disturbance is anticipated in the Work, only persons with appropriate accreditation, registrations, licenses, and training shall conduct this Work.

   It shall be the responsibility of the Contractor to properly dispose of any and all waste products, including, but not limited to, paint chips, any collected residue, or any other visual material that may occur from the prepping of any painted surface. It will be the responsibility of the Contractor to provide the proper disposal of any hazardous waste by a certified hazardous waste hauler. This company shall be registered with the Department of Transportation (DOT) and shall be able to issue a current manifest number upon transporting any hazardous material from any school site within the District.

   The Contractor shall provide the District with any sample results prior to beginning Work, during the Work, and after the completion of the Work. The District may request to examine, prior to the commencement of the Work, the lead training records of each employee of the Contractor.

THE CONTRACTOR HEREBY ACKNOWLEDGES, UNDER PENALTY OF PERJURY, THAT IT:

1. HAS RECEIVED NOTIFICATION OF POTENTIAL LEAD-BASED MATERIALS ON THE OWNER'S PROPERTY;

2. IS KNOWLEDGEABLE REGARDING AND WILL COMPLY WITH ALL APPLICABLE LAWS, RULES, AND REGULATIONS GOVERNING WORK WITH, AND DISPOSAL, OF LEAD.

THE UNDERSIGNED WARRANTS THAT HE/SHE HAS THE AUTHORITY TO SIGN ON BEHALF OF AND BIND THE CONTRACTOR. THE DISTRICT MAY REQUIRE PROOF OF SUCH AUTHORITY.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 46.07

IMPORTED MATERIALS CERTIFICATION

PROJECT/CONTRACT NO.: _____ between the Downey Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

This form shall be executed by all entities that, in any way, provide or deliver and/or supply any soils, aggregate, or related materials ("Fill") to the Project Site and shall be provided to the District at least ten (10) days before delivery. All Fill shall satisfy all requirements of any environmental review of the Project performed pursuant to the statutes and guidelines of the California Environmental Quality Act, section 21000 et seq. of the Public Resources Code ("CEQA"), and all requirements of section 17210 et seq. of the Education Code, including requirements for a Phase I environmental assessment acceptable to the State of California Department of Education and Department of Toxic Substances Control.

Certification of:
- □ Delivery Firm/Transporter
- □ Supplier
- □ Manufacturer
- □ Wholesaler
- □ Broker
- □ Retailer
- □ Distributor
- □ Other _____

Type of Entity
- □ Corporation
- □ General Partnership
- □ Limited Partnership
- □ Limited Liability Company
- □ Sole Proprietorship
- □ Other _____

Name of firm ("Firm"): _____

Mailing address: _____

Addresses of branch office used for this Project: _____

If subsidiary, name and address of parent company: _____

_____

By my signature below, I hereby certify that I am aware of section 25260 of the Health and Safety Code and the sections referenced therein regarding the definition of hazardous material. I further certify on behalf of the Firm that all soils, aggregates, or related materials provided, delivered, and/or supplied or that will be provided, delivered, and/or supplied by this Firm to the Project Site are free of any and all hazardous material as defined in section 25260 of the Health and Safety Code. I further certify that I am authorized to make this certification on behalf of the Firm.

Date: _____

Proper Name of Firm: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 46.08

CRIMINAL BACKGROUND INVESTIGATION /FINGERPRINTING CERTIFICATION

PROJECT/CONTRACT NO.: _____between the Downey Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

The undersigned does hereby certify to the governing board of the District as follows:

That I am a representative of the Contractor currently under contract with the District; that I am familiar with the facts herein certified; and that I am authorized and qualified to execute this certificate on behalf of Contractor.

Contractor certifies that it has taken at least one of the following actions with respect to the construction Project that is the subject of the Contract (check all that apply):

x The Contractor is a sole proprietor and intends to comply with the fingerprinting requirements of Education Code section 45125.1(k) with respect to all Contractor's employees who may have contact with District pupils in the course of providing services pursuant to the Contract, and hereby agrees to the District's preparation and submission of fingerprints such that the California Department of Justice may determine that none of those employees has been convicted of a felony, as that term is defined in Education Code section 45122.1. No work shall commence until such determination by DOJ has been made.

As an authorized District official, I am familiar with the facts herein certified, and am authorized to execute this certificate on behalf of the District and undertake to prepare and submit Contractor's fingerprints as if he or she was an employee of the District.

Date: _____

District Representative's Name and Title: _____

District Representative's Signature: _____

☐ The Contractor, who is not a sole proprietor, has complied with the fingerprinting requirements of Education Code section 45125.1 with respect to all Contractor's employees and all of its Subcontractors' employees who may have contact with District pupils in the course of providing services pursuant to the Contract, and the California Department of Justice has determined that none of those employees has been convicted of a felony, as that term is defined in Education Code section 45122.1. A complete and accurate list of Contractor's employees and of all of its subcontractors' employees who may come in contact with District pupils during the course and scope of the Contract is attached hereto; and/or

☐ Pursuant to Education Code section 45125.2, Contractor has installed or will install, prior to commencement of Work, a physical barrier at the Work Site, that will limit contact between Contractor's employees and District pupils at all times; and/or

☐ Pursuant to Education Code section 45125.2, Contractor certifies that all employees will be under the continual supervision of, and monitored by, an employee of the Contractor who the California Department of Justice has ascertained, or as described below, will ascertain, has not been convicted of a violent or serious felony. The name and title of the employee who will be supervising Contractor's and its subcontractors' employees is:

Name: _____

Title: _____

NOTE: If the Contractor is a sole proprietor, and elects the above option, Contractor must have the above-named employee's fingerprints prepared and submitted by the District, in accordance with Education Code section 45125.1(k). No work shall commence until such determination by DOJ has been made.

As an authorized District official, I am familiar with the facts herein certified, and am authorized to execute this certificate on behalf of the District and undertake to prepare and submit Contractor's fingerprints as if he or she was an employee of the District.

Date: _____

District Representative's Name and Title: _____

District Representative's Signature: _____

☐ *The Work on the Contract is either (i) at an unoccupied school site and no employee and/or subcontractor or supplier of any tier of the Contract shall come in contact with the District pupils or (ii) Contractor's employees or any subcontractor or supplier of any tier of the Contract will have only limited contact, if any, with District pupils and the District will take appropriate steps to protect the safety of any pupils that may come in contact with Consultant's employees, subcontractors or suppliers so that the fingerprinting and criminal background investigation requirements of Education Code section 45125.1 shall not apply to Contractor under the Contract.*

As an authorized District official, I am familiar with the facts herein certified, and am authorized to execute this certificate on behalf of the District.

Date: _____

District Representative's Name and Title: _____

District Representative's Signature: _____

Contractor's responsibility for background clearance extends to all of its employees, Subcontractors, and employees of Subcontractors coming into contact with District pupils regardless of whether they are designated as employees or acting as independent contractors of the Contractor.

Date: _____
Proper Name of Contractor: _____
Signature: _____

Print Name: _____

Title: _____

DOCUMENT 00 45 49

REGISTERED SUBCONTRACTORS LIST
(Labor Code Section 1771.1)

PROJECT: _____

Date Submitted (for Updates): _____

Contractor acknowledges and agrees that it must clearly set forth below the name and Department of Industrial Relations (DIR) registration number of each subcontractor **for all tiers** who will perform work or labor or render service to Contractor or its subcontractors in or about the construction of the Work **at least two (2) weeks before the subcontractor is scheduled to perform work**. This document is to be updated as all tiers of subcontractors are identified.

Contractor acknowledges and agrees that, if Contractor fails to list as to any subcontractor of any tier who performs any portion of Work, the Contract is subject to cancellation and the Contractor will be subjected to penalty under applicable law.

If further space is required for the list of proposed subcontractors, attach additional copies of page 2 showing the required information, as indicated below.

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

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Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Date: _____

Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 51 00

NOTICE OF AWARD

Dated: _____ 20__

To: _____ (Contractor)

To: _____
(Address)

From: Governing Board ("Board") of the Downey Unified School District ("District")

Re: _____, Project No. _____ ("Project").

Contractor has been awarded the Contract for the above-referenced Project on _____ _____, 20__, by action of the District's Board.

The Contract Price is _____ Dollars ($_____), and includes alternates _____.

Three (3) copies of each of the Contract Documents (except Drawings) accompany this Notice of Award. Three (3) sets of the Drawings will be delivered separately or otherwise made available. Additional copies are available at cost of reproduction.

You must comply with the following conditions precedent within **SEVEN (7)** calendar days of the date of this Notice of Award.

The Contractor shall execute and submit the following documents by 5:00 p.m. of the **SEVENTH (7th)** calendar day following the date of the Notice of Award.

a. Agreement: To be executed by successful Bidder. Submit three (3) copies, each bearing an original signature.

b. Escrow of Bid Documentation: This must include all required documentation. See the document titled Escrow Bid Documentation for more information.

c. Performance Bond (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.

d. Payment Bond (Contractor's Labor & Material Bond) (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.

e. Insurance Certificates and Endorsements as required.

f. Workers' Compensation Certification.

g. Prevailing Wage and Related Labor Requirements Certification.

h. Disabled Veteran Business Enterprise Participation Certification.

i. Drug-Free Workplace Certification.

j. Tobacco-Free Environment Certification.

k. Hazardous Materials Certification.

l. Lead-Based Materials Certification.

m. Imported Materials Certification.

n. Criminal Background Investigation/Fingerprinting Certification.

Failure to comply with these conditions within the time specified will entitle District to consider your bid abandoned, to annul this Notice of Award, and to declare your Bid Security forfeited, as well as any other rights the District may have against the Contractor.

After you comply with those conditions, District will return to you one fully signed counterpart of the Agreement.

DOWNEY UNIFIED SCHOOL DISTRICT

BY: _____

NAME: _____

TITLE: _____

END OF DOCUMENT

DOCUMENT 00 52 13

AGREEMENT

THIS AGREEMENT IS MADE AND ENTERED INTO THIS _____ DAY OF _____ _____, 20___, by and between the Downey Unified School District ("District") and _____ _____ ("Contractor") ("Agreement").

WITNESSETH: That the parties hereto have mutually covenanted and agreed, and by these presents do covenant and agree with each other, as follows:

5. **The Work**: Contractor agrees to furnish all tools, equipment, apparatus, facilities, labor, and material necessary to perform and complete in a good and workmanlike manner, the work of the following project:

   Columbus High School Welding Project

   ("Project" or "Contract" or "Work")

   It is understood and agreed that the Work shall be performed and completed as required in the Contract Documents including, without limitation, the Drawings and Specifications and submission of all documents required to secure funding or by the Division of the State Architect for close-out of the Project, under the direction and supervision of, and subject to the approval of, the District or its authorized representative.

6. **The Contract Documents**: The complete Contract consists of all Contract Documents as defined in the General Conditions and incorporated herein by this reference. Any and all obligations of the District and Contractor are fully set forth and described in the Contract Documents. All Contract Documents are intended to cooperate so that any Work called for in one and not mentioned in the other or vice versa is to be executed the same as if mentioned in all Contract Documents.

7. **Interpretation of Contract Documents**: Should any question arise concerning the intent or meaning of Contract Documents, including the Drawings or Specifications, the question shall be submitted to the District for interpretation. If a conflict exists in the Contract Documents, valid, written modifications, beginning with the most recent, shall control over this Agreement (if any), which shall control over the Special Conditions, which shall control over any Supplemental Conditions, which shall control over the General Conditions, which shall control over the remaining Division 0 documents, which shall control over Division 1 Documents which shall control over Division 2 through Division 49 documents, which shall control over figured dimensions, which shall control over large-scale drawings, which shall control over small-scale drawings. In the case of a discrepancy or ambiguity solely between and among the Drawings and Specifications, the discrepancy or ambiguity shall be resolved in favor of the interpretation that will provide District with the functionally complete and operable Project described in the Drawings and Specifications. In no case shall a document calling for lower quality and/or quantity material or workmanship control. The decision of the District in the matter shall be final.

8. **Time for Completion**: It is hereby understood and agreed that the Work under this Contract shall be completed within seventy-five (75) consecutive calendar days ("Contract Time") from the date specified in the District's Notice to Proceed.

9. **Completion - Extension of Time**: Should the Contractor fail to complete this Contract, and the Work provided herein, within the time fixed for completion, due allowance being made for the contingencies provided for herein, the Contractor shall become liable to the District for all loss and damage that the District may suffer on account thereof. The Contractor shall coordinate its Work with the Work of all other contractors. The District shall not be liable for delays resulting from Contractor's failure to coordinate its Work with other contractors in a manner that will allow timely completion of Contractor's Work. Contractor shall be liable for delays to other contractors caused by Contractor's failure to coordinate its Work with the Work of other contractors.

10. **Liquidated Damages**: Time is of the essence for all work under this Agreement. It is hereby understood and agreed that it is and will be difficult and/or impossible to ascertain and determine the actual damage that the District will sustain in the event of and by reason of Contractor's delay; therefore, Contractor agrees that it shall pay to the District the sum of one thousand dollars ($1,000.00) per day as liquidated damages for each and every day's delay beyond the time herein prescribed in finishing the Work.

    It is hereby understood and agreed that this amount is not a penalty.

    In the event that any portion of the liquidated damages is not paid to the District, the District may deduct that amount from any money due or that may become due the Contractor under this Agreement, and such deduction does not constitute a withholding or penalty. The District's right to assess liquidated damages is as indicated herein and in the General Conditions.

    The time during which the Contract is delayed for cause, as hereinafter specified, may extend the time of completion for a reasonable time as the District may grant, provided that Contractor has complied with the claims procedure of the Contract Documents. This provision does not exclude the recovery of damages by either party under other provisions in the Contract Documents.

11. **Loss Or Damage**: The District and its agents and authorized representatives shall not in any way or manner be answerable or suffer loss, damage, expense, or liability for any loss or damage that may happen to the Work, or any part thereof, or in or about the same during its construction and before acceptance, and the Contractor shall assume all liabilities of every kind or nature arising from the Work, either by accident, negligence, theft, vandalism, or any cause whatsoever; and shall hold the District and its agents and authorized representatives harmless from all liability of every kind and nature arising from accident, negligence, or any cause whatsoever.

12. **Limitation Of District Liability:** District's financial obligations under this Contract shall be limited to the payment of the compensation provided in this Contract. Notwithstanding any other provision of this Contract, in no event shall District be liable, regardless of whether any claim is based on contract or tort, for any special, consequential, indirect or incidental damages, including, but not limited to, lost

profits or revenue, lost bonding capacity, arising out of or in connection with this Contract for the services performed in connection with this Contract.

13. **Insurance and Bonds**: Prior to issuance of the Notice to Proceed by the District, Contractor shall provide all required certificates of insurance, insurance endorsements, and payment and performance bonds as evidence thereof.

14. **Prosecution of Work**: If the Contractor should neglect to prosecute the Work properly or fail to perform any provisions of this Contract, the District, may, pursuant to the General Conditions and without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

15. **Authority of Architect, Project Inspector, and DSA**: Contractor hereby acknowledges that the Architect(s), the Project Inspector(s), and the Division of the State Architect ("DSA") have authority to approve and/or suspend Work if the Contractor's Work does not comply with the requirements of the Contract Documents, Title 24 of the California Code of Regulations, and all applicable laws and regulations. The Contractor shall be liable for any delay caused by its non-compliant Work.

16. **Assignment of Contract**: Neither the Contract, nor any part thereof, nor any moneys due or to become due thereunder, may be assigned by the Contractor without the prior written approval of the District, nor without the written consent of the Surety on the Contractor's Performance Bond (the "Surety"), unless the Surety has waived in writing its right to notice of assignment.

17. **Classification of Contractor's License**: Contractor hereby acknowledges that it currently holds valid Type _____ Contractor's license(s) issued by the State of California, Contractors' State License Board, in accordance with division 3, chapter 9, of the Business and Professions Code and in the classification called for in the Contract Documents.

18. **Registration as Public Works Contractor**: The Contractor and all Subcontractors currently are registered as public works contractors with the Department of Industrial Relations, State of California, in accordance with Labor Code section 1771.1.

19. **Payment of Prevailing Wages**: The Contractor and all Subcontractors shall pay all workers on all Work performed pursuant to this Contract not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, for the type of work performed and the locality in which the work is to be performed within the boundaries of the District, pursuant to sections 1770 et seq. of the California Labor Code.

20. This Project is subject to labor compliance monitoring and enforcement by the Department of Industrial Relations pursuant to Labor Code section 1771.4 and Title 8 of the California Code of Regulations. Contractor specifically acknowledges and understands that it shall perform the Work of this Agreement while complying with all the applicable provisions of Division 2, Part 7, Chapter 1, of the Labor Code,

including, without limitation, the requirement that the Contractor and all of its Subcontractors shall timely submit complete and accurate electronic certified payroll records as required by the Contract Documents, or the District may not issue payment.

21. **Contract Price**: In consideration of the foregoing covenants, promises, and agreements on the part of the Contractor, and the strict and literal fulfillment of each and every covenant, promise, and agreement, and as compensation agreed upon for the Work and construction, erection, and completion as aforesaid, the District covenants, promises, and agrees that it will well and truly pay and cause to be paid to the Contractor in full, and as the full Contract Price and compensation for construction, erection, and completion of the Work hereinabove agreed to be performed by the Contractor, the following price:

_____ Dollars

($_____),

in lawful money of the United States, which sum is to be paid according to the schedule provided by the Contractor and accepted by the District and subject to additions and deductions as provided in the Contract. This amount supersedes any previously stated and/or agreed to amount(s).

22. **No Representations:** No representations have been made other than as set forth in writing in the Contract Documents, including this Agreement. Each of the Parties to this Agreement warrants that it has carefully read and understood the terms and conditions of this Agreement and all Contract Documents, and that it has not relied upon the representations or advice of any other Party or any attorney not its own.

23. **Entire Agreement:** The Contract Documents, including this Agreement, set forth the entire agreement between the parties hereto and fully supersede any and all prior agreements, understandings, written or oral, between the parties hereto pertaining to the subject matter thereof.

24. **Severability**: If any term, covenant, condition, or provision in any of the Contract Documents is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remainder of the provisions in the Contract Documents shall remain in full force and effect and shall in no way be affected, impaired, or invalidated thereby.

IN WITNESS WHEREOF, accepted and agreed on the date indicated above:

CONTRACTOR	**DOWNEY UNIFIED SCHOOL DISTRICT**
_____	_____
By: _____	By: _____
Title: _____	Title: _____

NOTE: If the party executing this Contract is a corporation, a certified copy of the by-laws, or of the resolution of the Board of Directors, authorizing the officers of said corporation to execute the Contract and the bonds required thereby must be attached hereto.

END OF DOCUMENT

DOCUMENT 00 55 00

NOTICE TO PROCEED

Dated: _____, 20___

TO: _____
("Contractor")

ADDRESS: _____

PROJECT:_____

PROJECT/CONTRACT NO.: _____ between the Downey Unified School District and Contractor ("Contract").

You are notified that the Contract Time under the above Contract will commence to run on _____, 20___. By that date, you are to start performing your obligations under the Contract Documents. In accordance with the Agreement executed by Contractor, the date of completion is _____, 20___.

You must submit the following documents by 5:00 p.m. of the TENTH (10th) calendar day following the date of this Notice to Proceed:

a. Contractor's preliminary schedule of construction.

b. Contractor's preliminary schedule of values for all of the Work.

c. Contractor's preliminary schedule of submittals, including Shop Drawings, Product Data, and Samples submittals

d. Contractor's Safety Plan specifically adapted for the Project.

e. Registered Subcontractors List: A complete subcontractors list for all tiers, including the name, address, telephone number, email address, facsimile number, California State Contractors License number, license classification, Department of Industrial Relations registration number, and monetary value of all Subcontracts.

Thank you. We look forward to a very successful Project.

DOWNEY UNIFIED SCHOOL DISTRICT

BY: _____

NAME: _____

TITLE: _____

END OF DOCUMENT

DOCUMENT 00 56 00

ESCROW BID DOCUMENTATION

1. Requirement to Escrow Bid Documentation

a. Contractor shall submit, within **SEVEN (7)** calendar days after the date of the Notice of Award, one copy of all documentary information received or generated by Contractor in preparation of bid prices for this Contract, as specified herein. This material is referred to herein as "Escrow Bid Documentation." The Escrow Bid Documentation of the Contractor will be held in escrow for the duration of the Contract.

b. Contractor agrees, as a condition of award of the Contract, that the Escrow Bid Documentation constitutes all written information used in the preparation of its bid, and that no other written bid preparation information shall be considered in resolving disputes or claims. Contractor also agrees that nothing in the Escrow Bid Documentation shall change or modify the terms or conditions of the Contract Documents.

c. The Escrow Bid Documentation will not be opened by District except as indicated herein. The Escrow Bid Documentation will be used only for the resolution of change orders and claims disputes.

d. Contractor's submission of the Escrow Bid Documentation, as with the bonds and insurance documents required, is considered an essential part of the Contract award. Should the Contractor fail to make the submission within the allowed time specified above, District may deem the Contractor to have failed to enter into the Contract, and the Contractor shall forfeit the amount of its bid security, accompanying the Contractor's bid, and District may award the Contract to the next lowest responsive responsible bidder.

e. NO PAYMENTS WILL BE MADE, NOR WILL DISTRICT ACCEPT PROPOSED CHANGE ORDERS UNTIL THE ABOVE REQUIRED INFORMATION IS SUBMITTED AND APPROVED.

f. The Escrow Bid Documentation shall be submitted in person by an authorized representative of the Contractor to the District.

2. Ownership of Escrow Bid Documentation

a. The Escrow Bid Documentation is, and shall always remain, the property of Contractor, subject to review by District, as provided herein.

b. Escrow Bid Documentation constitute trade secrets, not known outside Contractor's business, known only to a limited extent and only by a limited number of employees of Contractor, safeguarded while in Contractor's possession, extremely valuable to Contractor, and could be extremely valuable to Contractor's competitors by virtue of reflecting Contractor's contemplated techniques of construction. Subject to the provisions herein,

District agrees to safeguard the Escrow Bid Documentation, and all information contained therein, against disclosure to the fullest extent permitted by law.

3. Format and Contents of Escrow Bid Documentation

a. Contractor may submit Escrow Bid Documentation in its usual cost-estimating format; a standard format is not required. The Escrow Bid Documentation shall be submitted in the language (e.g., English) of the specification.

b. Escrow Bid Documentation must clearly itemize the estimated costs of performing the work of each bid item contained in the bid schedule, separating bid items into sub-items as required to present a detailed cost estimate and allow a detailed cost review. The Escrow Bid Documentation shall include all subcontractor bids or quotes, supplier bids or quotes, quantity takeoffs, crews, equipment, calculations of rates of production and progress, copies of quotes from subcontractors and suppliers, and memoranda, narratives, add/deduct sheets, and all other information used by the Contractor to arrive at the prices contained in the bid proposal. Estimated costs should be broken down into Contractor's usual estimate categories such as direct labor, repair labor, equipment ownership and operation, expendable materials, permanent materials, and subcontract costs as appropriate. Plant and equipment and indirect costs should be detailed in the Contractor's usual format. The Contractor's allocation of indirect costs, contingencies, markup, and other items to each bid item shall be identified.

c. All costs shall be identified. For bid items amounting to less than $10,000, estimated unit costs are acceptable without a detailed cost estimate, provided that labor, equipment, materials, and subcontracts, as applicable, are included and provided that indirect costs, contingencies, and markup, as applicable, are allocated.

d. Bid Documentation provided by District should not be included in the Escrow Bid Documentation unless needed to comply with the following requirements.

4. Submittal of Escrow Bid Documentation

a. The Escrow Bid Documentation shall be submitted by the Contractor in a sealed container within **SEVEN (7)** calendar days after the date of the Notice of Award. The container shall be clearly marked on the outside with the Contractor's name, date of submittal, project name and the words "Escrow Bid Documentation – Intended to be opened in the presence of Authorized Representatives of Both District and Contractor".

b. By submitting Escrow Bid Documentation, Contractor represents that the material in the Escrow Bid Documentation constitutes all the documentary information used in preparation of the bid and that the Contractor has personally examined the contents of the Escrow Bid Documentation container and has found that the documents in the container are complete.

c. If Contractor's proposal is based upon subcontracting any part of the work, each subcontractor whose total subcontract price exceeds 5 percent of the total contract price proposed by Contractor, shall provide separate Escrow Documents to be included with those of Contractor. Those documents shall be opened and examined in the same manner and at the same time as the examination described above for Contractor.

d. If Contractor wishes to subcontract any portion of the Work after award, District retains the right to require Contractor to submit Escrow Documents for the Subcontractor before the subcontract is approved.

5. Storage, Examination and Final Disposition of Escrow Bid Documentation

a. The Escrow Bid Documentation will be placed in escrow, for the life of the Contract, in a mutually agreeable institution. The cost of storage will be paid by Contractor for the duration of the project until final Contract payment. The storage facilities shall be the appropriate size for all the Escrow Bid Documentation and located conveniently to both District's and Contractor's offices.

b. The Escrow Bid Documentation shall be examined by both District and Contractor, at any time deemed necessary by either District or Contractor, to assist in the negotiation of price adjustments and change orders or the settlement of disputes and claims. In the case of legal proceedings, Escrow Bid Documentation shall be used subject to the terms of an appropriate protective order if requested by Contractor and ordered by a court of competent jurisdiction. Examination of the Escrow Bid Documentation is subject to the following conditions:

(1) As trade secrets, the Escrow Bid Documentation is proprietary and confidential to the extent allowed by law.

(2) District and Contractor shall each designate, in writing to the other party **SEVEN (7)** calendar days prior to any examination, the names of representatives who are authorized to examine the Escrow Bid Documentation. No other person shall have access to the Escrow Bid Documentation.

(3) Access to the documents may take place only in the presence of duly designated representatives of the District and Contractor. If Contractor fails to designate a representative or appear for joint examination on **SEVEN (7)** calendar days' notice, then the District representative may examine the Escrow Bid Documents alone upon an additional **THREE (3)** calendar days' notice if a representative of the Contractor does not appear at the time set.

(4) If a subcontractor has submitted sealed information to be included in the Escrow Bid Documents, access to those documents may take place only in the presence of a duly designated representative of the District, Contractor and that subcontractor. If that subcontractor fails to designate a representative or appear for joint examination on **SEVEN**

(7) calendar days' notice, then the District representative and/or the Contractor may examine the Escrow Bid Documentation without that subcontractor present upon an additional **THREE (3)** calendar days' notice if a representative of that subcontractor does not appear at the time set.

c. The Escrow Bid Documentation will be returned to Contractor at such time as the Contract has been completed and final settlement has been achieved.

END OF DOCUMENT

DOCUMENT 00 57 00

ESCROW AGREEMENT IN LIEU OF RETENTION
(Public Contact Code Section 22300)

(Note: Contractor must use this form.)

This Escrow Agreement in Lieu of Retention ("Escrow Agreement") is made and entered into this _____ day of _____, 20___, by and between the Downey Unified School District ("District"), whose address is 11627 Brookshire Avenue , Downey , California 90241 , and _____ ("Contractor"), whose address is _____ , and _____ ("Escrow Agent"), a state or federally chartered bank in the state of California, whose address is _____.

For the consideration hereinafter set forth, District, Contractor, and Escrow Agent agree as follows:

25. Pursuant to section 22300 of Public Contract Code of the State of California, which is hereby incorporated by reference, Contractor has the following two (2) options:

    ☐ Deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by District pursuant to the Construction Contract No.___ entered into between District and Contractor for the _____ _____ Project, in the amount of _____ Dollars ($_____) dated, _____, 20_____, (the "Contract"); **or**

    ☐ On written request of Contractor, District shall make payments of the retention earnings for the above referenced Contract directly to Escrow Agent.

    When Contractor deposits the securities as a substitute for Contract earnings (first option), Escrow Agent shall notify District within ten (10) calendar days of the deposit. The market value of the securities at the time of substitution and at all times from substitution until the termination of the Escrow Agreement shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between District and Contractor.

    Securities shall be held in the name of Downey Unified School District, and shall designate Contractor as beneficial owner.

26. District shall make progress payments to Contractor for those funds which otherwise would be withheld from progress payments pursuant to Contract provisions, provided that Escrow Agent holds securities in form and amount specified above.

27. When District makes payment of retentions earned directly to Escrow Agent, Escrow Agent shall hold them for the benefit of Contractor until the time that the escrow created under this Escrow Agreement is terminated. Contractor may direct the investment of the payments into securities. All terms and conditions of this Escrow Agreement and the rights and responsibilities of the Parties shall be equally applicable and binding when District pays Escrow Agent directly.

28. Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account, and all expenses of District. The District will charge Contractor $_____ for each of District's deposits to the escrow account. These expenses and payment terms shall be determined by District, Contractor, and Escrow Agent.

29. Interest earned on securities or money market accounts held in escrow and all interest earned on that interest shall be for sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to District.

30. Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from District to Escrow Agent that District consents to withdrawal of amount sought to be withdrawn by Contractor.

31. District shall have the right to draw upon the securities and/or withdraw amounts from the Escrow Account in the event of default by Contractor. Upon seven (7) days' written notice to Escrow Agent from District of the default, if applicable, Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by District. Escrow Agent shall not be authorized to determine the validity of any notice of default given by District pursuant to this paragraph, and shall promptly comply with District's instructions to pay over said escrowed assets. Escrow Agent further agrees to not interplead the escrowed assets in response to a conflicting demand.

32. Upon receipt of written notification from District certifying that the Contract is final and complete, and that Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all monies and securities on deposit and payments of fees and charges.

33. Escrow Agent shall rely on written notifications from District and Contractor pursuant to Paragraphs 5 through 8, inclusive, of this Escrow Agreement and District and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of securities and interest as set forth above.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

34. Names of persons who are authorized to give written notice or to receive written notice on behalf of District and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

On behalf of District:	On behalf of Contractor:
Title	Title
Name	Name
Signature	Signature
Address	Address

On behalf of Escrow Agent:

Title

Name

Signature

Address

At the time that the Escrow Account is opened, District and Contractor shall deliver to Escrow Agent a fully executed copy of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

On behalf of District:	On behalf of Contractor:
Title	Title
Name	Name
Signature	Signature
Address	Address

END OF DOCUMENT

DOCUMENT 00 61 13.13

PERFORMANCE BOND
(100% of Contract Price)

(Note: Contractor must use this form, NOT a surety company form.)

KNOW ALL PERSONS BY THESE PRESENTS:

WHEREAS, the governing board ("Board") of the Downey Unified School District, ("District") and ___ _____ ("Principal") have entered into a contract for the furnishing of all materials and labor, services and transportation, necessary, convenient, and proper to perform the following project:

Columbus High School Welding Project

("Project" or "Contract") which Contract dated _____, 20___, and all of the Contract Documents attached to or forming a part of the Contract, are hereby referred to and made a part hereof; and

WHEREAS, said Principal is required under the terms of the Contract to furnish a bond for the faithful performance of the Contract.

NOW, THEREFORE, the Principal and _____ _____ ("Surety") are held and firmly bound unto the Board of the District in the penal sum of

_____

Dollars ($_____), lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents, to:

- Promptly perform all the work required to complete the Project; and

- Pay to the District all damages the District incurs as a result of the Principal's failure to perform all the Work required to complete the Project.

Or, at the District's sole discretion and election, the Surety shall obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by the District of the lowest responsible bidder, arrange for a contract between such bidder and the District and make available as Work progresses sufficient funds to pay the cost of completion less the "balance of the Contract Price," and to pay and perform all obligations of Principals under the Contract, including, without limitation, all obligations with respect to warranties, guarantees and the payment of liquidated damages. The term "balance of the Contract Price," as used in this paragraph, shall mean the total amount payable to Principal by the District under the Contract and any modifications thereto, less the amount previously paid by the District to the Principal, less any withholdings by the District allowed under the Contract. District shall not be required or obligated to accept a tender of a completion contractor from the Surety for any or no reason.

The condition of the obligation is such that, if the above bound Principal, its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions, and agreements in the Contract and any alteration thereof made as therein provided, on its part to be kept and performed at the time and in the intent and meaning, including all contractual guarantees and warrantees of materials and workmanship, and shall indemnify and save harmless the District, its trustees, officers and agents, as therein stipulated, then this obligation shall become null and void, otherwise it shall be and remain in full force and virtue.

Surety expressly agrees that the District may reject any contractor or subcontractor proposed by Surety to fulfill its obligations in the event of default by the Principal. Surety shall not utilize Principal in completing the Work nor shall Surety accept a Bid from Principal for completion of the Work if the District declares the Principal to be in default and notifies Surety of the District's objection to Principal's further participation in the completion of the Work.

As a condition precedent to the satisfactory completion of the Contract, the above obligation shall hold good for a period equal to the warranty and/or guarantee period of the Contract, during which time Surety's obligation shall continue if Contractor shall fail to make full, complete, and satisfactory repair and replacements and totally protect the District from loss or damage resulting from or caused by defective materials or faulty workmanship. The obligations of Surety hereunder shall continue so long as any obligation of Contractor remains. Nothing herein shall limit the District's rights or the Contractor or Surety's obligations under the Contract, law or equity, including, but not limited to, California Code of Civil Procedure section 337.15.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond. The Surety also stipulates and agrees that it shall not be exonerated or released from the obligation of this bond by any overpayment or underpayment by the District that is based upon estimates approved by the Architect. The Surety does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work or to the specifications.

IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety above named, on the _____ day of _____, 20___.

Principal	Surety
By	By
	Name of California Agent of Surety
	Address of California Agent of Surety
	Telephone No. of California Agent of Surety

Contractor must attach a Notarial Acknowledgment for all Surety's signatures and a Power of Attorney and Certificate of Authority for Surety. The California Department of Insurance must authorize the Surety to be an admitted surety insurer.

END OF DOCUMENT

DOCUMENT 00 61 13.16

PAYMENT BOND
Contractor's Labor & Material Bond
(100% Of Contract Price)

(Note: Contractor must use this form, NOT a surety company form.)

KNOW ALL PERSONS BY THESE PRESENTS:

WHEREAS, the governing board ("Board") of the Downey Unified School District, ("District") and _____, ("Principal") have entered into a contract for the furnishing of all materials and labor, services and transportation, necessary, convenient, and proper to perform the following project:

Columbus High School Welding Project

("Project" or "Contract") which Contract dated _____, 20___, and all of the Contract Documents attached to or forming a part of the Contract, are hereby referred to and made a part hereof; and

WHEREAS, pursuant to law and the Contract, the Principal is required, before entering upon the performance of the work, to file a good and sufficient bond with the body by which the Contract is awarded in an amount equal to one hundred percent (100%) of the Contract price, to secure the claims to which reference is made in sections 9000 through 9510 and 9550 through 9566 of the Civil Code, and division 2, part 7, of the Labor Code.

NOW, THEREFORE, the Principal and _____ _____ ("Surety") are held and firmly bound unto all laborers, material men, and other persons referred to in said statutes in the sum of _____ Dollars ($_____), lawful money of the United States, being a sum not less than the total amount payable by the terms of Contract, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, or assigns, jointly and severally, by these presents.

The condition of this obligation is that if the Principal or any of its subcontractors, or their heirs, executors, administrators, successors, or assigns of any, all, or either of them shall fail to pay for any labor, materials, provisions, or other supplies, used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Principal or any of his or its subcontractors of any tier under Section 13020 of the Unemployment Insurance Code with respect to such work or labor, that the Surety will pay the same in an amount not exceeding the amount herein above set forth, and also in case suit is brought upon this bond, will pay a reasonable attorney's fee to be awarded and fixed by the court, and to be taxed as costs and to be included in the judgment therein rendered.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies, and corporations entitled to file claims under section 9100 of

the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

Should the condition of this bond be fully performed, then this obligation shall become null and void; otherwise it shall be and remain in full force and affect.

And the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of Contract or the specifications accompanying the same shall in any manner affect its obligations on this bond, and it does hereby waive notice of any such change, extension, alteration, or addition.

IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety above named, on the _____ day of _____, 20___.

Principal	Surety
By	By
	Name of California Agent of Surety
	Address of California Agent of Surety
	Telephone No. of California Agent of Surety

Contractor must attach a Notarial Acknowledgment for all Surety's signatures and a Power of Attorney and Certificate of Authority for Surety. The California Department of Insurance must authorize the Surety to be an admitted surety insurer.

END OF DOCUMENT

DOCUMENT 00 63 40

ALLOWANCE EXPENDITURE DIRECTIVE FORM

Downey Unified School District
11627 Brookshire Avenue
Downey , CA 90241

ALLOWANCE EXPENDITURE DIRECTIVE NO.:

ALLOWANCE EXPENDITURE DIRECTIVE

Project: _____ **Date: _____**
DSA File No.:_____
Bid No.: _____ **DSA Appl. No._____**

The following parties agree to the terms of this Allowance Expenditure Directive ("AED"):

Owner Name, Address, Telephone:

_____
_____
_____

Contractor Name, Address, Telephone:

_____
_____
_____

Reference	**Description**	**Allowance Authorized for Expenditure**
Request for AED # Requested by: Performed by: Reason:	[Description of unforeseen item relating to Work] [Requester] [Performer] [Reason]	$
Request for AED # Requested by: Performed by: Reason:	[Description of unforeseen item relating to Work] [Requester] [Performer] [Reason]	$
Request for AED # Requested by: Performed by: Reason:	[Description of unforeseen item relating to Work] [Requester] [Performer] [Reason]	$

Total Contract Allowance Amount:	$
Amount of Previously Approved Allowance Expenditure Directive(s):	$

Amount of this Allowance Expenditure Directive:	$

The undersigned Contractor approves the foregoing release of allowance for completion of each specified item, and agrees to furnish all labor, materials and services and perform all work necessary to complete any additional work specified for the consideration stated therein ("Work"). Submission of sums which have no basis in fact or which Contractor knows are false are at the sole risk of Contractor and may be a violation of the False Claims Act set forth under Government Code section 12650, et seq.

This Allowance Expenditure Directive must be signed by an authorized District representative.

It is expressly understood that the authorized allowance expenditure granted herein represent a full accord and satisfaction for any and all cost impacts of the items herein, and Contractor waives any and all further compensation based on the items herein. The value of the extra work or changes expressly includes any and all of the Contractor's costs and expenses, and its subcontractors, both direct and indirect. Any costs, expenses, or damages not included are deemed waived.

Signatures:

DISTRICT: DOWNEY UNIFIED SCHOOL DISTRICT Date: _____ By:_____ [Print Name and Title here]	**CONTRACTOR:** _____ Date: _____ By:_____ [Print Name and Title here]
ARCHITECT: _____ Date: _____ By:_____ [Print Name and Title here]	**PROJECT INSPECTOR:** _____ Date: _____ By:_____ [Print Name and Title here]

END OF DOCUMENT

DOCUMENT 00 63 57

PROPOSED CHANGE ORDER FORM

Downey Unified School District
11627 Brookshire Avenue
Downey , CA 90241

PCO NO.:

Project: _____
Bid No.: _____
RFI #:_____

Date: _____
DSA File No.: _____
DSA Appl. No.:_____

Contractor hereby submits for District's review and evaluation this Proposed Change Order ("PCO"), submitted in accordance with and subject to the terms of the Contract Documents, including Sections 17.7 and 17.8 of the General Conditions. Any spaces left blank below are deemed no change to cost or time.

Contractor understands and acknowledges that documentation supporting Contractor's PCO must be attached and included for District review and evaluation. Contractor further understands and acknowledges that failure to include documentation sufficient to, in District's discretion, support some or all of the PCO, shall result in a rejected PCO.

	WORK PERFORMED OTHER THAN BY CONTRACTOR	**ADD**	**DEDUCT**
(a)	**Material** (attach suppliers' invoice or itemized quantity and unit cost plus sales tax)		
(b)	**Add Labor** (attach itemized hours and rates, fully encumbered)		
(c)	**Add Equipment** (attach suppliers' invoice)		
(d)	**Subtotal**		
(e)	**Add overhead and profit for any and all tiers of Subcontractor**, the total not to exceed ten percent (10%) of Item (d)		
(f)	**Subtotal**		
(g)	**Add Overhead and Profit for Contractor**, not to exceed five percent (5%) of Item (f)		
(h)	**Subtotal**		
(i)	**Add Bond and Insurance**, not to exceed one and a half percent (1.5%) of Item (h)		
(j)	**TOTAL**		
(k)	**Time** (zero unless indicated; "TBD" not permitted)	**_____ Calendar Days**	

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	WORK PERFORMED BY CONTRACTOR	**ADD**	**DEDUCT**
(a)	**Material** (attach itemized quantity and unit cost plus sales tax)		
(b)	**Add Labor** (attach itemized hours and rates, fully encumbered)		
(c)	**Add Equipment** (attach suppliers' invoice)		
(d)	**Subtotal**		
(e)	**Add Overhead and Profit for Contractor**, not to exceed fifteen percent (15%) of Item (d)		
(f)	**Subtotal**		
(g)	**Add Bond and Insurance**, not to exceed one and a half percent (1.5%) of Item (f)		
(h)	**TOTAL**		
(i)	**Time** (zero unless indicated; "TBD" not permitted)	**____ Calendar Days**	

The undersigned Contractor approves the foregoing as to the changes, if any, to the Contract Price specified for each item, and as to the extension of time allowed, if any, for completion of the entire Work as stated herein, and agrees to furnish all labor, materials, and service, and perform all work necessary to complete any additional work specified for the consideration stated herein. Submission of sums which have no basis in fact or which Contractor knows are false are at the sole risk of Contractor and may be a violation of the False Claims Act set forth under Government Code section 12650 et seq. It is understood that the changes herein to the Contract shall only be effective when approved by the governing board of the District.

It is expressly understood that the value of the extra Work or changes expressly includes any and all of the Contractor's costs and expenses, direct and indirect, resulting from additional time required on the Project or resulting from delay to the Project including, without limitation, cumulative impacts. Contractor is not entitled to separately recover amounts for overhead or other indirect costs. Any costs, expenses, damages, or time extensions not included are deemed waived.

SUBMITTED BY:

Contractor:

_____ _____

[Name] Date

END OF DOCUMENT

DOCUMENT 00 63 63

CHANGE ORDER FORM

Downey Unified School District
11627 Brookshire Avenue
Downey , CA 90241

CHANGE ORDER NO.:

CHANGE ORDER

Project: _____
Bid No.: _____

Date: _____
DSA File No.: _____
DSA Appl. No.:_____

The following parties agree to the terms of this Change Order:

Owner: _____
[Name / Address]
_____
_____

Contractor: _____
[Name / Address]
_____
_____

Architect: _____
[Name / Address]
_____
_____

Project Inspector: _____
[Name / Address]
_____
_____

Reference	**Description**	**Cost**	**Days Ext.**
PCO # Requested by: Performed by: Reason:	[Description of change] [Requester] [Performer] [Reason]	$	
PCO # Requested by: Performed by: Reason:	[Description of change] [Requester] [Performer] [Reason]	$	
PCO # Requested by: Performed by: Reason:	[Description of change] [Requester] [Performer] [Reason]	$	

Contract time will be adjusted as follows: Previous Completion Date: [Date] _____[#] Calendar Days Extension (zero unless otherwise indicated) Current Completion Date: [Date]	Original Contract Amount:	$
	Amount of Previously Approved Change Order(s):	$
	Amount of this Change Order:	$
	Contract Amount:	$

The undersigned Contractor approves the foregoing as to the changes, if any, to the Contract Price specified for each item, and as to the extension of time allowed, if any, for completion of the entire work as stated therein, and agrees to furnish all labor, materials and services and perform all work necessary to complete any additional work specified for the consideration stated therein. Submission of sums which have no basis in fact or which Contractor knows are false are at the sole risk of Contractor and may be a violation of the False Claims Act set forth under Government Code section 12650 et seq.

This change order is subject to approval by the governing board of this District and must be signed by the District. Until such time as this change order is approved by the District's governing board and executed by a duly authorized District representative, this change order is not effective and not binding.

It is expressly understood that the compensation and time, if any, granted herein represent a full accord and satisfaction for any and all time and cost impacts of the items herein, and Contractor waives any and all further compensation or time extension based on the items herein. The value of the extra work or changes expressly includes any and all of the Contractor's costs and expenses, and its subcontractors, both direct and indirect, resulting from additional time required on the project or resulting from delay to the project including without limitation, cumulative impacts. Any costs, expenses, damages or time extensions not included are deemed waived.

Signatures:

District:		Contractor:	
[Name]	Date	[Name]	Date
Architect:		Project Inspector:	
[Name]	Date	[Name]	Date

END OF DOCUMENT

DOCUMENT 00 65 19.26

AGREEMENT AND RELEASE OF ANY AND ALL CLAIMS

THIS AGREEMENT AND RELEASE OF CLAIMS ("Agreement and Release") IS MADE AND ENTERED INTO THIS _____ DAY OF _____, 20___ by and between the DOWNEY UNIFIED SCHOOL DISTRICT ("District") and _____ _____ ("Contractor"), whose place of business is _____ _____.

RECITALS

WHEREAS, District and Contractor entered into PROJECT/CONTRACT NO.: _____ _____ ("Contract" or "Project") in the County of Los Angeles , California; and

WHEREAS, the Work under the Contract was completed on _____, and a Notice of Completion was recorded with the County Recorder on _____.

NOW, THEREFORE, it is mutually agreed between District and Contractor as follows:

AGREEMENT AND RELEASE

35. Contractor will only be assessed liquidated damages as detailed below:

Original Contract Sum	$_____
Modified Contract Sum	$_____
Payment to Date	$_____
Liquidated Damages	$_____
Payment Due Contractor	$_____

36. Subject to the provisions hereof, District shall forthwith pay to Contractor the undisputed sum of _____ Dollars ($_____) under the Contract, less any amounts represented by any notice to withhold funds on file with District as of the date of such payment.

37. Contractor acknowledges and hereby agrees that there are no unresolved or outstanding claims in dispute against District arising from the performance of work under the Contract, except for the claims described in Paragraph 4 and continuing obligations described in Paragraph 6. It is the intention of the parties in executing this Agreement and Release that this Agreement and Release shall be effective as a full, final and general release of all claims, demands, actions, causes of action, obligations, costs, expenses, damages, losses and liabilities of Contractor against District and all of its respective agents, employees, trustees, inspectors, assignees, consultants and transferees, except for any Disputed Claim that may be set forth in Paragraph 4 and the continuing obligations described in Paragraph 6 hereof.

38. The following claims are disputed (hereinafter, the "Disputed Claims") and are specifically excluded from the operation of this Agreement and Release:

Claim No.	Description of Claim	Amount of Claim	Date Claim Submitted
_____	_____	$_____	_____
_____	_____	$_____	_____
_____	_____	$_____	_____
_____	_____	$_____	_____
_____	_____	$_____	_____
_____	_____	$_____	_____

[If further space is required, attach additional sheets showing the required information.]

39. Consistent with California Public Contract Code section 7100, Contractor hereby agrees that, in consideration of the payment set forth in Paragraph 2 hereof, Contractor hereby releases and forever discharges District, all its agents, employees, inspectors, assignees, and transferees from any and all liability, claims, demands, actions, or causes of action of whatever kind or nature arising out of or in any way concerned with the Work under the Contract.

40. Guarantees and warranties for the Work, and any other continuing obligation of Contractor, including without limitation, the duty to defend, indemnify and hold harmless the District, shall remain in full force and effect as specified in the Contract Documents.

41. Contractor hereby waives the provisions of California Civil Code section 1542 which provides as follows:

> A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS THAT THE CREDITOR OR RELEASING PARTY DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE AND THAT, IF KNOWN BY HIM OR HER, WOULD HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR OR RELEASED PARTY.

42. The provisions of this Agreement and Release are contractual in nature and not mere recitals and shall be considered independent and severable. If any such provision or any part thereof shall be at any time held invalid in whole or in part under any federal, state, county, municipal, or other law, ruling, or regulations, then such provision, or part thereof, shall remain in force and effect to the extent permitted by law, and the remaining provisions of this Agreement and Release shall also remain in full force and effect, and shall be enforceable.

43. All rights of District shall survive completion of the Work or termination of Contract, and execution of this Release.

* * * CAUTION: THIS IS A RELEASE - READ BEFORE EXECUTING * * *

DOWNEY UNIFIED SCHOOL DISTRICT

Signature: _____

Print Name: _____

Title: _____

CONTRACTOR: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 65 36

GUARANTEE FORM

_____ ("Contractor") hereby agrees that the _____ _____ ("Work" of Contractor) which Contractor has installed for the Downey Unified School District ("District") for the following project:

PROJECT: Columbus High School Welding Project

("Project" or "Contract") has been performed in accordance with the requirements of the Contract Documents and that the Work as installed will fulfill the requirements of the Contract Documents.

The undersigned agrees to repair or replace any or all of such Work that may prove to be defective in workmanship or material together with any other adjacent Work that may be displaced in connection with such replacement within a period of one year(s) from the date of completion as defined in Public Contract Code section 7107, subdivision (c), ordinary wear and tear and unusual abuse or neglect excepted. The date of completion is _____, 20___.

In the event of the undersigned's failure to comply with the above-mentioned conditions within a reasonable period of time, as determined by the District, but not later than seven (7) days after being notified in writing by the District, the undersigned authorizes the District to proceed to have said defects repaired and made good at the expense of the undersigned. The undersigned shall pay the costs and charges therefor upon demand.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

Representatives to be contacted for service subject to terms of Contract:

Name: _____

Address: _____

Phone No.: _____

Email: _____

END OF DOCUMENT

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GENERAL CONDITIONS

1. CONTRACT TERMS AND DEFINITIONS

1.1 Definitions

Wherever used in the Contract Documents, the following terms shall have the meanings indicated, which shall be applicable to both the singular and plural thereof:

1.1.1 Adverse Weather: Shall be only weather that satisfies all of the following conditions: (1) unusually severe precipitation, sleet, snow, hail, or extreme temperature conditions in excess of the norm for the location and time of year it occurred based on the closest weather station data averaged over the past five years, (2) that is unanticipated and would cause unsafe work conditions and/or is unsuitable for scheduled work that should not be performed during inclement weather (i.e., exterior finishes), and (3) at the Project.

1.1.2 Allowance Expenditure Directive: Written authorization for expenditure of allowance, if any.

1.1.3 Approval, Approved, and/or Accepted: Written authorization, unless stated otherwise.

1.1.4 Architect (or "Design Professional in General Responsible Charge"): The individual, partnership, corporation, joint venture, or any combination thereof, named as Architect, who will have the rights and authority assigned to the Architect in the Contract Documents. The term Architect means the Design Professional in General Responsible Charge as defined in DSA PR 13-02 on this Project or the Architect's authorized representative.

1.1.5 As-Builts: Reproducible blue line prints of drawings to be prepared on a monthly basis pursuant to the Contract Documents, that reflect changes made during the performance of the Work, recording differences between the original design of the Work and the Work as constructed since the preceding monthly submittal. See **Record Drawings**.

1.1.6 Bidder: A contractor who intends to provide a proposal to the District to perform the Work of this Contract.

1.1.7 Change Order: A written order to the Contractor authorizing an addition to, deletion from, or revision in the Work, and/or authorizing an adjustment in the Contract Price or Contract Time.

1.1.8 Claim: A Dispute that remains unresolved at the conclusion of the all the applicable Dispute Resolution requirements provided herein.

1.1.9 Construction Change Directive: A written order prepared and issued by the District, the Construction Manager, and/or the Architect and signed by the District and the Architect, directing a change in the Work.

1.1.10 Construction Manager: The individual, partnership, corporation, joint venture, or any combination thereof, or its authorized representative, named as such by the District. If no Construction Manager is used on the Project that is the subject of this Contract, then all references to Construction Manager herein shall be read to refer to District.

1.1.11 Construction Schedule: The progress schedule of construction of the Project as provided by Contractor and approved by District.

1.1.12 Contract, Contract Documents: The Contract consists exclusively of the documents evidencing the agreement of the District and Contractor, identified as the Contract Documents. The Contract Documents consist of the following documents:

1.1.12.1 Notice to Bidders
1.1.12.2 Instructions to Bidders
1.1.12.3 Bid Form and Proposal
1.1.12.4 Bid Bond
1.1.12.5 Designated Subcontractors List
1.1.12.6 Site Visit Certification (if a site visit was required)
1.1.12.7 Non-Collusion Declaration
1.1.12.8 Notice of Award
1.1.12.9 Notice to Proceed
1.1.12.10 Agreement
1.1.12.11 Escrow of Bid Documentation
1.1.12.12 Escrow Agreement for Security Deposits in Lieu of Retention (if applicable)
1.1.12.13 Performance Bond
1.1.12.14 Payment Bond (Contractor's Labor & Material Bond)
1.1.12.15 General Conditions
1.1.12.16 Special Conditions (if applicable)
1.1.12.17 Project Labor Agreement (if applicable)
1.1.12.18 Hazardous Materials Procedures and Requirements
1.1.12.19 Workers' Compensation Certification
1.1.12.20 Prevailing Wage Certification
1.1.12.21 Disabled Veteran Business Enterprise Participation Certification (if applicable)
1.1.12.22 Drug-Free Workplace Certification (if applicable)
1.1.12.23 Tobacco-Free Environment Certification
1.1.12.24 Hazardous Materials Certification (if applicable)
1.1.12.25 Lead-Based Materials Certification (if applicable)
1.1.12.26 Imported Materials Certification (if applicable)
1.1.12.27 Criminal Background Investigation/Fingerprinting Certification
1.1.12.28 Buy American Certification (if applicable)
1.1.12.29 Roofing Project Certification (if applicable)
1.1.12.30 Registered Subcontractors List
1.1.12.31 Iran Contracting Act Certification (if applicable)
1.1.12.32 Post Bid Interview

1.1.12.33 All Plans, Technical Specifications, and Drawings
1.1.12.34 Any and all addenda to any of the above documents
1.1.12.35 Any and all change orders or written modifications to the above documents if approved in writing by the District

1.1.13 Contract Price: The total monies payable to the Contractor under the terms and conditions of the Contract Documents.

1.1.14 Contract Time: The time period stated in the Agreement for the completion of the Work.

1.1.15 Contractor: The person or persons identified in the Agreement as contracting to perform the Work to be done under this Contract, or the legal representative of such a person or persons.

1.1.16 Daily Job Report(s): Daily Project reports prepared by the Contractor's employee(s) who are present on Site, which shall include the information required herein.

1.1.17 Day(s): Unless otherwise designated, day(s) means calendar day(s).

1.1.18 Department of Industrial Relations (or "DIR"): is responsible, among other things, for labor compliance monitoring and enforcement of California prevailing wage laws and regulations for public works contracts.

1.1.19 Design Professional in General Responsible Charge: See definition of **Architect** above.

1.1.20 Dispute: A separate demand by Contractor for a time extension, or payment of money or damages arising from Work done by or on behalf of the Contractor pursuant to the Contract and payment of which is not otherwise expressly provided for or Contractor is not otherwise entitled to; or an amount of payment disputed by the District.

1.1.21 District: The public agency or the school district for which the Work is performed. The governing board of the District or its designees will act for the District in all matters pertaining to the Contract. The District may, at any time,

1.1.21.1 Direct the Contractor to communicate with or provide notice to the Construction Manager or the Architect on matters for which the Contract Documents indicate the Contractor will communicate with or provide notice to the District; and/or

1.1.21.2 Direct the Construction Manager or the Architect to communicate with or direct the Contractor on matters for which the Contract Documents indicate the District will communicate with or direct the Contractor.

1.1.22 Drawings (or "Plans"): The graphic and pictorial portions of the Contract Documents showing the design, location, scope and dimensions of the work, generally including plans, elevations, sections, details, schedules, sequence of operation, and diagrams.

1.1.23 DSA: Division of the State Architect.

1.1.24 Force Account Directive: A process that may be used when the District and the Contractor cannot agree on a price for a specific portion of work or before the Contractor prepares a price for a specific portion of work and whereby the Contractor performs the work as indicated herein on a time and materials basis.

1.1.25 Job Cost Reports: Any and all reports or records detailing the costs associated with work performed on or related to the Project that Contractor shall maintain for the Project. Specifically, Job Cost Reports shall contain, but are not limited by or to, the following information: a description of the work performed or to be performed on the Project; quantity, if applicable, of work performed (hours, square feet, cubic yards, pounds, etc.) for the Project; Project budget; costs for the Project to date; estimated costs to complete the Project; and expected costs at completion. The Job Cost Reports shall also reflect all Contract cost codes, change orders, elements of non-conforming work, back charges, and additional services.

1.1.26 Labor Commissioner's Office (or "Labor Commissioner", also known as the Division of Labor Standards Enforcement ("DLSE")): Division of the DIR responsible for adjudicating wage claims, investigating discrimination and public works complaints, and enforcing Labor Code statutes and Industrial Welfare Commission orders.

1.1.27 Municipal Separate Storm Sewer System (or "MS4"): A system of conveyances used to collect and/or convey storm water, including, without limitation, catch basins, curbs, gutters, ditches, man-made channels, and storm drains.

1.1.28 Plans: See **Drawings**.

1.1.29 Premises: The real property owned by the District on which the Site is located.

1.1.30 Product(s): New material, machinery, components, equipment, fixtures and systems forming the Work, including existing materials or components required and approved by the District for reuse.

1.1.31 Product Data: Illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate a material, product, or system for some portion of the Work.

1.1.32 Program Manager: The individual, partnership, corporation, joint venture, or any combination thereof, or its authorized representative, named as such by the District. If no Program Manager is designated for Project that is the subject of this Contract, then all references to Project Manager herein shall be read to refer to District.

1.1.33 Project: The planned undertaking as provided for in the Contract Documents.

1.1.34 Project Inspector (or "Inspector"): The individual(s) retained by the District in accordance with title 24 of the California Code of Regulations to monitor and inspect the Project.

1.1.35 Project Labor Agreement (or "PLA"): a prehire collective bargaining agreement in accordance with Public Contract Code section 2500 et seq. that establishes terms and conditions of employment for a specific construction project or projects and/or is an agreement described in Section 158(f) of Title 29 of the United States Code.

1.1.36 Proposed Change Order (or "PCO"): a written request prepared by the Contractor requesting that the District and the Architect issue a Change Order based upon a proposed change to the Work.

1.1.37 Provide: Shall include "provide complete in place," that is, "furnish and install," and "provide complete and functioning as intended in place" unless specifically stated otherwise.

1.1.38 Qualified SWPPP Practitioners (or "QSP"): certified personnel that attended a State Water Resources Control Board sponsored or approved training class and passed the qualifying exam.

1.1.39 Record Drawings: Reproducible drawings (or Plans) prepared pursuant to the requirements of the Contract Documents that reflect all changes made during the performance of the Work, recording differences between the original design of the Work and the Work as constructed upon completion of the Project. See also **As-Builts**.

1.1.40 Request for Information (or "RFI"): A written request prepared by the Contractor requesting that the Architect provide additional information necessary to clarify or amplify an item in the Contract Documents that the Contractor believes is not clearly shown or called for in the Drawings or Specifications or other portions of the Contract Documents, or to address problems that have arisen under field conditions.

1.1.41 Request for Substitution for Specified Item: A request by Contractor to substitute an equal or superior material, product, thing, or service for a specific material, product, thing, or service that has been designated in the Contract Documents by a specific brand or trade name.

1.1.42 Safety Orders: Written and/or verbal orders for construction issued by the California Division of Occupational Safety and Health ("CalOSHA") or by the United States Occupational Safety and Health Administration ("OSHA").

1.1.43 Safety Plan: Contractor's safety plan specifically adapted for the Project. Contractor's Safety Plan shall comply with all provisions regarding Project safety, including all applicable provisions in these General Conditions.

1.1.44 Samples: Physical examples that illustrate materials, products, equipment, finishes, colors, or workmanship and that, when approved in accordance with the Contract Documents, establish standards by which portions of the Work will be judged.

1.1.45 Shop Drawings: All drawings, prints, diagrams, illustrations, brochures, schedules, and other data that are prepared by the Contractor, a subcontractor,

manufacturer, supplier, or distributor, that illustrate how specific portions of the Work shall be fabricated or installed.

1.1.46 Site: The Project site as shown on the Drawings.

1.1.47 Specifications: That portion of the Contract Documents, Division 1 through Division 49, and all technical sections, and addenda to all of these, if any, consisting of written descriptions and requirements of a technical nature of materials, equipment, construction methods and systems, standards, and workmanship.

1.1.48 State: The State of California.

1.1.49 Storm Water Pollution Prevention Plan (or "SWPPP"): A document which identifies sources and activities at a particular facility that may contribute pollutants to storm water and contains specific control measures and time frames to prevent or treat such pollutants.

1.1.50 Subcontractor: A contractor and/or supplier who is under contract with the Contractor or with any other subcontractor, regardless of tier, to perform a portion of the Work of the Project.

1.1.51 Submittal Schedule: The schedule of submittals as provided by Contractor and approved by District.

1.1.52 Surety: The person, firm, or corporation that executes as surety the Contractor's Performance Bond and Payment Bond, and must be a California admitted surety insurer as defined in the Code of Civil Procedure section 995.120.

1.1.53 Work: All labor, materials, equipment, components, appliances, supervision, coordination, and services required by, or reasonably inferred from, the Contract Documents, that are necessary for the construction and completion of the Project.

1.2 Laws Concerning the Contract

Contract is subject to all provisions of the Constitution and laws of California and the United States governing, controlling, or affecting District, or the property, funds, operations, or powers of District, and such provisions are by this reference made a part hereof. Any provision required by law to be included in this Contract shall be deemed to be inserted.

1.3 No Oral Agreements

No oral agreement or conversation with any officer, agent, or employee of District, either before or after execution of Contract, shall affect or modify any of the terms or obligations contained in any of the documents comprising the Contract.

1.4 No Assignment

Contractor shall not assign this Contract or any part thereof including, without limitation, any services or money to become due hereunder without the prior written consent of the District. Assignment without District's prior written consent shall be null and void. Any

assignment of money due or to become due under this Contract shall be subject to a prior lien for services rendered or material supplied for performance of work called for under this Contract in favor of all persons, firms, or corporations rendering services or supplying material to the extent that claims are filed pursuant to the Civil Code, Code of Civil Procedure, Government Code, Labor Code, and/or Public Contract Code, and shall also be subject to deductions for liquidated damages or withholding of payments as determined by District in accordance with this Contract. Contractor shall not assign or transfer in any manner to a Subcontractor or supplier the right to prosecute or maintain an action against the District.

1.5 Notice and Service Thereof

1.5.1 Any notice from one party to the other or otherwise under Contract shall be in writing and shall be dated and signed by the party giving notice or by a duly authorized representative of that party. Any notice shall not be effective for any purpose whatsoever unless served in one of the following manners:

1.5.1.1 If notice is given by personal delivery thereof, it shall be considered delivered on the day of delivery.

1.5.1.2 If notice is given by overnight delivery service, it shall be considered delivered one (1) day after date deposited, as indicated by the delivery service.

1.5.1.3 If notice is given by depositing same in United States mail, enclosed in a sealed envelope, it shall be considered delivered three (3) days after date deposited, as indicated by the postmarked date.

1.5.1.4 If notice is given by registered or certified mail with postage prepaid, return receipt requested, it shall be considered delivered on the day the notice is signed for.

1.5.1.5 Electronic mail may be used for convenience but is not a substitute for the notice and service requirements herein.

1.6 No Waiver

The failure of District in any one or more instances to insist upon strict performance of any of the terms of this Contract or to exercise any option herein conferred shall not be construed as a waiver or relinquishment to any extent of the right to assert or rely upon any such terms or option on any future occasion. No action or failure to act by the District, Architect, or Construction Manager shall constitute a waiver of any right or duty afforded the District under the Contract, nor shall any action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

1.7 Substitutions for Specified Items

Unless the Special Conditions contain different provisions, Contractor shall not substitute different items for any items identified in the Contract Documents without prior written approval of the District.

1.8 Materials and Work

1.8.1 Except as otherwise specifically stated in this Contract, Contractor shall provide and pay for all materials, labor, tools, equipment, transportation, supervision, temporary constructions of every nature, and all other services, management, and facilities of every nature whatsoever necessary to execute and complete this Contract, in a good and workmanlike manner, within the Contract Time.

1.8.2 Unless otherwise specified, all materials shall be new and of the best quality of their respective kinds and grades as noted or specified, workmanship shall be of good quality, and Contractor shall use all diligence to inform itself fully as to the required manufacturer's instructions and to comply therewith.

1.8.3 Materials shall be furnished in ample quantities and at such times as to insure uninterrupted progress of Work and shall be stored properly and protected from the elements, theft, vandalism, or other loss or damage as required.

1.8.4 For all materials and equipment specified or indicated in the Drawings, the Contractor shall provide all labor, materials, equipment, and services necessary for complete assemblies and complete working systems, functioning as intended. Incidental items not indicated on Drawings, nor mentioned in the Specifications, that can legitimately and reasonably be inferred to belong to the Work described, or be necessary in good practice to provide a complete assembly or system, shall be furnished as though itemized here in every detail. In all instances, material and equipment shall be installed in strict accordance with each manufacturer's most recent published recommendations and specifications.

1.8.5 Contractor shall, after award of Contract by District and after relevant submittals have been approved, place orders for materials and/or equipment as specified so that delivery of same may be made without delays to the Work. Contractor shall, upon demand from District, present documentary evidence showing that orders have been placed.

1.8.6 District reserves the right but has no obligation, in response to Contractor's neglect or failure in complying with the above instructions, to place orders for such materials and/or equipment as the District may deem advisable in order that the Work may be completed at the date specified in the Agreement, and all expenses incidental to the procuring of said materials and/or equipment shall be paid for by Contractor or deducted from payment(s) to Contractor.

1.8.7 Contractor warrants good title to all material, supplies, and equipment installed or incorporated in Work and agrees upon completion of all Work to deliver the Site to District, together with all improvements and appurtenances constructed or placed thereon by it, and free from any claims, liens, or charges. Contractor further agrees that neither it nor any person, firm, or corporation furnishing any materials or labor for any work covered by the Contract shall have any right to lien any portion of the Premises or any improvement or appurtenance thereon, except that Contractor may install metering devices or other equipment of utility companies or of political subdivision, title to which is commonly retained by utility company or political subdivision. In the event of installation of any such metering device or equipment, Contractor shall advise District as to owner thereof.

1.8.7.1 If a lien or a claim based on a stop payment notice of any nature should at any time be filed against the Work or any District property, by any entity that has supplied material or services at the request of the Contractor, Contractor and Contractor's Surety shall promptly, on demand by District and at Contractor's and Surety's own expense, take any and all action necessary to cause any such lien or a claim based on a stop payment notice to be released or discharged immediately therefrom.

1.8.7.2 If the Contractor fails to furnish to the District within ten (10) calendar days after demand by the District, satisfactory evidence that a lien or a claim based on a stop payment notice has been so released, discharged, or secured, the District may discharge such indebtedness and deduct the amount required therefor, together with any and all losses, costs, damages, and attorney's fees and expense incurred or suffered by District from any sum payable to Contractor under the Contract.

1.8.8 Nothing contained in this Article, however, shall defeat or impair the rights of persons furnishing materials or labor under any bond given by Contractor for their protection or any rights under any law permitting such protection or any rights under any law permitting such persons to look to funds due Contractor in hands of District (e.g., stop payment notices), and this provision shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing material for work when no formal contract is entered into for such material.

1.8.9 Title to new materials and/or equipment for the Work of this Contract and attendant liability for its protection and safety shall remain with Contractor until incorporated in the Work of this Contract and accepted by District. No part of any materials and/or equipment shall be removed from its place of storage except for immediate installation in the Work of this Contract. Should the District, in its discretion, allow the Contractor to store materials and/or equipment for the Work off-site, Contractor will store said materials and/or equipment at a bonded warehouse and with appropriate insurance coverage at no cost to District. Contractor shall keep an accurate inventory of all materials and/or equipment in a manner satisfactory to District or its authorized representative and shall, at the District's request, forward it to the District.

2. [RESERVED]

3. ARCHITECT

3.1 The Architect shall represent the District during the Project and will observe the progress and quality of the Work on behalf of the District. Architect shall have the authority to act on behalf of District to the extent expressly provided in the Contract Documents and to the extent determined by District. Architect shall have authority to reject materials, workmanship, and/or the Work whenever rejection may be necessary, in Architect's reasonable opinion, to insure the proper execution of the Contract.

3.2 Architect shall, with the District and on behalf of the District, determine the amount, quality, acceptability, and fitness of all parts of the Work, and interpret the Specifications, Drawings, and shall, with the District, interpret all other Contract Documents.

3.3 Architect shall have all authority and responsibility established by law, including title 24 of the California Code of Regulations.

3.4 Contractor shall provide District and the Construction Manager with a copy of all written communication between Contractor and Architect at the same time as that communication is made to Architect, including, without limitation, all RFIs, correspondence, submittals, claims, and proposed change orders.

4. CONSTRUCTION MANAGER

4.1 If a Construction Manager is used on this Project ("Construction Manager" or "CM"), the Construction Manager will provide administration of the Contract on the District's behalf. After execution of the Contract and Notice to Proceed, all correspondence and/or instructions from Contractor and/or District shall be forwarded through the Construction Manager. The Construction Manager will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences, or procedures or for safety precautions in connection with the Work, which shall all remain the Contractor's responsibility.

4.2 The Construction Manager, however, will have authority to reject materials and/or workmanship not conforming to the Contract Documents, as determined by the District, the Architect, and/or the Project Inspector. The Construction Manager shall also have the authority to require special inspection or testing of any portion of the Work, whether it has been fabricated, installed, or fully completed. Any decision made by the Construction Manager, in good faith, shall not give rise to any duty or responsibility of the Construction Manager to: the Contractor; any Subcontractor; the Contractor or Subcontractor's respective agents, employees; or other persons performing any of the Work. The Construction Manager shall have free access to any or all parts of Work at any time.

4.3 If the District does not use a Construction Manager on this Project, all references to Construction Manager or CM shall be read as District.

5. INSPECTOR, INSPECTIONS, AND TESTS

5.1 Project Inspector

5.1.1 One or more Project Inspector(s), including special Project Inspector(s), as required, will be assigned to the Work by District, in accordance with requirements of title 24, part 1, of the California Code of Regulations, to enforce the building code and monitor compliance with Plans and Specifications for the Project previously approved by the DSA. Duties of Project Inspector(s) are specifically defined in section 4-342 of said part 1 of title 24.

5.1.2 No Work shall be carried on except with the knowledge and under the inspection of the Project Inspector(s). The Project Inspector(s) shall have free access to any or all parts of Work at any time. Contractor shall furnish Project Inspector(s) reasonable opportunities for obtaining such information as may be necessary to keep Project Inspector(s) fully informed respecting progress and manner of work and character of materials, including, but not limited to, submission of form DSA 156 (or the most current version applicable at the time the Work is performed) to the Project Inspector at least 48 hours in advance of the

commencement and completion of construction of each and every aspect of the Work. Forms are available on the DSA's website at: http://www.dgs.ca.gov/dsa/Forms.aspx. Inspection of Work shall not relieve Contractor from an obligation to fulfill this Contract. Project Inspector(s) and the DSA are authorized to suspend work whenever the Contractor and/or its Subcontractor(s) are not complying with the Contract Documents. Any work stoppage by the Project Inspector(s) and/or DSA shall be without liability to the District. Contractor shall instruct its Subcontractors and employees accordingly.

5.1.3 If Contractor and/or any Subcontractor requests that the Project Inspector(s) perform any inspection off-site, this shall only be done if it is allowable pursuant to applicable regulations and DSA approval, if the Project Inspector(s) agree to do so, and at the expense of the Contractor.

5.2 Tests and Inspections

5.2.1 Tests and Inspections shall comply with title 24, part 1, California Code of Regulations, group 1, article 5, section 4-335, and with the provisions of the Specifications.

5.2.2 The District will select an independent testing laboratory to conduct the tests. Selection of the materials required to be tested shall be by the laboratory or the District's representative and not by the Contractor. The Contractor shall notify the District's representative a sufficient time in advance of its readiness for required observation or inspection.

5.2.3 The Contractor shall notify the District's representative a sufficient time in advance of the manufacture of material to be supplied under the Contract Documents, which must by terms of the Contract Documents be tested, in order that the District may arrange for the testing of same at the source of supply. This notice shall be provided, at a minimum, seventy-two (72) hours prior to the manufacture of the material that needs to be tested.

5.2.4 Any material shipped by the Contractor from the source of supply prior to having satisfactorily passed such testing and inspection or prior to the receipt of notice from said representative that such testing and inspection will not be required, shall not be incorporated into and/or onto the Project.

5.2.5 The District will select the testing laboratory and pay for the cost of all tests and inspections. Contractor shall reimburse the District for any and all laboratory costs or other testing costs for any materials found to be not in compliance with the Contract Documents. At the District's discretion, District may elect to deduct laboratory or other testing costs for noncompliant materials from the Contract Price, and such deduction shall not constitute a withholding.

5.3 Costs for After Hours and/or Off Site Inspections

If the Contractor performs Work outside the Inspector's regular working hours or requests the Inspector to perform inspections off Site, costs of any inspections required outside regular working hours or off Site shall be borne by the Contractor and may be invoiced to the Contractor by the District or the District may deduct those expenses from the next Progress Payment.

6. CONTRACTOR

Contractor shall construct and complete, in a good and workmanlike manner, the Work for the Contract Price including any adjustment(s) to the Contract Price pursuant to provisions herein regarding changes to the Contract Price. Except as otherwise noted, Contractor shall provide and pay for all labor, materials, equipment, permits (excluding DSA), fees, licenses, facilities, transportation, taxes, bonds and insurance, and services necessary for the proper execution and completion of the Work, except as indicated herein.

6.1 Status of Contractor

6.1.1 Contractor is and shall at all times be deemed to be an independent contractor and shall be wholly responsible for the manner in which it and its Subcontractors perform the services required of it by the Contract Documents. Nothing herein contained shall be construed as creating the relationship of employer and employee, or principal and agent, between the District, or any of the District's employees or agents, and Contractor or any of Contractor's Subcontractors, agents or employees. Contractor assumes exclusively the responsibility for the acts of its agents, and employees as they relate to the services to be provided during the course and scope of their employment. Contractor, its Subcontractors, agents, and its employees shall not be entitled to any rights or privileges of District employees. District shall be permitted to monitor the Contractor's activities to determine compliance with the terms of this Contract.

6.1.2 As required by law, Contractor and all Subcontractors shall be properly licensed and regulated by the Contractors State License Board, 9821 Business Park Drive, Sacramento, California 95827, http://www.cslb.ca.gov.

6.1.3 As required by law, Contractor and all Subcontractors shall be properly registered as public works contractors by the Department of Industrial Relations at: https://efiling.dir.ca.gov/PWCR/ActionServlet?action=displayPWCRegistrationForm or current URL.

6.1.4 Contractor represents that it has no existing interest and will not acquire any interest, direct or indirect, which could conflict in any manner or degree with the performance of Work required under this Contract and that no person having any such interest shall be employed by Contractor.

6.2 Project Inspection Card(s)

Contractor shall verify that forms DSA 152 (or the current version applicable at the time the Work is performed) are issued for the Project prior to the commencement of construction.

6.3 Contractor's Supervision

6.3.1 During progress of the Work, Contractor shall keep on the Premises, and at all other locations where any Work related to the Contract is being performed, an experienced and competent project manager and construction superintendent who are employees of the Contractor, to whom the District does not object and at least one of whom shall be fluent in English, written and verbal.

6.3.2 The project manager and construction superintendent shall both speak fluently the predominant language of the Contractor's employees.

6.3.3 Before commencing the Work herein, Contractor shall give written notice to District of the name of its project manager and construction superintendent. Neither the Contractor's project manager nor construction superintendent shall be changed except with prior written notice to District. If the Contractor's project manager and/or construction superintendent proves to be unsatisfactory to Contractor, or to District, any of the District's employees, agents, the Construction Manager, or the Architect, Contractor shall notify District in writing before any change occurs, but no less than two (2) business days prior. Any replacement of the project manager and/or construction superintendent shall be made promptly and must be satisfactory to the District. The Contractor's project manager and construction superintendent shall each represent Contractor, and all directions given to Contractor's project manager and/or construction superintendent shall be as binding as if given to Contractor.

6.3.4 Contractor shall give efficient supervision to Work, using its best skill and attention. Contractor shall carefully study and compare all Contract Documents, Drawings, Specifications, and other instructions and shall at once report to District, Construction Manager, and Architect any error, inconsistency, or omission that Contractor or its employees and Subcontractors may discover, in writing, with a copy to District's Project Inspector(s). The Contractor shall have responsibility for discovery of errors, inconsistencies, or omissions.

6.4 Duty to Provide Fit Workers

6.4.1 Contractor and Subcontractor(s) shall at all times enforce strict discipline and good order among their employees and shall not employ or work any unfit person or anyone not skilled in work assigned to that person. It shall be the responsibility of Contractor to ensure compliance with this requirement. District may require Contractor to permanently remove unfit persons from Project Site.

6.4.2 Any person in the employ of Contractor or Subcontractor(s) whom District may deem incompetent or unfit shall be excluded from working on the Project and shall not again be employed on the Project except with the prior written consent of District.

6.4.3 The Contractor shall furnish labor that can work in harmony with all other elements of labor employed or to be employed in the Work.

6.4.4 If Contractor intends to make any change in the name or legal nature of the Contractor's entity, Contractor must first notify the District in writing prior to making any contemplated change. The District shall determine in writing if Contractor's intended change is permissible while performing this Contract.

6.5 Field Office

6.5.1 Contractor shall provide a temporary office on the Work Site for the District's use exclusively, during the term of the Contract.

6.6 Purchase of Materials and Equipment

The Contractor is required to order, obtain, and store materials and equipment sufficiently in advance of its Work at no additional cost or advance payment from District to assure that there will be no delays.

6.7 Documents on Work

6.7.1 Contractor shall at all times keep on the Work Site, or at another location as the District may authorize in writing, one legible copy of all Contract Documents, including Addenda and Change Orders, and Titles 19 and 24 of the California Code of Regulations, the specified edition(s) of the Uniform Building Code, all approved Drawings, Plans, Schedules, and Specifications, and all codes and documents referred to in the Specifications, and made part thereof. These documents shall be kept in good order and available to District, Construction Manager, Architect, Architect's representatives, the Project Inspector(s), and all authorities having jurisdiction. Contractor shall be acquainted with and comply with the provisions of these titles as they relate to this Project. (See particularly the duties of Contractor, Title 24, Part 1, California Code of Regulations, section 4-343.) Contractor shall also be acquainted with and comply with all California Code of Regulations provisions relating to conditions on this Project, particularly Titles 8 and 17. Contractor shall coordinate with Architect and Construction Manager and shall submit its verified report(s) according to the requirements of Title 24.

6.7.2 Daily Job Reports.

6.7.2.1 Contractor shall maintain, at a minimum, at least one (1) set of Daily Job Reports on the Project. These must be prepared by the Contractor's employee(s) who are present on Site, and must include, at a minimum, the following information:

6.7.2.1.1 A brief description of all Work performed on that day.
6.7.2.1.2 A summary of all other pertinent events and/or occurrences on that day.
6.7.2.1.3 The weather conditions on that day.
6.7.2.1.4 A list of all Subcontractor(s) working on that day, including DIR registration numbers.
6.7.2.1.5 A list of each Contractor employee working on that day and the total hours worked for each employee.
6.7.2.1.6 A complete list of all equipment on Site that day, whether in use or not.
6.7.2.1.7 A complete list of all materials, supplies, and equipment delivered on that day.
6.7.2.1.8 A complete list of all inspections and tests performed on that day.

6.7.2.2 Each day Contractor shall provide a copy of the previous day's Daily Job Report to the District or the Construction Manager.

6.8 Preservation of Records

Contractor shall maintain, and District shall have the right to inspect, Contractor's financial records for the Project, including, without limitation, Job Cost Reports for the Project in compliance with the criteria set forth herein. The District shall have the right to examine and audit all Daily Job Reports or other Project records of Contractor's project manager(s), project superintendent(s), and/or project foreperson(s), all certified payroll records and/or related documents including, without limitation, Job Cost Reports, payroll, payment, timekeeping and tracking documents; all books, estimates, records, contracts, documents, bid documents, bid cost data, subcontract job cost reports, and other data of the Contractor, any Subcontractor, and/or supplier, including computations and projections related to bidding, negotiating, pricing, or performing the Work or Contract modification, in order to evaluate the accuracy, completeness, and currency of the cost, manpower, coordination, supervision, or pricing data at no additional cost to the District. These documents may be duplicative and/or be in addition to any Bid Documents held in escrow by the District. The Contractor shall make available at its office at all reasonable times the materials described in this paragraph for the examination, audit, or reproduction until three (3) years after final payment under this Contract. Notwithstanding the provisions above, Contractor shall provide any records requested by any governmental agency, if available, after the time set forth above.

6.9 Integration of Work

6.9.1 Contractor shall do all cutting, fitting, patching, and preparation of Work as required to make its several parts come together properly, to fit it to receive or be received by work of other contractors, and to coordinate tolerances to various pieces of work, showing upon, or reasonably implied by, the Drawings and Specifications for the completed structure, and shall conform them as District and/or Architect may direct.

6.9.2 Contractor shall make its own layout of lines and elevations and shall be responsible for the accuracy of both Contractor's and Subcontractors' work resulting therefrom.

6.9.3 Contractor and all Subcontractors shall take all field dimensions required in performance of the Work, and shall verify all dimensions and conditions on the Site. All dimensions affecting proper fabrication and installation of all Work must be verified prior to fabrication by taking field measurements of the true conditions. If there are any discrepancies between dimensions in drawings and existing conditions which will affect the Work, Contractor shall bring such discrepancies to the attention of the District and Architect for adjustment before proceeding with the Work. In doing so, it is recognized that Contractor is not acting in the capacity of a licensed design professional, and that Contractor's examination is made in good faith to facilitate construction and does not create an affirmative responsibility to detect errors, omissions or inconsistencies in the Contract Documents or to ascertain compliance with applicable laws, building codes or regulations. Following receipt of written notice from Contractor, the District and/or Architect shall inform Contractor what action, if any, Contractor shall take with regard to such discrepancies.

6.9.4 All costs caused by noncompliant, defective, or delayed Work shall be borne by Contractor, inclusive of repair work.

6.9.5 Contractor shall not endanger any work performed by it or anyone else by cutting, excavating, or otherwise altering work and shall not cut or alter work of any other contractor except with consent of District.

6.10 Notifications

6.10.1 Contractor shall notify the Architect and Project Inspector, in writing, of the commencement of construction of each and every aspect of the Work at least 48 hours in advance by submitting form DSA 156 (or the most current version applicable at the time the Work is performed) to the Project Inspector. Forms are available on the DSA's website at: http://www.dgs.ca.gov/dsa/Forms.aspx.

6.10.2 Contractor shall notify the Architect and Project Inspector, in writing, of the completion of construction of each and every aspect of the Work at least 48 hours in advance by submitting form DSA 156 (or current version) to the Project Inspector.

6.11 Obtaining of Permits, Licenses and Registrations

Contractor shall secure and pay for all permits (except DSA), licenses, registrations, approvals and certificates necessary for prosecution of Work, including but not limited to those listed in the Special Conditions, if any, before the date of the commencement of the Work or before the permits, licenses, registrations, approvals and certificates are legally required to continue the Work without interruption. The Contractor shall obtain and pay, only when legally required, for all licenses, registrations, approvals, permits, inspections, and inspection certificates required to be obtained from or issued by any authority having jurisdiction over any part of the Work included in the Contract. All final permits, licenses, registrations, approvals and certificates shall be delivered to District before demand is made for final payment.

6.12 Royalties and Patents

6.12.1 Contractor shall obtain and pay, only when legally required, all royalties and license fees necessary for prosecution of Work before the earlier of the date of the commencement of the Work or the date that the license is legally required to continue the Work without interruption. Contractor shall defend suits or claims of infringement of patent, copyright, or other rights and shall hold the District, the Architect, and the Construction Manager harmless and indemnify them from loss on account thereof except when a particular design, process, or make or model of product is required by the Contract Documents. However, if the Contractor has reason to believe that the required design, process, or product is an infringement of a patent or copyright, the Contractor shall indemnify and defend the District, Architect and Construction Manager against any loss or damage unless the Contractor promptly informs the District of its information.

6.12.2 The review by the District or Architect of any method of construction, invention, appliance, process, article, device, or material of any kind shall be only its adequacy for the Work and shall not approve use by the Contractor in violation of any patent or other rights of any person or entity.

6.13 Work to Comply With Applicable Laws and Regulations

6.13.1 Contractor shall give all notices and comply with the following specific laws, ordinances, rules, and regulations and all other applicable laws, ordinances, rules, and regulations bearing on conduct of Work as indicated and specified, including but not limited to the appropriate statutes and administrative code sections. If Contractor observes that Drawings and Specifications are at variance therewith, or should Contractor become aware of the development of conditions not covered by Contract Documents that may result in finished Work being at variance therewith, Contractor shall promptly notify District in writing and any changes deemed necessary by District shall be made as provided in Contract for changes in Work.

6.13.1.1 National Electrical Safety Code, U. S. Department of Commerce

6.13.1.2 National Board of Fire Underwriters' Regulations

6.13.1.3 International Building Code, latest addition, and the California Code of Regulations, title 24, and other amendments

6.13.1.4 Manual of Accident Prevention in Construction, latest edition, published by A.G.C. of America

6.13.1.5 Industrial Accident Commission's Safety Orders, State of California

6.13.1.6 Regulations of the State Fire Marshall (title 19, California Code of Regulations) and Pertinent Local Fire Safety Codes

6.13.1.7 Americans with Disabilities Act

6.13.1.8 Education Code of the State of California

6.13.1.9 Government Code of the State of California

6.13.1.10 Labor Code of the State of California, division 2, part 7, Public Works and Public Agencies

6.13.1.11 Public Contract Code of the State of California

6.13.1.12 California Art Preservation Act

6.13.1.13 U. S. Copyright Act

6.13.1.14 U. S. Visual Artists Rights Act

6.13.2 Contractor shall comply with all applicable mitigation measures, if any, adopted by any public agency with respect to this Project pursuant to the California Environmental Quality Act (Public Resources Code section 21000 et seq.).

6.13.3 If Contractor performs any Work that it knew, or through exercise of reasonable care should have known, to be contrary to any applicable laws,

ordinance, rules, or regulations, Contractor shall bear all costs arising therefrom and arising from the correction of said Work.

6.13.4 Where Specifications or Drawings state that materials, processes, or procedures must be approved by the DSA, State Fire Marshall, or other body or agency, Contractor shall be responsible for satisfying requirements of such bodies or agencies applicable at the time the Work is performed, and as determined by those bodies or agencies.

6.14 Safety/Protection of Persons and Property

6.14.1 The Contractor will be solely and completely responsible for conditions of the Work Site, including safety of all persons and property during performance of the Work. This requirement will apply continuously and not be limited to normal working hours.

6.14.2 The wearing of hard hats will be mandatory at all times for all personnel on Site. Contractor shall supply sufficient hard hats to properly equip all employees and visitors.

6.14.3 Any construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures in, on, or near the Work Site.

6.14.4 Implementation and maintenance of safety programs shall be the sole responsibility of the Contractor.

6.14.5 The Contractor shall furnish to the District a copy of the Contractor's safety plan within the time frame indicated in the Contract Documents and specifically adapted for the Project.

6.14.6 Contractor shall be responsible for all damages to persons or property that occur as a result of its fault or negligence in connection with the prosecution of this Contract and shall take all necessary measures and be responsible for the proper care and completion and final acceptance by District. All Work shall be solely at Contractor's risk with the exception of damage to the Work caused by "acts of God" as defined in Public Contract Code section 7105.

6.14.7 Contractor shall take, and require Subcontractors to take, all necessary precautions for safety of workers on the Project and shall comply with all applicable federal, state, local, and other safety laws, standards, orders, rules, regulations, and building codes to prevent accidents or injury to persons on, about, or adjacent to premises where Work is being performed and to provide a safe and healthful place of employment. Contractor shall furnish, erect, and properly maintain at all times, all necessary safety devices, safeguards, construction canopies, signs, nets, barriers, lights, and watchmen for protection of workers and the public and shall post danger signs warning against hazards created by such features in the course of construction.

6.14.8 Hazards Control – Contractor shall store volatile wastes in covered metal containers and remove them from the Site daily. Contractor shall prevent accumulation of wastes that create hazardous conditions. Contractor shall provide adequate ventilation during use of volatile or noxious substances.

6.14.9 Contractor shall designate a responsible member of its organization on the Project, whose duty shall be to post information regarding protection and obligations of workers and other notices required under occupational safety and health laws, to comply with reporting and other occupational safety requirements, and to protect the life, safety, and health of workers. Name and position of person so designated shall be reported to District by Contractor.

6.14.10 Contractor shall correct any violations of safety laws, rules, orders, standards, or regulations. Upon the issuance of a citation or notice of violation by the Division of Occupational Safety and Health, Contractor shall correct such violation promptly.

6.14.11 Contractor shall comply with any District storm water requirements that are approved by the District and applicable to the Project, at no additional cost to the District.

6.14.12 In an emergency affecting safety of life or of work or of adjoining property, Contractor, without special instruction or authorization, shall act, at its discretion, to prevent such threatened loss or injury. Any compensation claimed by Contractor on account of emergency work shall be determined by agreement.

6.14.13 All salvage materials will become the property of the Contractor and shall be removed from the Site unless otherwise called for in the Contract Documents. However, the District reserves the right to designate certain items of value that shall be turned over to the District unless otherwise directed by District.

6.14.14 All connections to public utilities and/or existing on-site services shall be made and maintained in such a manner as to not interfere with the continuing use of same by the District during the entire progress of the Work.

6.14.15 Contractor shall provide such heat, covering, and enclosures as are necessary to protect all Work, materials, equipment, appliances, and tools against damage by weather conditions, such as extreme heat, cold, rain, snow, dry winds, flooding, or dampness.

6.14.16 The Contractor shall protect and preserve the Work from all damage or accident, providing any temporary roofs, window and door coverings, boxings, or other construction as required by the Architect. The Contractor shall be responsible for existing structures, walks, roads, trees, landscaping, and/or improvements in working areas; and shall provide adequate protection therefore. If temporary removal is necessary of any of the above items, or damage occurs due to the Work, the Contractor shall replace same at his expense with same kind, quality, and size of Work or item damaged. This shall include any adjoining property of the District and others.

6.14.17 Contractor shall take adequate precautions to protect existing roads, sidewalks, curbs, pavements, utilities, adjoining property, and structures (including, without limitation, protection from settlement or loss of lateral support), and to avoid damage thereto, and repair any damage thereto caused by construction operations.

6.14.18 Contractor shall confine apparatus, the storage of materials, and the operations of workers to limits indicated by law, ordinances, permits, or directions of

Architect, and shall not interfere with the Work or unreasonably encumber Premises or overload any structure with materials. Contractor shall enforce all instructions of District and Architect regarding signs, advertising, fires, and smoking, and require that all workers comply with all regulations while on Project Site.

6.14.19 Contractor, Contractor's employees, Subcontractors, Subcontractors' employees, or any person associated with the Work shall conduct themselves in a manner appropriate for a school site. No verbal or physical contact with neighbors, students, and faculty, profanity, or inappropriate attire or behavior will be permitted. District may require Contractor to permanently remove non-complying persons from Project Site.

6.14.20 Contractor shall take care to prevent disturbing or covering any survey markers, monuments, or other devices marking property boundaries or corners. If such markers are disturbed, Contractor shall have a civil engineer, registered as a professional engineer in California, replace them at no cost to District.

6.14.21 In the event that the Contractor enters into any agreement with owners of any adjacent property to enter upon the adjacent property for the purpose of performing the Work, Contractor shall fully indemnify, defend, and hold harmless each person, entity, firm, or agency that owns or has any interest in adjacent property. The form and content of the agreement of indemnification shall be approved by the District prior to the commencement of any Work on or about the adjacent property. The Contractor shall also indemnify the District as provided in the indemnification provision herein. These provisions shall be in addition to any other requirements of the owners of the adjacent property.

6.15 Working Evenings and Weekends

Contractor may be required to work increased hours, evenings, and/or weekends at no additional cost to the District. Contractor shall give the District seventy-two (72) hours' notice prior to performing any evening and/or weekend work. Contractor shall perform all evening and/or weekend work only upon District's approval and in compliance with all applicable rules, regulations, laws, and local ordinances including, without limitation, all noise and light limitations. Contractor shall reimburse the District for any increased or additional Inspector charges as a result of Contractor's increased hours, or evening and/or weekend work.

6.16 Cleaning Up

6.16.1 The Contractor shall provide all services, labor, materials, and equipment necessary for protecting and securing the Work, all school occupants, furnishings, equipment, and building structure from damage until its completion and final acceptance by District. Dust barriers shall be provided to isolate dust and dirt from construction operations. At completion of the Work and portions thereof, Contractor shall clean to the original state any areas beyond the Work area that become dust laden as a result of the Work. The Contractor must erect the necessary warning signs and barricades to ensure the safety of all school occupants. The Contractor at all times must maintain good housekeeping practices to reduce the risk of fire damage and must make a fire extinguisher, fire blanket, and/or fire watch, as applicable, available at each location where cutting, braising, soldering, and/or welding is being performed or where there is an increased risk of fire.

6.16.2 Contractor at all times shall keep Premises, including property immediately adjacent thereto, free from debris such as waste, rubbish (including personal rubbish of workers, e.g., food wrappers, etc.), and excess materials and equipment caused by the Work. Contractor shall not leave debris under, in, or about the Premises (or surrounding property or neighborhood), but shall promptly remove same from the Premises on a daily basis. If Contractor fails to clean up, District may do so and the cost thereof shall be charged to Contractor. If Contract is for work on an existing facility, Contractor shall also perform specific clean-up on or about the Premises upon request by the District as it deems necessary for the continuing education process. Contractor shall comply with all related provisions of the Specifications.

6.16.3 If the Construction Manager, Architect, or District observes the accumulation of trash and debris, the District will give the Contractor a 24-hour written notice to mitigate the condition.

6.16.4 Should the Contractor fail to perform the required clean-up, or should the clean-up be deemed unsatisfactory by the District, the District will then perform the clean-up. All cost associated with the clean-up work (including all travel, payroll burden, and costs for supervision) will be deducted from the Contract Price, or District may withhold those amounts from payment(s) to Contractor.

7. SUBCONTRACTORS

7.1 Contractor shall provide the District with information for all Subcontracts as indicated in the Contractor's Submittals and Schedules Section herein.

7.2 No contractual relationship exists between the District and any Subcontractor, supplier, or sub-subcontractor by reason of this Contract.

7.3 Contractor agrees to bind every Subcontractor by terms of this Contract as far as those terms that are applicable to Subcontractor's work including, without limitation, all labor, wage & hour, apprentice and related provisions and requirements. If Contractor shall subcontract any part of this Contract, Contractor shall be as fully responsible to District for acts and omissions of any Subcontractor and of persons either directly or indirectly employed by any Subcontractor, including Subcontractor caused Project delays, as it is for acts and omissions of persons directly employed by Contractor. The divisions or sections of the Specifications and/or the arrangement of the drawings are not intended to control the Contractor in dividing the Work among Subcontractors or limit the work performed by any trade.

7.4 District's consent to, or approval of, or failure to object to, any Subcontractor under this Contract shall not in any way relieve Contractor of any obligations under this Contract and no such consent shall be deemed to waive any provisions of this Contract.

7.5 Contractor is directed to familiarize itself with sections 4100 through 4114 of the Public Contract Code of the State of California, as regards subletting and subcontracting, and to comply with all applicable requirements therein. In addition, Contractor is directed to familiarize itself with sections 1720 through 1861 of the Labor Code of the State of California, as regards the payment of prevailing wages and related issues, and to comply with all applicable requirements therein including, without

limitation, section 1775 and the Contractor's and Subcontractors' obligations and liability for violations of prevailing wage law and other applicable laws.

7.6 No Contractor whose Bid is accepted shall, without consent of the awarding authority and in full compliance with section 4100 et seq. of the Public Contract Code, including, without limitation, sections 4107, 4107.5, and 4109 of the Public Contract Code, and section 1771.1 of the Labor Code, either:

7.6.1 Substitute any person as a Subcontractor in place of the Subcontractor designated in the original Bid; or

7.6.2 Permit any Subcontract to be assigned or transferred, or allow any portion of the Work to be performed by anyone other than the original Subcontractor listed in the Bid; or

7.6.3 Sublet or subcontract any portion of the Work in excess of one-half of one percent (0.5%) of the Contractor's total bid as to which his original bid did not designate a Subcontractor.

7.7 The Contractor shall be responsible for the coordination of the trades, Subcontractors, sub-subcontractors, and material or equipment suppliers working on the Project.

7.7.1 If the Contract is valued at $1 million or more and uses, or plans to use, state bond funds, then Contractor is responsible for ensuring that first tier Subcontractors holding C-4, C-7, C-10, C-16, C-20, C-34, C-36, C-38, C-42, C-43, and/or C-46 licenses are prequalified by the District to work on the Project pursuant to Public Contract Code section 20111.6.

7.7.2 Contractor is responsible for ensuring that all Subcontractors are properly registered as public works contractors by the Department of Industrial Relations.

7.8 Contractor is solely responsible for settling any differences between the Contractor and its Subcontractor(s) or between Subcontractors.

7.9 Contractor must include in all of its subcontracts the assignment provisions as indicated in the Termination section of these General Conditions.

8. OTHER CONTRACTS/CONTRACTORS

8.1 District reserves the right to let other contracts, and/or to perform work with its own forces, in connection with the Project. Contractor shall afford other contractors reasonable opportunity for introduction and storage of their materials and execution of their work and shall properly coordinate and connect Contractor's Work with the work of other contractors.

8.2 In addition to Contractor's obligation to protect its own Work, Contractor shall protect the work of any other contractor that Contractor encounters while working on the Project.

8.3 If any part of Contractor's Work depends for proper execution or results upon work of District or any other contractor, the Contractor shall inspect and, before

proceeding with its Work, promptly report to the District in writing any defects in District's or any other contractor's work that render Contractor's Work unsuitable for proper execution and results. Contractor shall be held accountable for damages to District for District's or any other contractor's work that Contractor failed to inspect or should have inspected. Contractor's failure to inspect and report shall constitute Contractor's acceptance of all District's or any other contractor's work as fit and proper for reception of Contractor's Work, except as to defects that may develop in District's or any other contractor's work after execution of Contractor's Work and not caused by execution of Contractor's Work.

8.4 To ensure proper execution of its subsequent work, Contractor shall measure and inspect work already in place and shall at once report to the District in writing any discrepancy between that executed work and the Contract Documents.

8.5 Contractor shall ascertain to its own satisfaction the scope of the Project and nature of District's or any other contracts that have been or may be awarded by District in prosecution of the Project to the end that Contractor may perform this Contract in light of the other contracts, if any.

8.6 Nothing herein contained shall be interpreted as granting to Contractor exclusive occupancy of the Site, the Premises, or of the Project. Contractor shall not cause any unnecessary hindrance or delay to the use and/or school operation(s) of the Premises and/or to District or any other contractor working on the Project. If simultaneous execution of any contract or school operation is likely to cause interference with performance of Contractor's Contract, Contractor shall coordinate with those contractor(s), person(s), and/or entity(s) and shall notify the District of the resolution.

9. DRAWINGS AND SPECIFICATIONS

9.1 A complete list of all Drawings that form a part of the Contract is to be found as an index on the Drawings themselves, and/or may be provided to the Contractor and/or in the Table of Contents.

9.2 Materials or Work described in words that so applied have a well-known technical or trade meaning shall be deemed to refer to recognized standards, unless noted otherwise.

9.3 Trade Name or Trade Term. It is not the intention of this Contract to go into detailed descriptions of any materials and/or methods commonly known to the trade under "trade name" or "trade term." The mere mention or notation of "trade name" or "trade term" shall be considered a sufficient notice to Contractor that it will be required to complete the work so named, complete, finished, and operable, with all its appurtenances, according to the best practices of the trade.

9.4 The naming of any material and/or equipment shall mean furnishing and installing of same, including all incidental and accessory items thereto and/or labor therefor, as per best practices of the trade(s) involved, unless specifically noted otherwise.

9.5 Contract Documents are complementary, and what is called for by one shall be binding as if called for by all. As such, Drawings and Specifications are intended to be fully cooperative and to agree. However, if Contractor observes that Drawings and

Specifications are in conflict with the Contract Documents, Contractor shall promptly notify District and Architect in writing, and any necessary changes shall be made as provided in the Contract Documents.

9.6 In the case of discrepancy or ambiguity in the Contract Documents, the order of precedence in the Agreement shall prevail. However, in the case of discrepancy or ambiguity solely between and among the Drawings and Specifications, the discrepancy or ambiguity shall be resolved in favor of the interpretation that will provide District with the functionally complete and operable Project described in the Drawings and Specifications. In case of ambiguity, conflict, or lack of information, District will furnish clarifications with reasonable promptness.

9.7 Drawings and Specifications are intended to comply with all laws, ordinances, rules, and regulations of constituted authorities having jurisdiction, and where referred to in the Contract Documents, the laws, ordinances, rules, and regulations shall be considered as a part of the Contract within the limits specified. Contractor shall bear all expense of correcting work done contrary to said laws, ordinances, rules, and regulations.

9.8 As required by Section 4-317(c), Part 1, Title 24, CCR: "Should any existing conditions such as deterioration or non-complying construction be discovered which is not covered by the DSA-approved documents wherein the finished work will not comply with Title 24, California Code of Regulations, a construction change document, or a separate set of plans and specifications, detailing and specifying the required repair work shall be submitted to and approved by DSA before proceeding with the repair work."

9.9 Ownership of Drawings

All copies of Plans, Drawings, Designs, Specifications, and copies of other incidental architectural and engineering work, or copies of other Contract Documents furnished by District, are the property of District. They are not to be used by Contractor in other work and, with the exception of signed sets of Contract Documents, are to be returned to District on request at completion of Work, or may be used by District as it may require without any additional costs to District. Neither the Contractor nor any Subcontractor, or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications, and other documents prepared by the Architect. District hereby grants the Contractor, Subcontractors, sub-subcontractors, and material or equipment suppliers a limited license to use applicable portions of the Drawings prepared for the Project in the execution of their Work under the Contract Documents.

10. CONTRACTOR'S SUBMITTALS AND SCHEDULES

Contractor's submittals shall comply with the provisions and requirements of the Specifications including, without limitation Submittals.

10.1 Schedule of Work, Schedule of Submittals, and Schedule of Values

10.1.1 Within **TEN (10)** calendar days after the date of the Notice to Proceed (unless otherwise specified in the Specifications), the Contractor shall prepare and submit to the District for review, in a form supported by sufficient data to substantiate its accuracy as the District may require:

10.1.1.1 Preliminary Schedule. A preliminary schedule of construction indicating the starting and completion dates of the various stages of the Work, including any information and following any form as may be specified in the Specifications. Once approved by District, this shall become the Construction Schedule. This schedule shall include and identify all tasks that are on the Project's critical path with a specific determination of the start and completion of each critical path task as well as all Contract milestones and each milestone's completion date(s) as may be required by the District.

10.1.1.1.1 The District is not required to approve a preliminary schedule of construction with early completion, i.e., one that shows early completion dates for the Work and/or milestones. Contractor shall not be entitled to extra compensation if the District approves a Construction Schedule with an early completion date and Contractor completes the Project beyond the date shown in the schedule but within the Contract Time. A Construction Schedule showing the Work completed in less than the Contract Time, the time between the early completion date and the end of the Contract Time shall be Float.

10.1.1.2 Preliminary Schedule of Values. A preliminary schedule of values for all of the Work, which must include quantities and prices of items aggregating the Contract Price and must subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Unless the Special Conditions contain different limits, this preliminary schedule of values shall include, at a minimum, the following information and the following structure:

10.1.1.2.1 Divided into at least the following categories:

10.1.1.2.1.1 Overhead and profit;
10.1.1.2.1.2 Supervision;
10.1.1.2.1.3 General conditions;
10.1.1.2.1.4 Layout;
10.1.1.2.1.5 Mobilization;
10.1.1.2.1.6 Submittals;
10.1.1.2.1.7 Bonds and insurance;
10.1.1.2.1.8 Close-out/Certification documentation;
10.1.1.2.1.9 Demolition;
10.1.1.2.1.10 Installation;
10.1.1.2.1.11 Rough-in;
10.1.1.2.1.12 Finishes;
10.1.1.2.1.13 Testing;
10.1.1.2.1.14 Punchlist and District acceptance.

10.1.1.2.2 And also divided by each of the following areas:

10.1.1.2.2.1 Site work;
10.1.1.2.2.2 By each building;
10.1.1.2.2.3 By each floor.

10.1.1.2.3 The preliminary schedule of values shall not provide for values any greater than the following percentages of the Contract value:

10.1.1.2.3.1 Mobilization and layout combined to equal not more than 1%;
10.1.1.2.3.2 Submittals, samples and shop drawings combined to equal not more than 3%;
10.1.1.2.3.3 Bonds and insurance combined to equal not more than 2%.

10.1.1.2.4 Closeout documentation shall have a value in the preliminary schedule of not less than 5%.

10.1.1.2.5 Notwithstanding any provision of the Contract Documents to the contrary, payment of the Contractor's overhead, supervision, general conditions costs, and profit, as reflected in the Cost Breakdown, shall be paid based on percentage complete, with the disbursement of Progress Payments and the Final Payment.

10.1.1.2.6 Contractor shall certify that the preliminary schedule of values as submitted to the District is accurate and reflects the costs as developed in preparing Contractor's bid. For example, without limiting the foregoing, Contractor shall not "front-load" the preliminary schedule of values with dollar amounts greater than the value of activities performed early in the Project.

10.1.1.2.7 The preliminary schedule of values shall be subject to the District's review and approval of the form and content thereof. In the event that the District objects to any portion of the preliminary schedule of values, the District shall notify the Contractor, in writing, of the District's objection(s) to the preliminary schedule of values. Within five (5) calendar days of the date of the District's written objection(s), Contractor shall submit a revised preliminary schedule of values to the District for review and approval. The foregoing procedure for the preparation, review and approval of the preliminary schedule of values shall continue until the District has approved the entirety of the preliminary schedule of values.

10.1.1.2.8 Once the preliminary schedule of values is approved by the District, this shall become the Schedule of Values. The Schedule of Values shall not be thereafter modified or amended by the Contractor without the prior consent and approval of the District, which may be granted or withheld in the sole discretion of the District.

10.1.1.3 Preliminary Schedule of Submittals. A preliminary schedule of submittals, including Shop Drawings, Product Data, and Samples submittals. Once approved by District, this shall become the Submittal Schedule. All submittals shall be forwarded to the District by the date indicated on the approved Submittal Schedule, unless an earlier date is necessary to maintain the Construction Schedule, in which case those submittals shall be forwarded to the District so as not to delay the Construction Schedule. Upon request by the District, Contractor shall provide an electronic copy of all submittals to the District. All submittals shall be submitted no later than 90 days after the Notice to Proceed.

10.1.1.4 Safety Plan. Contractor's Safety Plan specifically adapted for the Project. Contractor's Safety Plan shall comply with the following requirements:

10.1.1.4.1 All applicable requirements of California Division of Occupational Safety and Health ("CalOSHA") and/or of the United States Occupational Safety and Health Administration ("OSHA").

10.1.1.4.2 All provisions regarding Project safety, including all applicable provisions in these General Conditions.

10.1.1.4.3 Contractor's Safety Plan shall be in English and in the language(s) of the Contractor's and its Subcontractors' employees.

10.1.1.5 Complete Registered Subcontractors List. The name, address, telephone number, facsimile number, California State Contractors License number, classification, DIR registration number and monetary value of all Subcontracts of any tier for parties furnishing labor, material, or equipment for completion of the Project.

10.1.2 Contractor must provide all schedules both in hard copy and electronically, in a format (e.g., Microsoft Project or Primavera) approved in advance by the District.

10.1.3 The District will review the schedules submitted and the Contractor shall make changes and corrections in the schedules as requested by the District and resubmit the schedules until approved by the District.

10.1.4 The District shall have the right at any time to revise the schedule of values if, in the District's sole opinion, the schedule of values does not accurately reflect the value of the Work performed.

10.1.5 All submittals and schedules must be approved by the District before Contractor can rely on them as a basis for payment.

10.2 Monthly Progress Schedule(s)

10.2.1 Contractor shall provide Monthly Progress Schedule(s) to the District. A Monthly Progress Schedule shall update the approved Construction Schedule or the last Monthly Progress Schedule, showing all work completed and to be completed as well as updating the Registered Subcontractors List. The monthly Progress Schedule shall be sent within the timeframe requested by the District and shall be in a format acceptable to the District and contain a written narrative of the progress of work that month and any changes, delays, or events that may affect the work. The process for District approval of the Monthly Progress Schedule shall be the same as the process for approval of the Construction Schedule.

10.2.2 Contractor shall submit Monthly Progress Schedule(s) with all payment applications.

10.2.3 Contractor must provide all schedules both in hard copy and electronically, in a format (e.g., Microsoft Project or Primavera) approved in advance by the District.

10.2.4 The District will review the schedules submitted and the Contractor shall make changes and corrections in the schedules as requested by the District and resubmit the schedules until approved by the District.

10.2.5 The District shall have the right at any time to revise the schedule of values if, in the District's sole opinion, the schedule of values does not accurately reflect the value of the Work performed.

10.2.6 All submittals and schedules must be approved by the District before Contractor can rely on them as a basis for payment.

10.3 Material Safety Data Sheets (MSDS)

Contractor is required to ensure Material Safety Data Sheets are available in a readily accessible place at the Work Site for any material requiring a Material Safety Data Sheet per the federal "Hazard Communication" standard, or employees' "right to know" law. The Contractor is also required to ensure proper labeling on substances brought onto the job site and that any person working with the material or within the general area of the material is informed of the hazards of the substance and follows proper handling and protection procedures. Two additional copies of the Material Safety Data Sheets shall also be submitted directly to the District.

11. SITE ACCESS, CONDITIONS, AND REQUIREMENTS

11.1 Site Investigation

Before bidding on this Work, Contractor shall make a careful investigation of the Site and thoroughly familiarize itself with the requirements of the Contract. By the act of submitting a bid for the Work included in this Contract, Contractor shall be deemed to have made a complete study and investigation, and to be familiar with and accepted the existing conditions of the Site.

Prior to commencing the Work, Contractor and the District's representative shall survey the Site to document the condition of the Site. Contractor will record the survey in digital videotape format and provide an electronic copy to the District within fourteen (14) days of the survey. This electronic record shall serve as a basis for determining any damages caused by the Contractor during the Project. The Contractor may also document any pre-existing conditions in writing, provided that both the Contractor and the District's representative agree on said conditions and sign a memorandum documenting the same.

11.2 Soils Investigation Report

11.2.1 When a soils investigation report obtained from test holes at Site or for the Project is available, that report may be available to the Contractor but shall not be a part of this Contract and shall not alleviate or excuse the Contractor's obligation to perform its own investigation. Any information obtained from that report or any information given on Drawings as to subsurface soil condition or to elevations of existing grades or elevations of underlying rock is approximate only, is not guaranteed, does not form a part of this Contract, and Contractor may not rely thereon. By submitting its bid, Contractor acknowledges that it has made visual

examination of Site and has made whatever tests Contractor deems appropriate to determine underground condition of soil.

11.2.2 Contractor agrees that no claim against District will be made by Contractor for damages and hereby waives any rights to damages if, during progress of Work, Contractor encounters subsurface or latent conditions at Site materially differing from those shown on Drawings or indicated in Specifications, or for unknown conditions of an unusual nature that differ materially from those ordinarily encountered in the work of the character provided for in Plans and Specifications, except as indicated in the provisions of these General Conditions regarding trenches, trenching, and/or existing utility lines.

11.3 Access to Work

District and its representatives shall at all times have access to Work wherever it is in preparation or progress, including storage and fabrication. Contractor shall provide safe and proper facilities for such access so that District's representatives may perform their functions.

11.4 Layout and Field Engineering

11.4.1 All field engineering required for layout of this Work and establishing grades for earthwork operations shall be furnished by Contractor at its expense. This Work shall be done by a qualified, California-registered civil engineer approved in writing by District and Architect. Any required Record and/or As-Built Drawings of Site development shall be prepared by the approved civil engineer.

11.4.2 The Contractor shall be responsible for having ascertained pertinent local conditions such as location, accessibility, and general character of the Site and for having satisfied itself as to the conditions under which the Work is to be performed. Contractor shall follow best practices, including but not limited to potholing to avoid utilities. District shall not be liable for any claim for allowances because of Contractor’s error, failure to follow best practices, or negligence in acquainting itself with the conditions at the Site.

11.4.3 Contractor shall protect and preserve established benchmarks and monuments and shall make no changes in locations without the prior written approval of District. Contractor shall replace any benchmarks or monuments that are lost or destroyed subsequent to proper notification of District and with District's approval.

11.5 Utilities

Utilities shall be provided as indicated in the Specifications.

11.6 Sanitary Facilities

Sanitary facilities shall be provided as indicated in the Specifications.

11.7 Surveys

Contractor shall provide surveys done by a California-licensed civil engineer surveyor to determine locations of construction, grading, and site work as required to perform the Work.

11.8 Regional Notification Center

The Contractor, except in an emergency, shall contact the appropriate regional notification center at least two (2) days prior to commencing any excavation if the excavation will be conducted in an area or in a private easement that is known, or reasonably should be known, to contain subsurface installations other than the underground facilities owned or operated by the District, and obtain an inquiry identification number from that notification center. No excavation shall be commenced and/or carried out by the Contractor unless an inquiry identification number has been assigned to the Contractor or any Subcontractor and the Contractor has given the District the identification number. Any damages arising from Contractor's failure to make appropriate notification shall be at the sole risk and expense of the Contractor. Any delays caused by failure to make appropriate notification shall be at the sole risk of the Contractor and shall not be considered for an extension of the Contract Time.

11.9 Existing Utility Lines

11.9.1 Pursuant to Government Code section 4215, District assumes the responsibility for removal, relocation, and protection of main or trunk utility lines and facilities located on the construction Site at the time of commencement of construction under this Contract with respect to any such utility facilities that are not identified in the Plans and Specifications. Contractor shall not be assessed for liquidated damages for delay in completion of the Project caused by failure of District or the owner of a utility to provide for removal or relocation of such utility facilities.

11.9.2 Locations of existing utilities provided by District shall not be considered exact, but approximate within a reasonable margin and shall not relieve Contractor of responsibilities to exercise reasonable care or costs of repair due to Contractor's failure to do so. District shall compensate Contractor for the costs of locating, repairing damage not due to the failure of Contractor to exercise reasonable care, and removing or relocating such utility facilities not indicated in the Plans and Specifications with reasonable accuracy, and for equipment necessarily idle during such work.

11.9.3 No provision herein shall be construed to preclude assessment against Contractor for any other delays in completion of the Work. Nothing in this Article shall be deemed to require District to indicate the presence of existing service laterals, appurtenances, or other utility lines, within the exception of main or trunk utility lines or whenever the presence of these utilities on the Site of the construction Project can be inferred from the presence of other visible facilities, such as buildings, meter junction boxes, on or adjacent to the Site of the construction.

11.9.4 If Contractor, while performing Work under this Contract, discovers utility facilities not identified by District in Contract Plans and Specifications, Contractor shall immediately notify the District and the utility in writing. The cost of repair for

damage to above-mentioned visible facilities without prior written notification to the District shall be borne by the Contractor.

11.10 Notification

Contractor understands, acknowledges and agrees that the purpose for prompt notification to the District pursuant to these provisions is to allow the District to investigate the condition(s) so that the District shall have the opportunity to decide how the District desires to proceed as a result of the condition(s). Accordingly, failure of Contractor to promptly notify the District in writing, pursuant to these provisions, shall constitute Contractor's waiver of any claim for damages or delay incurred as a result of the condition(s).

11.11 Hazardous Materials

Contractor shall comply with all provisions and requirements of the Contract Documents related to hazardous materials including, without limitation, Hazardous Materials Procedures and Requirements.

11.12 No Signs

Neither the Contractor nor any other person or entity shall display any signs not required by law or the Contract Documents at the Site, fences trailers, offices, or elsewhere on the Site without specific prior written approval of the District.

12. TRENCHES

12.1 Trenches Greater Than Five Feet

Pursuant to Labor Code section 6705, if the Contract Price exceeds $25,000 and involves the excavation of any trench or trenches five (5) feet or more in depth, the Contractor shall, in advance of excavation, promptly submit to the District and/or a registered civil or structural engineer employed by the District or Architect, a detailed plan, stamped by a licensed engineer retained by the Contractor, showing the design of shoring for protection from the hazard of caving ground during the excavation of such trench or trenches.

12.2 Excavation Safety

If such plan varies from the Shoring System Standards established by the Construction Safety Orders, the plan shall be prepared by a registered civil or structural engineer, but in no case shall such plan be less effective than that required by the Construction Safety Orders. No excavation of such trench or trenches shall be commenced until said plan has been accepted by the District or by the person to whom authority to accept has been delegated by the District.

12.3 No Tort Liability of District

Pursuant to Labor Code section 6705, nothing in this Article shall impose tort liability upon the District or any of its employees.

12.4 No Excavation without Permits

The Contractor shall not commence any excavation Work until it has secured all necessary permits including the required CalOSHA excavation/shoring permit. Any permits shall be prominently displayed on the Site prior to the commencement of any excavation.

12.5 Discovery of Hazardous Waste and/or Unusual Conditions

12.5.1 Pursuant to Public Contract Code section 7104, if the Work involves digging trenches or other excavations that extend deeper than four feet below the Surface, the Contractor shall promptly, and before the following conditions are disturbed, notify the District, in writing, of any:

12.5.1.1 Material that the Contractor believes may be material that is hazardous waste, as defined in section 25117 of the Health and Safety Code, is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.

12.5.1.2 Subsurface or latent physical conditions at the Site differing from those indicated.

12.5.1.3 Unknown physical conditions at the Site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

12.5.2 The District shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the Work, shall issue a Change Order under the procedures described herein.

12.5.3 In the event that a dispute arises between District and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the Work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all work to be performed under the Contract. The Contractor shall retain any and all rights provided either by Contract or by law that pertain to the resolution of disputes and protests.

13. INSURANCE AND BONDS

13.1 Insurance

Unless different provisions and/or limits are indicated in the Special Conditions, all insurance required of Contractor and/or its Subcontractor(s) shall be in the amounts and include the provisions set forth herein.

13.1.1 Commercial General Liability and Automobile Liability Insurance

13.1.1.1 Contractor shall procure and maintain, during the life of this Contract, Commercial General Liability Insurance and Automobile Liability Insurance that shall protect Contractor, District, State, Construction Manager(s), Project Inspector(s), and Architect(s) from all claims for bodily injury, property damage, personal injury, death, advertising injury, and medical payments arising from, or in connection with, operations under this Contract. This coverage shall be provided in a form at least as broad as Insurance Services (ISO) Form CG 0001 11188. Contractor shall ensure that Products Liability and Completed Operations coverage, Fire Damage Liability coverage, and Automobile Liability Insurance coverage including owned, non-owned, and hired automobiles, are included within the above policies and at the required limits, or Contractor shall procure and maintain these coverages separately.

13.1.1.2 Contractor's deductible or self-insured retention for its Commercial General Liability Insurance policy shall not exceed $25,000 unless approved in writing by District.

13.1.1.3 All such policies shall be written on an occurrence form.

13.1.2 <u>Excess Liability Insurance</u>

13.1.2.1 If Contractor's underlying policy limits are less than required, subject to 13.1.2.3 below, Contractor may procure and maintain, during the life of this Contract, an Excess Liability Insurance Policy to meet the policy limit requirements of the required policies in order to satisfy, in the aggregate with its underlying policy, the insurance requirements herein..

13.1.2.2 There shall be no gap between the per occurrence amount of any underlying policy and the start of the coverage under the Excess Liability Insurance Policy. Any Excess Liability Insurance Policy shall be written on a following form and shall protect Contractor, District, State, Construction Manager(s), Project Manager(s), and Architect(s) in amounts and including the provisions as set forth in the Supplementary Conditions (if any) and/or Special Conditions, and that complies with all requirements for Commercial General Liability and Automobile Liability and Employers' Liability Insurance.

13.1.2.3 The District, in its sole discretion, may accept the Excess Liability Insurance Policy that brings Contractor's primary limits to the minimum requirements herein.

13.1.3 <u>Subcontractor(s):</u> Contractor shall require its Subcontractor(s), if any, to procure and maintain Commercial General Liability Insurance, Automobile Liability Insurance, and Excess Liability Insurance (if Subcontractor elects to satisfy, in part the insurance required herein by procuring and maintaining an Excess Liability Insurance Policy) with forms of coverage and limits equal to the amounts required of the Contractor.

13.1.4 Workers' Compensation and Employers' Liability Insurance

13.1.4.1 In accordance with provisions of section 3700 of the California Labor Code, the Contractor and every Subcontractor shall be required to secure the payment of compensation to its employees.

13.1.4.2 Contractor shall procure and maintain, during the life of this Contract, Workers' Compensation Insurance and Employers' Liability Insurance for all of its employees engaged in work under this Contract, on/or at the Site of the Project. This coverage shall cover, at a minimum, medical and surgical treatment, disability benefits, rehabilitation therapy, and survivors' death benefits. Contractor shall require its Subcontractor(s), if any, to procure and maintain Workers' Compensation Insurance and Employers' Liability Insurance for all employees of Subcontractor(s). Any class of employee or employees not covered by a Subcontractor's insurance shall be covered by Contractor's insurance. If any class of employee or employee engaged in Work under this Contract, on or at the Site of the Project, is not protected under the Workers' Compensation Insurance, Contractor shall provide, or shall cause a Subcontractor to provide, adequate insurance coverage for the protection of any employee(s) not otherwise protected before any of those employee(s) commence work.

13.1.5 Builder's Risk Insurance: Builder's Risk "All Risk" Insurance

Contractor shall procure and maintain, during the life of this Contract, Builder's Risk (Course of Construction), or similar first party property coverage acceptable to the District, issued on a replacement cost value basis. The cost shall be consistent with the total replacement cost of all insurable Work of the Project included within the Contract Documents. Coverage is to insure against all risks of accidental physical loss and shall include without limitation the perils of vandalism and/or malicious mischief (both without any limitation regarding vacancy or occupancy), sprinkler leakage, civil authority, theft, sonic disturbance, earthquake, flood, collapse, wind, rain, dust, fire, war, terrorism, lightning, smoke, and rioting. Coverage shall include debris removal, demolition, increased costs due to enforcement of all applicable ordinances and/or laws in the repair and replacement of damaged and undamaged portions of the property, and reasonable costs for the Architect's and engineering services and expenses required as a result of any insured loss upon the Work and Project, including completed Work and Work in progress, to the full insurable value thereof.

13.1.6 Pollution Liability Insurance

13.1.6.1 Contractor shall procure and maintain Pollution Liability Insurance that shall protect Contractor, District, State, Construction Manager(s), Project Inspector(s), and Architect(s) from all claims for bodily injury, property damage, including natural resource damage, cleanup costs, removal, storage, disposal, and/or use of the pollutant arising from operations under this Contract, and defense, including costs and expenses incurred in the investigation, defense, or settlement of claims. Coverage shall apply to sudden and/or gradual pollution conditions resulting from the escape or release of smoke, vapors, fumes, acids, alkalis, toxic chemicals, liquids, or gases, natural gas, waste materials, or other irritants, contaminants, or pollutants, including asbestos. This coverage shall be provided in a form at least as broad as Insurance Services Offices, Inc. (ISO)

Form CG 2415, or Contractor shall procure and maintain these coverages separately.

13.1.6.2 Contractor warrants that any retroactive date applicable to coverage under the policy shall predate the effective date of the Contract and that continuous coverage will be maintained or an extended reporting or discovery period will be exercised for a period of three (3) years, beginning from the time that the Work under the Contract is completed.

13.1.6.3 If Contractor is responsible for removing any pollutants from a site, then Contractor shall ensure that Any Auto, including owned, non-owned, and hired, is included within the above policies and at the required limits, to cover its automobile exposure from transporting the pollutants from the site to an approved disposal site. This coverage shall include the Motor Carrier Act Endorsement, MCS 90.

13.1.7 Proof of Insurance and Other Requirements: Endorsements and Certificates

13.1.7.1 Contractor shall not commence Work nor shall it allow any Subcontractor to commence Work under this Contract, until Contractor and its Subcontractor(s) have procured all required insurance and Contractor has delivered in duplicate to the District complete endorsements (or entire insurance policies) and certificates indicating the required coverages have been obtained, and the District has approved these documents.

13.1.7.2 Endorsements, certificates, and insurance policies shall include the following:

13.1.7.2.1 A clause stating the following, or other language acceptable to the District:

"This policy shall not be canceled until written notice to District, Architect, and Construction Manager stating date of the cancellation by the insurance carrier. Date of cancellation may not be less than thirty (30) days after date of mailing notice."

13.1.7.2.2 Language stating in particular those insured, extent of insurance, location and operation to which insurance applies, expiration date, to whom cancellation and reduction notice will be sent, and length of notice period.

13.1.7.2.3 All endorsements, certificates and insurance policies shall state that District, its trustees, employees and agents, the State of California, Construction Manager(s), Project Manager(s), Inspector(s) and Architect(s) are named additional insureds under all policies except Workers' Compensation Insurance and Employers' Liability Insurance.

13.1.7.3 No policy shall be amended, canceled or modified, and the coverage amounts shall not be reduced, until Contractor or Contractor's broker has provided written notice to District, Architect(s), and Construction Manager(s) stating date of the amendment, modification, cancellation or reduction, and a

description of the change. Date of amendment, modification, cancellation or reduction may not be less than thirty (30) days after date of mailing notice.

13.1.7.4 Insurance written on a "claims made" basis shall be retroactive to a date that coincides with or precedes Contractor's commencement of Work, including subsequent policies purchased as renewals or replacements. Said policy is to be renewed by the Contractor and all Subcontractors for a period of five (5) years following completion of the Work or termination of this Agreement. Such insurance must have the same coverage and limits as the policy that was in effect during the term of this Agreement, and will cover the Contractor and all Subcontractors for all claims made.

13.1.7.5 Contractor's and Subcontractors' insurance policy(s) shall be primary and non-contributory to any insurance or self-insurance maintained by District, its trustees, employees and/or agents, the State of California, Construction Manager(s), Project Manager(s), Inspector(s), and/or Architect(s).

13.1.7.6 All endorsements shall waive any right to subrogation against any of the named additional insureds.

13.1.7.7 Unless otherwise stated in the Special Conditions, all of Contractor's insurance shall be with insurance companies with an A.M. Best rating of no less than **A: VII**.

13.1.7.8 The insurance requirements set forth herein shall in no way limit the Contractor's liability arising out of or relating to the performance of the Work or related activities.

13.1.7.9 Failure of Contractor and/or its Subcontractor(s) to comply with the insurance requirements herein shall be deemed a material breach of the Contract.

13.1.8 Insurance Policy Limits

Unless different limits are indicated in the Special Conditions, the limits of insurance shall not be less than the following amounts:

Commercial General Liability	Product Liability and Completed Operations, Fire Damage Liability – Split Limit	$2,000,000 per occurrence; $4,000,000 aggregate
Automobile Liability	Any Auto – Combined Single Limit	$1,000,000
Workers' Compensation		Statutory limits pursuant to State law
Employers' Liability		$1,000,000
Builder's Risk (Course of Construction)		Issued for the value and scope of Work indicated herein.
Pollution Liability		$1,000,000 per claim; $2,000,000 aggregate

13.2 Contract Security - Bonds

13.2.1 Contractor shall furnish two surety bonds issued by a California admitted surety insurer as follows:

13.2.1.1 Performance Bond: A bond in an amount at least equal to one hundred percent (100%) of Contract Price as security for faithful performance of this Contract.

13.2.1.2 Payment Bond: A bond in an amount at least equal to one hundred percent (100%) of the Contract Price as security for payment of persons performing labor and/or furnishing materials in connection with this Contract.

13.2.2 Cost of bonds shall be included in the Bid and Contract Price.

13.2.3 All bonds related to this Project shall be in the forms set forth in these Contract Documents and shall comply with all requirements of the Contract Documents, including, without limitation, the bond forms.

14. WARRANTY/GUARANTEE/INDEMNITY

14.1 Warranty/Guarantee

14.1.1 The Contractor shall obtain and preserve for the benefit of the District, manufacturer's warranties on materials, fixtures, and equipment incorporated into the Work.

14.1.2 In addition to guarantees required elsewhere, Contractor shall, and hereby does guarantee and warrant all Work furnished on the job against all defects for a period of **ONE (1)** year after the later of the following dates, unless a longer period is provided for in the Contract Documents:

14.1.2.1 The acceptance by the District's governing board of the Work, subject to these General Conditions, or

14.1.2.2 The date that commissioning for the Project, if any, was completed.

At the District's sole option, Contractor shall repair or replace any and all of that Work, together with any other Work that may be displaced in so doing, that may prove defective in workmanship and/or materials within a **ONE (1)** year period from date of completion as defined above, unless a longer period is provided for in the Contract Documents, without expense whatsoever to District. In the event of failure of Contractor and/or Surety to commence and pursue with diligence said replacements or repairs within ten (10) days after being notified in writing, Contractor and Surety hereby acknowledge and agree that District is authorized to proceed to have defects repaired and made good at expense of Contractor and/or Surety who hereby agree to pay costs and charges therefore immediately on demand.

14.1.3 If, in the opinion of District, defective work creates a dangerous condition or requires immediate correction or attention to prevent further loss to District or to prevent interruption of operations of District, District will attempt to give the notice required above. If Contractor or Surety cannot be contacted or neither complies with District's request for correction within a reasonable time as determined by District, District may, notwithstanding the above provision, proceed to make any and all corrections and/or provide attentions the District believes are necessary. The costs of correction or attention shall be charged against Contractor and Surety of the guarantees provided in this Article or elsewhere in this Contract.

14.1.4 The above provisions do not in any way limit the guarantees on any items for which a longer guarantee is specified or on any items for which a manufacturer gives a guarantee for a longer period. Contractor shall furnish to District all appropriate guarantee or warranty certificates as indicated in the Specifications or upon request by District.

14.1.5 Nothing herein shall limit any other rights or remedies available to District.

14.2 Indemnity and Defense

14.2.1 To the furthest extent permitted by California law, the Contractor shall indemnify, keep and hold harmless the District, the Architect(s), and the

Construction Manager(s), their respective consultants, separate contractors, board members, officers, representatives, , agents, and employees, in both individual and official capacities ("Indemnitees"), against all suits, claims, injury, damages, losses, and expenses ("Claims"), including but not limited to attorney's fees, caused by, arising out of, resulting from, or incidental to, in whole or in part, the performance of the Work under this Contract by the Contractor, its Subcontractors, vendors, or suppliers. However, the Contractor's indemnification and hold harmless obligation shall be reduced by the proportion of the Indemnitees' and/or Architect's liability to the extent the Claim(s) is/are caused by the sole negligence, active negligence, or willful misconduct of the Indemnitees, and/or defects in design furnished by the Architect, as found by a court or arbitrator of competent jurisdiction. This indemnification and hold harmless obligation of the Contractor shall not be construed to negate, abridge, or otherwise reduce any right or obligation of indemnity that would otherwise exist or arise as to any Indemnitee or other person described herein. This indemnification and hold harmless obligation includes, but is not limited to, any failure or alleged failure by Contractor to comply with any provision of law, any failure or alleged failure to timely and properly fulfill all of its obligations under the Contract Documents in strict accordance with their terms, and without limitation, any failure or alleged failure of Contractor's obligations regarding any stop payment notice actions or liens, including Civil Wage and Penalty Assessments and/or Orders by the DIR.

14.2.2 To the furthest extent permitted by California law, Contractor shall also defend Indemnitees, at its own expense, including but not limited to attorneys' fees and costs, against all Claims caused by, arising out of, resulting from, or incidental to, in whole or in part, the performance of the Work under this Contract by the Contractor, its Subcontractors, vendors, or suppliers. However, the Contractor's defense obligation shall be reduced by the proportion of the Indemnitees' and/or Architect's liability to the extent caused by the sole negligence, active negligence, or willful misconduct of the Indemnitees, and/or defects in design furnished by the Architect, as found by a court or arbitrator of competent jurisdiction. The District shall have the right to accept or reject any legal representation that Contractor proposes to defend the Indemnitees. If any Indemnitee provides its own defense due to failure to timely respond to tender of defense, rejection of tender of defense, or conflict of interest of proposed counsel, Contractor shall reimburse such Indemnitee for any expenditures. Contractor's defense obligation shall not be construed to negate, abridge, or otherwise reduce any right or obligation of defense that would otherwise exist as to any Indemnitee or other person described herein. Contractor's defense obligation includes, but is not limited to, any failure or alleged failure by Contractor to comply with any provision of law, any failure or alleged failure to timely and properly fulfill all of its obligations under the Contract Documents in strict accordance with their terms, and without limitation, any failure or alleged failure of Contractor's obligations regarding any stop payment notice actions or liens, including Civil Wage and Penalty Assessments and/or Orders by the DIR. The Contractor shall give prompt notice to the District in the event of any Claim(s).

14.2.3 Without limitation of the provisions herein, if the Contractor's obligation to indemnify and hold harmless the Indemnitees or its obligation to defend Indemnitees as provided herein shall be determined to be void or unenforceable, in whole or in part, it is the intention of the parties that these circumstances shall not otherwise affect the validity or enforceability of the Contractor's agreement to indemnify,

defend, and hold harmless the rest of the Indemnitees, as provided herein. Further, the Contractor shall be and remain fully liable on its agreements and obligations herein to the fullest extent permitted by law.

14.2.4 Pursuant to Public Contract Code section 9201, the District shall provide timely notification to Contractor of the receipt of any third-party Claim relating to this Contract. The District shall be entitled to recover its reasonable costs incurred in providing said notification.

14.2.5 In any and all Claims against any of the Indemnitees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the Contractor's indemnification obligation herein shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

14.2.6 The District may retain so much of the moneys due the Contractor as shall be considered necessary, until disposition of any such Claims or until the District, Architect(s) and Construction Manager(s) have received written agreement from the Contractor that they will unconditionally defend the District, Architect(s) and Construction Manager(s), their respective officers, agents and employees, and pay any damages due by reason of settlement or judgment.

14.2.7 The Contractor's defense and indemnification obligations hereunder shall survive the completion of Work, the warranty/guarantee period, and the termination of the Contract.

15. TIME

15.1 Notice to Proceed

15.1.1 District may issue a Notice to Proceed within ninety (90) days from the date of the Notice of Award. Once Contractor has received the Notice to Proceed, Contractor shall complete the Work within the period of time indicated in the Contract Documents.

15.1.2 In the event that the District desires to postpone issuing the Notice to Proceed beyond ninety (90) days from the date of the Notice of Award, it is expressly understood that with reasonable notice to the Contractor, the District may postpone issuing the Notice to Proceed. It is further expressly understood by Contractor that Contractor shall not be entitled to any claim of additional compensation as a result of the postponement of the issuance of the Notice to Proceed.

15.1.3 If the Contractor believes that a postponement of issuance of the Notice to Proceed will cause a hardship to Contractor, Contractor may terminate the Contract. Contractor's termination due to a postponement shall be by written notice to District within ten (10) days after receipt by Contractor of District's notice of postponement. It is further understood by Contractor that in the event that Contractor terminates the Contract as a result of postponement by the District, the District shall only be obligated to pay Contractor for the Work that Contractor had performed at the time of notification of postponement. Should Contractor terminate the Contract as a

result of a notice of postponement, District shall have the authority to award the Contract to the next lowest responsive responsible bidder.

15.2 Computation of Time / Adverse Weather

15.2.1 The Contractor will only be allowed a time extension for Adverse Weather conditions if requested by Contractor in compliance with the time extension request procedures and only if all of the following conditions are met:

15.2.1.1 The weather conditions constitute Adverse Weather, as defined herein and further specified in the Special Conditions;

15.2.1.2 Contractor can verify that the Adverse Weather caused delays in excess of five (5) hours of the indicated labor required to complete the scheduled tasks of Work on the day affected by the Adverse Weather;

15.2.1.3 The Contractor's crew is dismissed as a result of the Adverse Weather;

15.2.1.4 Said delay adversely affects the critical path in the Construction Schedule; and

15.2.1.5 Exceeds twelve (12) days of delay per year.

15.2.2 If the aforementioned conditions are met, a non-compensable day-for-day extension will only be allowed for those days in excess of those indicated in the Special Conditions.

15.2.3 The Contractor shall work seven (7) days per week, if necessary, irrespective of inclement weather, to maintain access and the Construction Schedule, and to protect the Work under construction from the effects of Adverse Weather, all at no further cost to the District.

15.2.4 The Contract Time has been determined with consideration given to the average climate weather conditions prevailing in the County in which the Project is located.

15.3 Hours of Work

15.3.1 Sufficient Forces

Contractor and Subcontractors shall continuously furnish sufficient and competent work forces with the required levels of familiarity with the Project and skill, training and experience to ensure the prosecution of the Work in accordance with the Construction Schedule.

15.3.2 Performance During Working Hours

Work shall be performed during regular working hours as permitted by the appropriate governmental agency except that in the event of an emergency, or when required to complete the Work in accordance with job progress, Work may be performed outside of regular working hours with the advance written consent of the District and approval of any required governmental agencies.

15.3.3 No Work during State Testing

Contractor shall, at no additional cost to the District and at the District's request, coordinate its Work to not disturb District students including, without limitation, not performing any Work when students at the Site are taking State or Federally-required tests. The District or District's Representative will provide Contractor with a schedule of test dates concurrent with the District's issuance of the Notice to Proceed, or as soon as test dates are made available to the District.

15.4 Progress and Completion

15.4.1 Time of the Essence

Time limits stated in the Contract Documents are of the essence to the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

15.4.2 No Commencement Without Insurance or Bonds

The Contractor shall not commence operations on the Project or elsewhere prior to the effective date of insurance and bonds. The date of commencement of the Work shall not be changed by the effective date of such insurance or bonds. If Contractor commences Work without insurance and bonds, all Work is performed at Contractor's peril and shall not be compensable until and unless Contractor secures bonds and insurance pursuant to the terms of the Contract Documents and subject to District claim for damages.

15.5 Schedule

Contractor shall provide to District, Construction Manager, and Architect a schedule in conformance with the Contract Documents and as required in the Notice to Proceed and the Contractor's Submittals and Schedules section of these General Conditions.

15.6 Expeditious Completion

The Contractor shall proceed expeditiously with adequate forces and shall achieve Completion within the Contract Time.

16. EXTENSIONS OF TIME – LIQUIDATED DAMAGES

16.1 Liquidated Damages

Contractor and District hereby agree that the exact amount of damages for failure to complete the Work within the time specified is extremely difficult or impossible to determine. If the Work is not completed within the time specified in the Contract Documents, it is understood that the District will suffer damage. It being impractical and unfeasible to determine the amount of actual damage, it is agreed the Contractor shall pay to District as fixed and liquidated damages, and not as a penalty, the amount set forth in the Agreement for each calendar day of delay in completion. Contractor and its Surety shall be liable for the amount thereof pursuant to Government Code section 53069.85.

16.2 Excusable Delay

16.2.1 Contractor shall not be charged for liquidated damages because of any delays in completion of Work which are not the fault of Contractor or its Subcontractors, including acts of God as defined in Public Contract Code section 7105, acts of enemy, epidemics, and quarantine restrictions. Contractor shall, within five (5) calendar days of beginning of any delay, notify District in writing of causes of delay including documentation and facts explaining the delay and the direct correlation between the cause and effect. District shall review the facts and extent of any delay and shall grant extension(s) of time for completing Work when, in its judgment, the findings of fact justify an extension. Extension(s) of time shall apply only to that portion of Work affected by delay, and shall not apply to other portions of Work not so affected. An extension of time may only be granted if Contractor has timely submitted the Construction Schedule as required herein.

16.2.2 Contractor shall notify the District pursuant to the claims provisions in these General Conditions of any anticipated delay and its cause. Following submission of a claim, the District may determine whether the delay is to be considered avoidable or unavoidable, how long it continues, and to what extent the prosecution and completion of the Work might be delayed thereby.

16.2.3 In the event the Contractor requests an extension of Contract Time for unavoidable delay, such request shall be submitted in accordance with the provisions in the Contract Documents governing changes in Work. When requesting time, requests must be submitted with full justification and documentation. If the Contractor fails to submit justification, it waives its right to a time extension at a later date. Such justification must be based on the official Construction Schedule as updated at the time of occurrence of the delay or execution of Work related to any changes to the Scope of Work. Any claim for delay must include the following information as support, without limitation:

16.2.3.1 The duration of the activity relating to the changes in the Work and the resources (manpower, equipment, material, etc.) required to perform the activities within the stated duration.

16.2.3.2 Specific logical ties to the Contract Schedule for the proposed changes and/or delay showing the activity/activities in the Construction Schedule that are affected by the change and/or delay. In particular, Contractor must show an actual impact to the schedule, after making a good faith effort to mitigate the delay by rescheduling the work, by providing an analysis of the schedule ("Schedule Analysis"). Such Schedule Analysis shall describe in detail the cause and effect of the delay and the impact on the critical dates in the Project schedule. (A portion of any delay of seven (7) days or more must be provided.)

16.2.3.3 A recovery schedule must be submitted within twenty (20) calendar days of written notification to the District of causes of delay.

16.3 No Additional Compensation for Delays Within Contractor's Control

16.3.1 Contractor is aware that governmental agencies, including, without limitation, the Division of the State Architect, the Department of General Services, gas companies, electrical utility companies, water districts, and other agencies may

have to approve Contractor-prepared drawings or approve a proposed installation. Accordingly, Contractor shall include in its bid, time for possible review of its drawings and for reasonable delays and damages that may be caused by such agencies. Thus, Contractor is not entitled to make a claim for damages or delays arising from the review of Contractor's drawings.

16.3.2 Contractor shall only be entitled to compensation for delay when all of the following conditions are met:

16.3.2.1 The District is responsible for the delay;

16.3.2.2 The delay is unreasonable under the circumstances involved;

16.3.2.3 The delay was not within the contemplation of the District and Contractor;

16.3.2.4 The delay could not have been avoided or mitigated by Contractor's reasonable diligence; and

16.3.2.5 Contractor timely complies with the claims procedure of the Contract Documents.

16.4 Float or Slack in the Schedule

Float or slack is the amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any of the activities in the schedule. Float or slack is not for the exclusive use of or benefit of either the District or the Contractor, but its use shall be determined solely by the District.

17. CHANGES IN THE WORK

17.1 No Changes Without Authorization

17.1.1 There shall be no change whatsoever in the Drawings, Specifications, or in the Work without an executed Change Order or a written Construction Change Directive authorized by the District as herein provided. District shall not be liable for the cost of any extra work or any substitutions, changes, additions, omissions, or deviations from the Drawings and Specifications unless the District's governing board has authorized the same and the cost thereof has been approved in writing by Change Order or Construction Change Directive in advance of the changed Work being performed. No extension of time for performance of the Work shall be allowed hereunder unless claim for such extension is made at the time changes in the Work are ordered, and such time duly adjusted and approved in writing in the Change Order or Construction Change Directive. Contractor shall be responsible for any costs incurred by the District for professional services and DSA fees and/or delay to the Project Schedule, if any, for DSA to review any request for changes to the DSA approved plans and specifications for the convenience of the Contractor and/or to accommodate the Contractor's means and methods. The provisions of the Contract Documents shall apply to all such changes, additions, and omissions with the same effect as if originally embodied in the Drawings and Specifications.

17.1.2 Contractor shall perform immediately all work that has been authorized by a fully executed Change Order or Construction Change Directive. Contractor shall be fully responsible for any and all delays and/or expenses caused by Contractor's failure to expeditiously perform this Work.

17.1.3 Should any Change Order result in an increase in the Contract Price or extend the Contract Time, the cost of or length of extension in that Change Order shall be agreed to, in writing, by the District in advance of the Work by Contractor, and shall be subject to the monetary limitations set forth in Public Contract Code section 20118.4. In the event that Contractor proceeds with any change in Work without a Change Order executed by the District or Construction Change Directive, Contractor waives any claim of additional compensation or time for that additional work. Under no circumstances shall Contractor be entitled to any claim of additional compensation or time not expressly requested by Contractor in a Proposed Change Order or approved by District in an executed Change Order.

17.1.4 Contractor understands, acknowledges, and agrees that the reason for District authorization is so that District may have an opportunity to analyze the Work and decide whether the District shall proceed with the Change Order or alter the Project so that a change in Work becomes unnecessary.

17.2 Architect Authority

The Architect will have authority to order minor changes in the Work not involving any adjustment in the Contract Price, or an extension of the Contract Time, or a change that is inconsistent with the intent of the Contract Documents. These changes shall be effected by written Change Order, Construction Change Directive, by Architect's response(s) to RFI(s), or by Architect's Supplemental Instructions ("ASI").

17.3 Change Orders

17.3.1 A Change Order is a written instrument prepared and issued by the District and/or the Architect and signed by the District (as authorized by the District's Governing Board), the Contractor, the Architect, and approved by the Project Inspector (if necessary) and DSA (if necessary), stating their agreement regarding all of the following:

17.3.1.1 A description of a change in the Work;

17.3.1.2 The amount of the adjustment in the Contract Price, if any; and

17.3.1.3 The extent of the adjustment in the Contract Time, if any.

17.4 Construction Change Directives

17.4.1 A Construction Change Directive is a written order prepared and issued by the District, the Construction Manager, and/or the Architect and signed by the District and the Architect, directing a change in the Work. The District may, as provided by law, by Construction Change Directive and without invalidating the Contract, order changes in the Work consisting of additions, deletions, or other revisions. The adjustment to the Contract Price or Time, if any, is subject to the provisions of this section regarding Changes in the Work. If all or a portion of the

Project is being funded by funds requiring approval by the State Allocation Board ("SAB"), these revisions may be subject to compensation once approval of same is received and funded by the SAB, and funds are released by the Office of Public School Construction ("OPSC"). Any dispute as to the adjustment in the Contract Price, if any, of the Construction Change Directive or timing of payment shall be resolved pursuant to the Payment and Claims and Disputes provisions herein.

17.4.2 The District may issue a Construction Change Directive in the absence of agreement on the terms of a Change Order.

17.5 Force Account Directives

17.5.1 When work, for which a definite price has not been agreed upon in advance, is to be paid for on a force account basis, all direct costs necessarily incurred and paid by the Contractor for labor, material, and equipment used in the performance of that Work, shall be subject to the approval of the District and compensation will be determined as set forth herein.

17.5.2 The District will issue a Force Account Directive to proceed with the Work on a force account basis, and a not-to-exceed budget will be established by the District.

17.5.3 All requirements regarding direct cost for labor, labor burden, material, equipment, and markups on direct costs for overhead and profit described in this section shall apply to Force Account Directives. However, the District will only pay for actual costs verified in the field by the District or its authorized representative(s) on a daily basis.

17.5.4 The Contractor shall be responsible for all cost related to the administration of Force Account Directive. The markup for overhead and profit for Contractor modifications shall be full compensation to the Contractor to administer Force Account Directive, and Contractor shall not be entitled to separately recover additional amounts for overhead and/or profit.

17.5.5 The Contractor shall notify the District or its authorized representative(s) at least twenty-four (24) hours prior to proceeding with any of the force account work. Furthermore, the Contractor shall notify the District when it has consumed eighty percent (80%) of the budget, and shall not exceed the budget unless specifically authorized in writing by the District. The Contractor will not be compensated for force account work in the event that the Contractor fails to timely notify the District regarding the commencement of force account work, or exceeding the force account budget.

17.5.6 The Contractor shall diligently proceed with the work, and on a daily basis, submit a daily force account report on a form supplied by the District no later than 5:00 p.m. each day. The report shall contain a detailed itemization of the daily labor, material, and equipment used on the force account work only. The names of the individuals performing the force account work shall be included on the daily force account reports. The type and model of equipment shall be identified and listed. The District will review the information contained in the reports, and sign the reports no later than the next work day, and return a copy of the report to the Contractor for their records. The District will not sign, nor will the Contractor receive compensation

for work the District cannot verify. The Contractor will provide a weekly force account summary indicating the status of each Force Account Directive in terms of percent complete of the not-to-exceed budget and the estimated percent complete of the work.

17.5.7 In the event the Contractor and the District reach a written agreement on a set cost for the work while the work is proceeding based on a Force Account Directive, the Contractor's signed daily force account reports shall be discontinued and all previously signed reports shall be invalid.

17.6 Price Request

17.6.1 Definition of Price Request

A Price Request ("PR") is a written request prepared by the Architect requesting the Contractor to submit to the District and the Architect an estimate of the effect of a proposed change in the Work on the Contract Price and the Contract Time.

17.6.2 Scope of Price Request

A Price Request shall contain adequate information, including any necessary Drawings and Specifications, to enable Contractor to provide the cost breakdowns required herein. The Contractor shall not be entitled to any additional compensation for preparing a response to a Price Request, whether ultimately accepted or not.

17.7 Proposed Change Order

17.7.1 Definition of Proposed Change Order

A Proposed Change Order ("PCO") is a written request prepared by the Contractor requesting that the District and the Architect issue a Change Order based upon a proposed change to the Work.

17.7.2 Changes in Contract Price

A PCO shall include breakdowns and backup documentation pursuant to the revisions herein and sufficient, in the District's judgment, to validate any change in Contract Price. In no case shall Contractor or any of its Subcontractors be permitted to reserve rights for additional compensation for Change Order Work.

17.7.3 Changes in Time

A PCO shall also include any changes in time required to complete the Project. Any additional time requested shall not be the number of days to make the proposed change, but must be based upon the impact to the Construction Schedule as defined in the Contract Documents. The Contractor shall justify the proposed change in time by submittal of a schedule analysis that accurately shows the impact of the change on the critical path of the Construction Schedule ("Time Impact Analysis"). If Contractor fails to request a time extension in a PCO, including the Time Impact Analysis, then the Contractor is thereafter precluded from requesting, and waives any right to request, additional time and/or claim a delay. In no case shall Contractor or any of its Subcontractors be permitted to reserve rights for additional time for Change Order Work. A PCO that leaves the amount of time requested blank, or states that such time requested is "to be determined", is not permitted and shall also constitute a waiver of any right to request additional time and/or claim a delay.

17.7.4 Unknown and/or Unforeseen Conditions

If there is an Allowance, then Contractor must submit a Request for Allowance Expenditure Directive, including supporting documentation as described below, to receive authorization for the release of funds from the Allowance. If cost of the unforeseen condition(s) exceed the Allowance, Contractor must submit a PCO

requesting an increase in Contract Price and/or Contract Time that is based at least partially on Contractor's assertion that Contractor has encountered unknown and/or unforeseen condition(s) on the Project, then Contractor shall base the PCO on provable information that, beyond a reasonable doubt and to the District's satisfaction, demonstrates that the unknown and/or unforeseen condition(s) were actually unknown and/or unforeseen and that the condition(s) were reasonably unknown and/or unforeseen. If not, the District shall deny the PCO as unsubstantiated, and the Contractor shall complete the Project without any increase in Contract Price and/or Contract Time based on that PCO.

17.7.5 Time to Submit Proposed Change Order

Contractor shall submit its PCO within five (5) working days of the date Contractor discovers, or reasonably should have discovered, the circumstances giving rise to the PCO, unless additional time to submit a PCO is granted in writing by the District. Time is of the essence in Contractor's submission of PCOs so that the District can promptly investigate the basis for the PCO. Accordingly, if Contractor fails to submit its PCO within this timeframe, Contractor waives, releases, and discharges any right to assert or claim any entitlement to an adjustment of the Contract Price and/or Time based on circumstances giving rise to the PCO.

17.7.6 Proposed Change Order Certification

In submitting a PCO, Contractor certifies and affirms that the cost and/or time request is submitted in good faith, that the cost and/or time request is accurate and in accordance with the provisions of the Contract Documents, and the Contractor submits the cost and/or request for extension of time recognizing the significant civil penalties and treble damages which follow from making a false claim or presenting a false claim under Government Code section 12650 et seq.

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17.8 Format for Proposed Change Order

17.8.1 The following format shall be used as applicable by the District and the Contractor (e.g. Change Orders, PCO's) to communicate proposed additions and deductions to the Contract, supported by attached documentation. Any spaces left blank will be deemed no change to cost or time.

	WORK PERFORMED OTHER THAN BY CONTRACTOR	**ADD**	**DEDUCT**
(a)	**Material** (attach suppliers' invoice or itemized quantity and unit cost plus sales tax)		
(b)	**Add Labor** (attach itemized hours and rates, fully encumbered)		
(c)	**Add Equipment** (attach suppliers' invoice)		
(d)	**Subtotal**		
(e)	**Add overhead and profit for any and all tiers of Subcontractor**, the total not to exceed ten percent (10%) of Item (d)		
(f)	**Subtotal**		
(g)	**Add Overhead and Profit for Contractor**, not to exceed five percent (5%) of Item (f)		
(h)	**Subtotal**		
(i)	**Add Bond and Insurance**, not to exceed one and a half percent (1.5%) of Item (h)		
(j)	**TOTAL**		
(k)	**Time** (zero unless indicated; "TBD" not permitted)	**_____ Calendar Days**	

	WORK PERFORMED BY CONTRACTOR	**ADD**	**DEDUCT**
(l)	**Material** (attach itemized quantity and unit cost plus sales tax)		
(m)	**Add Labor** (attach itemized hours and rates, fully encumbered)		
(n)	**Add Equipment** (attach suppliers' invoice)		
(o)	**Subtotal**		
(p)	**Add Overhead and Profit for Contractor**, not to exceed fifteen percent (15%) of Item (d)		
(q)	**Subtotal**		
(r)	**Add Bond and Insurance**, not to exceed one and a half percent (1.5%) of Item (f)		
(s)	**TOTAL**		
(t)	**Time** (zero unless indicated; "TBD" not permitted)	**_____ Calendar Days**	

17.8.2 Labor. Contractor shall be compensated for the costs of labor actually and directly utilized in the performance of the Work. Such labor costs shall be limited to field labor for which there is a prevailing wage rate classification. Wage rates for labor shall not exceed the prevailing wage rates in the locality of the Site and shall be in the labor classification(s) necessary for the performance of the Work.

Labor costs shall exclude costs incurred by the Contractor in preparing estimate(s) of the costs of the change in the Work, in the maintenance of records relating to the costs of the change in the Work, coordination and assembly of materials and information relating to the change in the Work or performance thereof, or the supervision and other overhead and general conditions costs associated with the change in the Work or performance thereof, including but not limited to the cost for the job superintendent.

17.8.3 Materials. Contractor shall be compensated for the costs of materials necessarily and actually used or consumed in connection with the performance of the change in the Work. Costs of materials may include reasonable costs of transportation from a source closest to the Site of the Work and delivery to the Site. If discounts by material suppliers are available for materials necessarily used in the performance of the change in the Work, they shall be credited to the District. If materials necessarily used in the performance of the change in the Work are obtained from a supplier or source owned in whole or in part by the Contractor, compensation therefor shall not exceed the current wholesale price for such materials. If, in the reasonable opinion of the District, the costs asserted by the Contractor for materials in connection with any change in the Work are excessive, or if the Contractor fails to provide satisfactory evidence of the actual costs of such materials from its supplier or vendor of the same, the costs of such materials and the District's obligation to pay for the same shall be limited to the then lowest wholesale price at which similar materials are available in the quantities required to perform the change in the Work. The District may elect to furnish materials for the change in the Work, in which event the Contractor shall not be compensated for the costs of furnishing such materials or any mark-up thereon.

17.8.4 Equipment. As a precondition to the District's duty to pay for Equipment rental or loading and transportation, Contractor shall provide satisfactory evidence of the actual costs of Equipment from the supplier, vendor or rental agency of same. Contractor shall be compensated for the actual cost of the necessary and direct use of Equipment in the performance of the change in the Work. Use of such Equipment in the performance of the change in the Work shall be compensated in increments of fifteen (15) minutes. Rental time for Equipment moved by its own power shall include time required to move such Equipment to the site of the Work from the nearest available rental source of the same. If Equipment is not moved to the Site by its own power, Contractor will be compensated for the loading and transportation costs in lieu of rental time. The foregoing notwithstanding, neither moving time or loading and transportation time shall be allowed if the Equipment is used for performance of any portion of the Work other than the change in the Work. Unless prior approval in writing is obtained by the Contractor from the Architect, the Project Inspector and the District, no costs or compensation shall be allowed for time while Construction Equipment is inoperative, idle or on standby, for any reason. Contractor shall not be entitled to an allowance or any other compensation for Equipment or tools used in the performance of change in the Work where such Equipment or tools have a replacement value of $500.00 or less. Equipment costs claimed by the Contractor in connection with the performance of any Work shall not exceed rental rates established by distributors or construction equipment rental agencies in the locality of the Site; any costs asserted which exceed such rental rates shall not be allowed or paid. Unless otherwise specifically approved in writing by the Architect, the Project Inspector and the District, the allowable rate for the use of Equipment in connection with the Work shall constitute full compensation to the

Contractor for the cost of rental, fuel, power, oil, lubrication, supplies, necessary attachments, repairs or maintenance of any kind, depreciation, storage, insurance, labor (exclusive of labor costs of the Equipment operator), and any and all other costs incurred by the Contractor incidental to the use of such Equipment.

17.8.5 Overhead and Profit. The phrase "Overhead and Profit" shall include field and office supervisors and assistants, watchperson, use of small tools, consumable, insurance other than construction bonds and insurance required herein, and general field and home office expenses.

17.9 Change Order Certification

17.9.1 All Change Orders and PCOs must include the following certification by the Contractor:

17.9.1.1 The undersigned Contractor approves the foregoing as to the changes, if any, to the Contract Price specified for each item, and as to the extension of time allowed, if any, for completion of the entire Work as stated herein, and agrees to furnish all labor, materials, and service, and perform all work necessary to complete any additional work specified for the consideration stated herein. Submission of sums which have no basis in fact or which Contractor knows are false are at the sole risk of Contractor and may be a violation of the False Claims Act set forth under Government Code section 12650 et seq. It is understood that the changes herein to the Contract shall only be effective when approved by the governing board of the District.

17.9.1.2 It is expressly understood that the value of the extra Work or changes expressly includes any and all of the Contractor's costs and expenses, direct and indirect, resulting from additional time required on the Project or resulting from delay to the Project. Contractor is not entitled to separately recover amounts for overhead or other indirect costs. Any costs, expenses, damages, or time extensions not included are deemed waived.

17.10 Determination of Change Order Cost

17.10.1 The amount of the increase or decrease in the Contract Price from a Change Order, if any, shall be determined in one or more of the following ways as applicable to a specific situation and at the District's discretion:

17.10.1.1 District acceptance of a PCO;

17.10.1.2 By unit prices contained in Contractor's original bid;

17.10.1.3 By agreement between District and Contractor.

17.11 Deductive Change Orders

All deductive Change Order(s) must be prepared pursuant to the provisions herein. Where a portion of the Work is deleted from the Contract, the reasonable value of the deducted work less the value of work performed shall be considered the appropriate deduction. The value submitted on the Schedule of Values shall be used to calculate the credit amount unless the bid documentation is being held in escrow as part of the

Contract Documents. Unit Prices, if any, may be used in District's discretion in calculating reasonable value. If Contractor offers a proposed amount for a deductive Change Order(s), Contractor shall include a minimum of five percent (5%) total profit and overhead to be deducted with the amount of the work of the Change Order(s). If Subcontractor work is involved, Subcontractors shall also include a minimum of five percent (5%) profit and overhead to be deducted with the amount of its deducted work. Any deviation from this provision shall not be allowed.

17.12 Addition or Deletion of Alternate Bid Item(s)

If the Bid Form and Proposal includes proposal(s) for Alternate Bid Item(s), during Contractor's performance of the Work, the District may elect to add or delete any such Alternate Bid Item(s) if not included in the Contract at the time of award. If the District elects to add or delete Alternate Bid Item(s) after Contract award, the cost or credit for such Alternate Bid Item(s) shall be as set forth in the Bid Form and Proposal unless the parties agree to a different price and the Contract Time shall be adjusted by the number of days allocated in the Contract Documents. If days are not allocated in the Contract Documents, the Contract Time shall be equitably adjusted.

17.13 Discounts, Rebates, and Refunds

For purposes of determining the cost, if any, of any change, addition, or omission to the Work hereunder, all trade discounts, rebates, refunds, and all returns from the sale of surplus materials and equipment shall accrue and be credited to the Contractor, and the Contractor shall make provisions so that such discounts, rebates, refunds, and returns may be secured, and the amount thereof shall be allowed as a reduction of the Contractor's cost in determining the actual cost of construction for purposes of any change, addition, or omission in the Work as provided herein.

17.14 Accounting Records

With respect to portions of the Work performed by Change Orders and Construction Change Directives, the Contractor shall keep and maintain cost-accounting records satisfactory to the District, including, without limitation, Job Cost Reports as provided in these General Conditions, which shall be available to the District on the same terms as any other books and records the Contractor is required to maintain under the Contract Documents. Such records shall include without limitation hourly records for Labor and Equipment and itemized records of materials and Equipment used that day in connection with the performance of any Work. All records maintained hereunder shall be subject to inspection, review and/or reproduction by the District, the Architect or the Project Inspector upon request. In the event that the Contractor fails or refuses, for any reason, to maintain or make available for inspection, review and/or reproduction such records, the District's reasonable good faith determination of the extent of adjustment to the Contract Price shall be final, conclusive, dispositive and binding upon Contractor.

17.15 Notice Required

If the Contractor desires to make a claim for an increase in the Contract Price, or any extension in the Contract Time for completion, it shall notify the District pursuant to the provisions herein, including the Article on Claims and Disputes. No claim shall be considered unless made in accordance with this subparagraph. Contractor shall proceed to execute the Work even though the adjustment may not have been agreed upon. Any

change in the Contract Price or extension of the Contract Time resulting from such claim shall be authorized by a Change Order.

17.16 Applicability to Subcontractors

Any requirements under this Article shall be equally applicable to Change Orders or Construction Change Directives issued to Subcontractors by the Contractor to the extent as required by the Contract Documents.

17.17 Alteration to Change Order Language

Contractor shall not alter Change Orders or reserve time in Change Orders. Change Orders altered in violation of this provision, if in conflict with the terms set forth herein, shall be construed in accordance with the terms set forth herein. Contractor shall execute finalized Change Orders and proceed under the provisions herein with proper notice.

17.18 Failure of Contractor to Execute Change Order

Contractor shall be in default of the Contract if Contractor fails to execute a Change Order when the Contractor agrees with the addition and/or deletion of the Work in that Change Order.

18. REQUEST FOR INFORMATION

18.1 Any Request for Information shall reference all applicable Contract Document(s), including Specification section(s), detail(s), page number(s), drawing number(s), and sheet number(s), etc. The Contractor shall make suggestions and interpretations of the issue raised by each Request for Information. A Request for Information cannot modify the Contract Price, Contract Time, or the Contract Documents. Upon request by the District, Contractor shall provide an electronic copy of the Request for Information in addition to the hard copy.

18.2 The Contractor shall be responsible for any costs incurred for professional services that District may deduct from any amounts owing to the Contractor, if a Request for Information requests an interpretation or decision of a matter where the information sought is equally available to the party making the request. District, at its sole discretion, shall deduct from and/or invoice Contractor for all the professional services arising herein.

19. PAYMENTS

19.1 Contract Price

The Contract Price is stated in the Agreement and, including authorized adjustments, is the total amount payable by the District to the Contractor for performance of the Work under the Contract Documents.

19.2 Applications for Progress Payments

19.2.1 Procedure for Applications for Progress Payments

19.2.1.1 Application for Progress Payment

19.2.1.1.1 Not before the fifth (5th) day of each calendar month during the progress of the Work, Contractor shall submit to the District and the Architect an itemized Application for Payment for operations completed in accordance with the Schedule of Values. Such application shall be notarized, if required, and supported by the following or each portion thereof unless waived by the District in writing:

19.2.1.1.1.1 The amount paid to the date of the Application to the Contractor, to all its Subcontractors, and all others furnishing labor, material, or equipment for its Contract;

19.2.1.1.1.2 The amount being requested under the Application for Payment by the Contractor on its own behalf and separately stating the amount requested on behalf of each of the Subcontractors and all others furnishing labor, material, and equipment under the Contract;

19.2.1.1.1.3 The balance that will be due to each of such entities after said payment is made;

19.2.1.1.1.4 A certification that the As-Built Drawings and annotated Specifications are current;

19.2.1.1.1.5 Itemized breakdown of work done for the purpose of requesting partial payment;

19.2.1.1.1.6 An updated and acceptable construction schedule in conformance with the provisions herein;

19.2.1.1.1.7 The additions to and subtractions from the Contract Price and Contract Time;

19.2.1.1.1.8 A total of the retentions held;

19.2.1.1.1.9 Material invoices, evidence of equipment purchases, rentals, and other support and details of cost as the District may require from time to time;

19.2.1.1.1.10 The percentage of completion of the Contractor's Work by line item;

19.2.1.1.1.11 Schedule of Values updated from the preceding Application for Payment;

19.2.1.1.1.12 A duly completed and executed conditional waiver and release upon progress payment compliant with Civil Code section 8132 from the Contractor and each subcontractor of any tier and supplier to be paid from the current progress payment;

19.2.1.1.1.13 A duly completed and executed unconditional waiver and release upon progress payment compliant with Civil Code section 8134

from the Contractor and each subcontractor of any tier and supplier that was paid from the previous progress payment(s); and

19.2.1.1.1.14 A certification by the Contractor of the following:

The Contractor warrants title to all Work performed as of the date of this payment application has been completed in accordance with the Contract Documents for the Project. The Contractor further warrants that all amounts have been paid for work which previous Certificates for Payment were issued and payments received and all Work performed as of the date of this payment application is free and clear of liens, claims, security interests, or encumbrances in favor of the Contractor, Subcontractors, material and equipment suppliers, workers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment relating to the Work, except those of which the District has been informed. Submission of sums which have no basis in fact or which Contractor knows are false are at the sole risk of Contractor and may be a violation of the False Claims Act set forth under Government Code section 12650 et seq.

19.2.1.1.1.15 The Contractor shall be subject to the False Claims Act set forth in Government Code section 12650 et seq. for information provided with any Application for Progress Payment.

19.2.1.1.1.16 All remaining certified payroll records ("CPR(s)") for each journeyman, apprentice, worker, or other employee employed by the Contractor and/or each Subcontractor in connection with the Work for the period of the Application for Payment. As indicated herein, the District shall not make any payment to Contractor until:

19.2.1.1.1.16.1 Contractor and/or its Subcontractor(s) provide electronic CPRs weekly for all weeks any journeyman, apprentice, worker or other employee was employed in connection with the Work directly to the DIR, or within ten (10) days of any request by the District or the DIR, and

19.2.1.1.1.16.2 Any delay in Contractor and/or its Subcontractor(s) providing CPRs in a timely manner may directly delay the Contractor's payment.

19.2.1.1.2 Applications received after June 20th will not be paid until the second week of July and applications received after December 12th will not be paid until the first week of January.

19.2.2 <u>Prerequisites for Progress Payments</u>

19.2.2.1 <u>First Payment Request</u>: The following items, if applicable, must be completed before the District will accept and/or process the Contractor's first payment request:

19.2.2.1.1 Installation of the Project sign;

19.2.2.1.2 Installation of field office;

19.2.2.1.3 Installation of temporary facilities and fencing;

19.2.2.1.4 Schedule of Values;

19.2.2.1.5 Contractor's Construction Schedule;

19.2.2.1.6 Schedule of unit prices, if applicable;

19.2.2.1.7 Submittal Schedule;

19.2.2.1.8 Receipt by Architect of all submittals due as of the date of the payment application;

19.2.2.1.9 Copies of necessary permits;

19.2.2.1.10 Copies of authorizations and licenses from governing authorities;

19.2.2.1.11 Initial progress report;

19.2.2.1.12 Surveyor qualifications;

19.2.2.1.13 Written acceptance of District's survey of rough grading, if applicable;

19.2.2.1.14 List of all Subcontractors, with names, license numbers, telephone numbers, and Scope of Work;

19.2.2.1.15 All bonds and insurance endorsements; and

19.2.2.1.16 Resumes of Contractor's project manager, and if applicable, job site secretary, record documents recorder, and job site superintendent.

19.2.2.2 Second Payment Request: The District will not process the second payment request until and unless all submittals and Shop Drawings have been accepted for review by the Architect.

19.2.2.3 No Waiver of Criteria: Any payments made to Contractor where criteria set forth herein have not been met shall not constitute a waiver of said criteria by District. Instead, such payment shall be construed as a good faith effort by District to resolve differences so Contractor may pay its Subcontractors and suppliers. Contractor agrees that failure to submit such items may constitute a breach of contract by Contractor and may subject Contractor to termination.

19.3 Progress Payments

19.3.1 District's Approval of Application for Payment

19.3.1.1 Upon receipt of an Application for Payment, The District shall act in accordance with both of the following:

19.3.1.1.1 Each Application for Payment shall be reviewed by the District as soon as practicable after receipt for the purpose of determining that the Application for Payment is a proper Application for Payment.

19.3.1.1.2 Any Application for Payment determined not to be a proper Application for Payment suitable for payment shall be returned to the Contractor as soon as practicable, but not later than seven (7) days, after receipt. An Application for Payment returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the Application for Payment is not proper. The number of days available to the District to make a payment without incurring interest pursuant to this section shall be reduced by the number of days by which the District exceeds this seven-day return requirement.

19.3.1.1.3 An Application for Payment shall be considered properly executed if funds are available for payment of the Application for Payment, and payment is not delayed due to an audit inquiry by the financial officer of the District.

19.3.1.2 The District's review of the Contractor's Application for Payment will be based on the District's and the Architect's observations at the Site and the data comprising the Application for Payment that the Work has progressed to the point indicated and that, to the best of the District's and the Architect's knowledge, information, and belief, the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to:

19.3.1.2.1 Observation of the Work for general conformance with the Contract Documents,

19.3.1.2.2 Results of subsequent tests and inspections,

19.3.1.2.3 Minor deviations from the Contract Documents correctable prior to completion, and

19.3.1.2.4 Specific qualifications expressed by the Architect.

19.3.1.3 District's approval of the certified Application for Payment shall be based on Contractor complying with all requirements for a fully complete and valid certified Application for Payment.

19.3.2 Payments to Contractor

19.3.2.1 Within thirty (30) days after approval of the Application for Payment, Contractor shall be paid a sum equal to ninety-five percent (95%) of the value of the Work performed (as verified by Architect and Inspector and certified by Contractor) up to the last day of the previous month, less the aggregate of previous payments and amount to be withheld. The value of the Work completed shall be Contractor's best estimate. No inaccuracy or error in said estimate shall operate to release the Contractor, or any Surety upon any bond, from damages arising from such Work, or from the District's right to enforce each and every provision of this Contract, and the District shall have the right subsequently to correct any error made in any estimate for payment.

19.3.2.2 The Contractor shall not be entitled to have any payment requests processed, or be entitled to have any payment made for Work performed, so long as any lawful or proper direction given by the District concerning the Work, or any portion thereof, remains incomplete.

19.3.2.3 If the District fails to make any progress payment within thirty (30) days after receipt of an undisputed and properly submitted Application for Payment from the Contractor, the District shall pay interest to the Contractor equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure.

19.3.3 No Waiver

No payment by District hereunder shall be interpreted so as to imply that District has inspected, approved, or accepted any part of the Work. Notwithstanding any payment, the District may enforce each and every provision of this Contract. The District may correct or require correction of any error subsequent to any payment.

19.4 Decisions to Withhold Payment

19.4.1 Reasons to Withhold Payment

The District may withhold payment in whole, or in part, to the extent reasonably necessary to protect the District if, in the District's opinion, the representations to the District required herein cannot be made. The District may withhold payment, in whole, or in part, to such extent as may be necessary to protect the District from loss because of, but not limited to any of the following:

19.4.1.1 Defective Work not remedied within **FORTY-EIGHT (48)** hours of written notice to Contractor.

19.4.1.2 Stop Payment Notices or other liens served upon the District as a result of the Contract. Contractor agrees that the District may withhold up to 125% of the amount claimed in the Stop Payment Notice to answer the claim and to provide for the District's reasonable cost of any litigation pursuant to the stop payment notice.

19.4.1.3 Liquidated damages assessed against the Contractor.

19.4.1.4 The cost of completion of the Contract if there exists a reasonable doubt that the Work can be completed for the unpaid balance of the Contract Price or by the completion date.

19.4.1.5 Damage to the District or other contractor(s).

19.4.1.6 Unsatisfactory prosecution of the Work by the Contractor.

19.4.1.7 Failure to store and properly secure materials.

19.4.1.8 Failure of the Contractor to submit, on a timely basis, proper, sufficient, and acceptable documentation required by the Contract Documents, including, without limitation, a Construction Schedule, Schedule of Submittals,

Schedule of Values, Monthly Progress Schedules, Shop Drawings, Product Data and samples, Proposed product lists, executed Change Orders, and/or verified reports.

19.4.1.9 Failure of the Contractor to maintain As-Built Drawings.

19.4.1.10 Erroneous estimates by the Contractor of the value of the Work performed, or other false statements in an Application for Payment.

19.4.1.11 Unauthorized deviations from the Contract Documents.

19.4.1.12 Failure of the Contractor to prosecute the Work in a timely manner in compliance with the Construction Schedule, established progress schedules, and/or completion dates.

19.4.1.13 Failure to provide acceptable electronic certified payroll records, as required by the Labor Code, by these Contract Documents, or by written request; for each journeyman, apprentice, worker, or other employee employed by the Contractor and/or by each Subcontractor in connection with the Work for the period of the Application for Payment or if payroll records are delinquent or inadequate.

19.4.1.14 Failure to properly pay prevailing wages as required in Labor Code section 1720 et seq., failure to comply with any other Labor Code requirements, and/or failure to comply with labor compliance monitoring and enforcement by the DIR.

19.4.1.15 Allowing an unregistered subcontractor, as described in Labor Code section 1725.5, to engage in the performance of any work under this Contract.

19.4.1.16 Failure to comply with any applicable federal statutes and regulations regarding minimum wages, withholding, payrolls and basic records, apprentice and trainee employment requirements, equal employment opportunity requirements, Copeland Act requirements, Davis-Bacon Act and related requirements, Contract Work Hours and Safety Standards Act requirements, if applicable.

19.4.1.17 Failure to properly maintain or clean up the Site.

19.4.1.18 Failure to timely indemnify, defend, or hold harmless the District.

19.4.1.19 Any payments due to the District, including but not limited to payments for failed tests, utilities changes, or permits.

19.4.1.20 Failure to pay Subcontractor(s) or supplier(s) as required by law and by the Contract Documents.

19.4.1.21 Failure to pay any royalty, license or similar fees.

19.4.1.22 Contractor is otherwise in breach, default, or in substantial violation of any provision of this Contract.

19.4.1.23 Failure to perform any implementation and/or monitoring required by any SWPPP for the Project and/or the imposition of any penalties or fines therefore whether imposed on the District or Contractor.

19.4.2 Reallocation of Withheld Amounts

19.4.2.1 District may, in its discretion, apply any withheld amount to pay outstanding claims or obligations as defined herein. In so doing, District shall make such payments on behalf of Contractor. If any payment is so made by District, then that amount shall be considered a payment made under Contract by District to Contractor and District shall not be liable to Contractor for any payment made in good faith. These payments may be made without prior judicial determination of claim or obligation. District will render Contractor an accounting of funds disbursed on behalf of Contractor.

19.4.2.2 If Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents or fails to perform any provision thereof, District may, after **FORTY-EIGHT (48)** hours' written notice to the Contractor and, without prejudice to any other remedy, make good such deficiencies. The District shall adjust the total Contract Price by reducing the amount thereof by the cost of making good such deficiencies. If District deems it inexpedient to correct Work that is damaged, defective, or not done in accordance with Contract provisions, an equitable reduction in the Contract Price (of at least one hundred fifty percent (150%) of the estimated reasonable value of the nonconforming Work) shall be made therefor.

19.4.3 Payment After Cure

When Contractor removes the grounds for declining approval, payment shall be made for amounts withheld because of them. No interest shall be paid on any retainage or amounts withheld due to the failure of the Contractor to perform in accordance with the terms and conditions of the Contract Documents.

19.5 Subcontractor Payments

19.5.1 Payments to Subcontractors

No later than seven (7) days after receipt, or pursuant to Business and Professions Code section 7108.5 and Public Contract Code section 7107, the Contractor shall pay to each Subcontractor, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to its Sub-subcontractors in a similar manner.

19.5.2 No Obligation of District for Subcontractor Payment

The District shall have no obligation to pay, or to see to the payment of, money to a Subcontractor except as may otherwise be required by law.

19.5.3 Joint Checks

District shall have the right in its sole discretion, if necessary for the protection of the District, to issue joint checks made payable to the Contractor and Subcontractors and/or material or equipment suppliers. The joint check payees shall be responsible for the allocation and disbursement of funds included as part of any such joint payment. In no event shall any joint check payment be construed to create any contract between the District and a Subcontractor of any tier, or a material or equipment supplier, any obligation from the District to such Subcontractor or a material or equipment supplier, or rights in such Subcontractor or a material or equipment supplier against the District.

20. COMPLETION OF THE WORK

20.1 Completion

20.1.1 District will accept completion of Contract and have the Notice of Completion recorded when the entire Work shall have been completed to the satisfaction of District.

20.1.2 The Work may only be accepted as complete by action of the governing board of the District.

20.1.3 District, at its sole option, may accept completion of Contract and have the Notice of Completion recorded when the entire Work shall have been completed to the satisfaction of District, except for minor corrective items, as distinguished from incomplete items. If Contractor fails to complete all minor corrective items within fifteen (15) days after the date of the District's acceptance of completion, District shall withhold from the final payment one hundred fifty percent (150%) of an estimate of the amount sufficient to complete the corrective items, as determined by District, until the item(s) are completed.

20.1.4 At the end of the 15-day period, if there are any items remaining to be corrected, District may elect to proceed as provided herein related to adjustments to Contract Price, and/or District's right to perform the Work of the Contractor.

20.2 Close-Out/Certification Procedures

20.2.1 Punch List

The Contractor shall notify the Architect when Contractor considers the Work complete. Upon notification, Architect will prepare a list of minor items to be completed or corrected ("Punch List"). The Contractor and/or its Subcontractors shall proceed promptly to complete and correct items on the Punch List. Failure to include an item on Punch List does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

20.2.2 Close-Out/Certification Requirements

20.2.2.1 Utility Connections

Buildings shall be connected to water, gas, sewer, and electric services, complete and ready for use. Service connections shall be made and existing services reconnected.

20.2.2.2 Record Drawings and Record Specifications

20.2.2.2.1 Contractor shall provide exact Record Drawings of the Work ("As-Builts") and Record Specifications upon completion of the Project and as a condition precedent to approval of final payment.

20.2.2.2.2 Contractor shall obtain the Inspector's approval of the corrected prints and employ a competent draftsman to transfer the Record Drawings information to the most current version of AutoCAD that is, at that time, currently utilized for plan check submission by either the District, the Architect, OPSC, and/or DSA, and print a complete set of transparent sepias. When completed, Contractor shall deliver corrected sepias and diskette/CD/other data storage device acceptable to District with AutoCAD file to the District.

20.2.2.2.3 Contractor is liable and responsible for any and all inaccuracies in the Record Drawings and Record Specifications, even if inaccuracies become evident at a future date.

20.2.2.3 Maintenance Manuals: Contractor shall prepare all operation and maintenance manuals and date as indicated in the Specifications.

20.2.2.4 Source Programming: Contractor shall provide all source programming for all items in the Project.

20.2.2.5 Verified Reports: Contractor shall completely and accurately fill out and file forms DSA 6-C or DSA 152 (or current form), as appropriate. Refer to section 4-336 and section 4-343 of Part 1, Title 24 of the California Code of Regulations.

20.3 Final Inspection

20.3.1 Contractor shall comply with Punch List procedures as provided herein, and maintain the presence of a Project Superintendent and Project Manager until the Punch List is complete to ensure proper and timely completion of the Punch List. Under no circumstances shall Contractor demobilize its forces prior to completion of the Punch List without District's prior written approval. Upon receipt of Contractor's written notice that all of the Punch List items have been fully completed and the Work is ready for final inspection and District acceptance, Architect and Project Inspector will inspect the Work and shall submit to Contractor and District a final inspection report noting the Work, if any, required in order to complete in accordance with the Contract Documents. Absent unusual circumstances, this report shall consist of the Punch List items not yet satisfactorily completed.

20.3.2 Upon Contractor's completion of all items on the Punch List and any other uncompleted portions of the Work, the Contractor shall notify the District and Architect, who shall again inspect such Work. If the Architect finds the Work complete and acceptable under the Contract Documents, the Architect will notify Contractor, who shall then jointly submit to the Architect and the District its final Application for Payment.

20.3.3 Final Inspection Requirements

20.3.3.1 Before calling for final inspection, Contractor shall determine that the following have been performed:

20.3.3.1.1 The Work has been completed.

20.3.3.1.2 All life safety items are completed and in working order.

20.3.3.1.3 Mechanical and electrical Work are complete and tested, fixtures are in place, connected, and ready for tryout.

20.3.3.1.4 Electrical circuits scheduled in panels and disconnect switches labeled.

20.3.3.1.5 Painting and special finishes complete.

20.3.3.1.6 Doors complete with hardware, cleaned of protective film, relieved of sticking or binding, and in working order.

20.3.3.1.7 Tops and bottoms of doors sealed.

20.3.3.1.8 Floors waxed and polished as specified.

20.3.3.1.9 Broken glass replaced and glass cleaned.

20.3.3.1.10 Grounds cleared of Contractor's equipment, raked clean of debris, and trash removed from Site.

20.3.3.1.11 Work cleaned, free of stains, scratches, and other foreign matter, and damaged and broken material replaced.

20.3.3.1.12 Finished and decorative work shall have marks, dirt, and superfluous labels removed.

20.3.3.1.13 Final cleanup, as provided herein.

20.4 Costs of Multiple Inspections

More than two (2) requests of the District to make a final inspection shall be considered an additional service of District, Architect, Construction Manager, and/or Project Inspector, and all subsequent costs will be invoiced to Contractor and if funds are available, withheld from remaining payments.

20.5 Partial Occupancy or Use Prior to Completion

20.5.1 District's Rights to Occupancy

The District may occupy or use any completed or partially completed portion of the Work at any stage, and such occupancy shall not constitute the District's Final Acceptance of any part of the Work. Neither the District's Final Acceptance, the making of Final Payment, any provision in Contract Documents, nor the use or occupancy of the Work, in whole or in part, by District shall constitute acceptance of Work not in accordance with the Contract Documents nor relieve the Contractor or

the Contractor's Performance Bond Surety from liability with respect to any warranties or responsibility for faulty or defective Work or materials, equipment and workmanship incorporated therein. In the event that the District occupies or uses any completed or partially completed portion of the Work, the Contractor shall remain responsible for payments, security, maintenance, heat, utilities, damage to the Work, insurance, the period for correction of the Work, and the commencement of warranties required by the Contract Documents unless the Contractor requests in writing, and the District agrees, to otherwise divide those responsibilities. Any dispute as to responsibilities shall be resolved pursuant to the Claims and Disputes provisions herein, with the added provision that during the dispute process, the District shall have the right to occupy or use any portion of the Work that it needs or desires to use.

20.5.2 Inspection Prior to Occupancy or Use

Immediately prior to partial occupancy or use, the District, the Contractor, and the Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

20.5.3 No Waiver

Unless otherwise agreed upon, partial or entire occupancy or use of a portion or portions of the Work shall not constitute beneficial occupancy or District's acceptance of the Work not complying with the requirements of the Contract Documents.

21. FINAL PAYMENT AND RETENTION

21.1 Final Payment

Upon receipt and approval of a valid and final Application for Payment, the Architect will issue a final Certificate of Payment. The District shall thereupon jointly inspect the Work and either accept the Work as complete or notify the Architect and the Contractor in writing of reasons why the Work is not complete. Upon District's acceptance of the Work of the Contractor as fully complete by the Governing Board of the District (that, absent unusual circumstances, will occur when the Punch List items have been satisfactorily completed), the District shall record a Notice of Completion with the County Recorder, and the Contractor shall, upon receipt of final payment from the District, pay the amount due Subcontractors.

21.2 Prerequisites for Final Payment

The following conditions must be fulfilled prior to Final Payment:

21.2.1 A full release of all Stop Payment Notices served in connection with the Work shall be submitted by Contractor.

21.2.2 A duly completed and executed conditional waiver and release upon final payment compliant with Civil Code section 8136, from the Contractor and each subcontractor of any tier and supplier to be paid from the final payment.

21.2.3 A duly completed and executed unconditional waiver and release upon progress payment compliant with Civil Code section 8134, from the Contractor and

each subcontractor of any tier and supplier that was paid from the previous progress payments.

21.2.4 A duly completed and executed Document 00 65 19.26, "AGREEMENT AND RELEASE OF ANY AND ALL CLAIMS" from the Contractor.

21.2.5 The Contractor shall have made all corrections to the Work that are required to remedy any defects therein, to obtain compliance with the Contract Documents or any requirements of applicable codes and ordinances, or to fulfill any of the orders or directions of District required under the Contract Documents.

21.2.6 Each Subcontractor shall have delivered to the Contractor all written guarantees, warranties, applications, and bonds required by the Contract Documents for its portion of the Work.

21.2.7 Contractor must have completed all requirements set forth under "Close-Out/Certification Procedures," including, without limitation, submission of an approved set of complete Record Drawings.

21.2.8 Architect shall have issued its written approval that final payment can be made.

21.2.9 The Contractor shall have delivered to the District all manuals and materials required by the Contract Documents, which must be approved by the District.

21.2.10 The Contractor shall have completed final clean-up as provided herein.

21.3 Retention

21.3.1 The retention, less any amounts disputed by the District or that the District has the right to withhold pursuant to provisions herein, shall be paid:

21.3.1.1 After approval by the Architect of the Application and Certificate of Payment,

21.3.1.2 After the satisfaction of the conditions set forth herein, and

21.3.1.3 After forty-five (45) days after the recording of the Notice of Completion by District.

21.3.2 No interest shall be paid on any retention, or on any amounts withheld due to a failure of the Contractor to perform, in accordance with the terms and conditions of the Contract Documents, except as provided to the contrary in any Escrow Agreement between the District and the Contractor pursuant to Public Contract Code section 22300.

21.4 Substitution of Securities

The District will permit the substitution of securities in accordance with the provisions of Public Contract Code section 22300.

22. UNCOVERING OF WORK

If a portion of the Work is covered without Inspector or Architect approval or not in compliance with the Contract Documents, it must, if required in writing by the District, the Project Inspector, or the Architect, be uncovered for the Project Inspector's or the Architect's observation and be corrected, replaced, and/or recovered at the Contractor's expense without change in the Contract Price or Contract Time.

23. NONCONFORMING WORK AND CORRECTION OF WORK

23.1 Nonconforming Work

23.1.1 Contractor shall promptly remove from Premises all Work identified by District as failing to conform to the Contract Documents whether incorporated or not. Contractor shall promptly replace and re-execute its own Work to comply with the Contract Documents without additional expense to the District and shall bear the expense of making good all work of other contractors destroyed or damaged by any removal or replacement pursuant hereto and/or any delays to the District or other Contractors caused thereby.

23.1.2 If Contractor does not remove Work that District has identified as failing to conform to the Contract Documents within a reasonable time, not to exceed **FORTY-EIGHT (48)** hours, District may remove it and may store any material at Contractor's expense. If Contractor does not pay expense(s) of that removal within ten (10) days' time thereafter, District may, upon ten (10) days' written notice, sell any material at auction or at private sale and shall deduct all costs and expenses incurred by the District and/or District may withhold those amounts from payment(s) to Contractor.

23.2 Correction of Work

23.2.1 Correction of Rejected Work

Pursuant to the notice provisions herein, the Contractor shall immediately correct the Work rejected by the District, the Architect, or the Project Inspector as failing to conform to the requirements of the Contract Documents, whether observed before or after Completion and whether or not fabricated, installed, or completed. The Contractor shall bear costs of correcting the rejected Work, including additional testing, inspections, and compensation for the Inspector's or the Architect's services and expenses made necessary thereby.

23.2.2 One-Year Warranty Corrections

If, within one (1) year after the date of Completion of the Work or a designated portion thereof, or after the date for commencement of warranties established hereunder, or by the terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the District to do so. This period of one (1) year shall be extended with respect to portions of the Work first performed after Completion by the period of time between Completion and the actual performance of the Work. This obligation hereunder shall survive District's acceptance of the Work

under the Contract and termination of the Contract. The District shall give such notice promptly after discovery of the condition.

23.3 District's Right to Perform Work

23.3.1 If the Contractor should neglect to prosecute the Work properly or fail to perform any provisions of this contract, the District, after **FORTY-EIGHT (48)** hours written notice to the Contractor, may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

23.3.2 If it is found at any time, before or after completion of the Work, that Contractor has varied from the Drawings and/or Specifications, including, but not limited to, variation in material, quality, form, or finish, or in the amount or value of the materials and labor used, District may require at its option:

23.3.2.1 That all such improper Work be removed, remade or replaced, and all work disturbed by these changes be made good by Contractor at no additional cost to the District;

23.3.2.2 That the District deduct from any amount due Contractor the sum of money equivalent to the difference in value between the work performed and that called for by the Drawings and Specifications; or

23.3.2.3 That the District exercise any other remedy it may have at law or under the Contract Documents, including but not limited to the District hiring its own forces or another contractor to replace the Contractor's nonconforming Work, in which case the District shall either issue a deductive Change Order, a Construction Change Directive, or invoice the Contractor for the cost of that work. Contractor shall pay any invoices within thirty (30) days of receipt of same or District may withhold those amounts from payment(s) to Contractor.

24. TERMINATION AND SUSPENSION

24.1 District's Right to Terminate Contractor for Cause

24.1.1 Grounds for Termination: The District, in its sole discretion, may terminate the Contract and/or terminate the Contractor's right to perform the work of the Contract based upon any of the following:

24.1.1.1 Contractor refuses or fails to execute the Work or any separable part thereof with sufficient diligence as will ensure its completion within the time specified or any extension thereof, or

24.1.1.2 Contractor fails to complete said Work within the time specified or any extension thereof, or

24.1.1.3 Contractor persistently fails or refused to perform Work or provide material of sufficient quality as to be in compliance with Contract Documents; or

24.1.1.4 Contractor persistently or repeatedly refuses fails, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials to complete the Work in the time specified; or

24.1.1.5 Contractor fails to make prompt payment to Subcontractors, or for material, or for labor; or

24.1.1.6 Contractor persistently disregards laws, or ordinances, or instructions of District; or

24.1.1.7 Contractor fails to supply labor, including that of Subcontractors, that is sufficient to prosecute the Work or that can work in harmony with all other elements of labor employed or to be employed on the Work; or

24.1.1.8 Contractor or its Subcontractor(s) is/are otherwise in breach, default, or in substantial violation of any provision of this Contract, including but not limited to a lapse in licensing or registration.

24.1.2 Notification of Termination

24.1.2.1 Upon the occurrence at District's sole determination of any of the above conditions, District may, without prejudice to any other right or remedy, serve written notice upon Contractor and its Surety of District's termination of this Contract and/or the Contractor's right to perform the work of the Contract. This notice will contain the reasons for termination. Unless, within three (3) days after the service of the notice, any and all condition(s) shall cease, and any and all violation(s) shall cease, or arrangement satisfactory to District for the correction of the condition(s) and/or violation(s) be made, this Contract shall cease and terminate. Upon Termination, Contractor shall not be entitled to receive any further payment until the entire Work is finished.

24.1.2.2 Upon Termination, District may immediately serve written notice of tender upon Surety whereby Surety shall have the right to take over and perform this Contract only if Surety:

24.1.2.2.1 Within three (3) days after service upon it of the notice of tender, gives District written notice of Surety's intention to take over and perform this Contract; and

24.1.2.2.2 Commences performance of this Contract within three (3) days from date of serving of its notice to District.

24.1.2.3 Surety shall not utilize Contractor in completing the Project if the District notifies Surety of the District's objection to Contractor's further participation in the completion of the Project. Surety expressly agrees that any contractor which Surety proposes to fulfill Surety's obligations is subject to District's approval. District's approval shall not be unreasonably withheld, conditioned or delayed.

24.1.2.4 If Surety fails to notify District or begin performance as indicated herein, District may take over the Work and execute the Work to completion by any method it may deem advisable at the expense of Contractor and/or its

Surety. Contractor and/or its Surety shall be liable to District for any excess cost or other damages the District incurs thereby. Time is of the essence in this Contract. If the District takes over the Work as herein provided, District may, without liability for so doing, take possession of and utilize in completing the Work such materials, appliances, plan, and other property belonging to Contractor as may be on the Site of the Work, in bonded storage, or previously paid for.

24.1.3 Effect of Termination

24.1.3.1 Contractor shall, only if ordered to do so by the District, immediately remove from the Site all or any materials and personal property belonging to Contractor that have not been incorporated in the construction of the Work, or which are not in place in the Work. The District retains the right, but not the obligation, to keep and use any materials and personal property belonging to Contractor that have not been incorporated in the construction of the Work, or which are not in place in the Work. The Contractor and its Surety shall be liable upon the performance bond for all damages caused to the District by reason of the Contractor's failure to complete the Contract.

24.1.3.2 In the event that the District shall perform any portion of, or the whole of the Work, pursuant to the provisions of the General Conditions, the District shall not be liable nor account to the Contractor in any way for the time within which, or the manner in which, the Work is performed by the District or for any changes the District may make in the Work or for the money expended by the District in satisfying claims and/or suits and/or other obligations in connection with the Work.

24.1.3.3 In the event that the Contract is terminated for any reason, no allowances or compensation will be granted for the loss of any anticipated profit by the Contractor or any impact or impairment of Contractor's bonding capacity.

24.1.3.4 If the expense to the District to finish the Work exceeds the unpaid Contract Price, Contractor and Surety shall pay difference to District within twenty-one (21) days of District's request.

24.1.3.5 The District shall have the right (but shall have no obligation) to assume and/or assign to a general contractor or construction manager or other third party who is qualified and has sufficient resources to complete the Work, the rights of the Contractor under its subcontracts with any or all Subcontractors. In the event of an assumption or assignment by the District, no Subcontractor shall have any claim against the District or third party for Work performed by Subcontractor or other matters arising prior to termination of the Contract. The District or any third party, as the case may be, shall be liable only for obligations to the Subcontractor arising after assumption or assignment. Should the District so elect, the Contractor shall execute and deliver all documents and take all steps, including the legal assignment of its contractual rights, as the District may require, for the purpose of fully vesting in the District the rights and benefits of

its Subcontractor under Subcontracts or other obligations or commitments. All payments due the Contractor hereunder shall be subject to a right of offset by the District for expenses and damages suffered by the District as a result of any default, acts, or omissions of the Contractor. Contractor must include this assignment provision in all of its contracts with its Subcontractors.

24.1.3.6 The foregoing provisions are in addition to and not in limitation of any other rights or remedies available to District.

24.1.4 Emergency Termination of Public Contracts Act of 1949

24.1.4.1 This Contract is subject to termination as provided by sections 4410 and 4411 of the Government Code of the State of California, being a portion of the Emergency Termination of Public Contracts Act of 1949.

24.1.4.1.1 Section 4410 of the Government Code states:

In the event a national emergency occurs, and public work, being performed by contract, is stopped, directly or indirectly, because of the freezing or diversion of materials, equipment or labor, as the result of an order or a proclamation of the President of the United States, or of an order of any federal authority, and the circumstances or conditions are such that it is impracticable within a reasonable time to proceed with a substantial portion of the work, then the public agency and the contractor may, by written agreement, terminate said contract.

24.1.4.1.2 Section 4411 of the Government Code states:

Such an agreement shall include the terms and conditions of the termination of the contract and provision for the payment of compensation or money, if any, which either party shall pay to the other or any other person, under the facts and circumstances in the case.

24.1.4.2 Compensation to the Contractor shall be determined at the sole discretion of District on the basis of the reasonable value of the Work done, including preparatory work. As an exception to the foregoing and at the District's discretion, in the case of any fully completed separate item or portion of the Work for which there is a separate previously submitted unit price or item on the accepted schedule of values, that price shall control. The District, at its sole discretion, may adopt the Contract Price as the reasonable value of the work done or any portion thereof.

24.2 Termination of Contractor for Convenience

24.2.1 District in its sole discretion may terminate the Contract upon three (3) days' written notice to the Contractor. Under a termination for convenience, the District retains the right to all the options available to the District if there is a termination for cause. In case of a termination for convenience, the Contractor shall have no claims against the District except:

24.2.1.1 The actual cost for labor, materials, and services performed that is unpaid and adequately documented through timesheets, invoices, receipts, or otherwise, and

24.2.1.2 Five percent (5%) of the total cost of work performed as of the date of termination, or five percent (5%) of the value of the Work yet to be performed, whichever is less. This five percent (5%) amount shall be full compensation for all Contractor's and Subcontractor(s)' mobilization and/or demobilization costs and any anticipated loss profits resulting from termination of the Contractor for convenience.

24.3 Suspension of Work

24.3.1 District in its sole discretion may suspend, delay or interrupt the Work in whole or in part for such period of time as the District may determine upon three (3) days written notice to the Contractor.

24.3.1.1 An adjustment may be made for changes in the cost of performance of the Work caused by any such suspension, delay or interruption. No adjustment shall be made to the extent:

24.3.1.1.1 That performance is, was or would have been so suspended, delayed or interrupted by another cause for which Contractor is responsible; or

24.3.1.1.2 That an equitable adjustment is made or denied under another provision of the Contract; or

24.3.1.1.3 That the suspension of Work was the direct or indirect result of Contractor's failure to perform any of its obligations hereunder.

24.3.1.2 Any adjustments in cost of performance may have a fixed or percentage fee as provided in the section on Format for Proposed Change Order herein. This amount shall be full compensation for all Contractor's and its Subcontractor(s)' changes in the cost of performance of the Contract caused by any such suspension, delay or interruption.

25. CLAIMS PROCESS

25.1 Performance during Claim Process

Contractor and its subcontractors shall continue to perform its Work under the Contract and shall not cause a delay of the Work during any dispute, claim, negotiation, mediation, or arbitration proceeding, except by written agreement by the District.

25.2 Definition of Claim

25.2.1 Pursuant to Public Contract Code section 9204, the term "Claim" means a separate demand by the Contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:

25.2.1.1 A time extension, including without limitation, for relief of damages or penalties for delay assessed by the District under the Contract;

25.2.1.2 Payment by the District of money or damages arising from work done by, or on behalf of, the Contractor pursuant to the Contract and payment of which is not otherwise expressly provided for or to which Contractor is not otherwise entitled to; or

25.2.1.3 An amount of payment disputed by the District.

25.3 Claims Presentation

25.3.1 If Contractor intends to apply for an increase in the Contract Price or Contract Time for any reason including, without limitation, the acts of District or its agents, Contractor shall, within thirty (30) days after the event giving rise to the Claim, give notice of the Claim in writing, including an itemized statement of the details and amounts of its Claim for any increase in the Contract Price of Contract Time, including a Schedule Analysis and any and all other documentation substantiating Contractor's claimed damages. Otherwise, Contractor shall have waived and relinquished its dispute against the District and Contractor's claims for compensation or an extension of time shall be forfeited and invalidated. Likewise, failure to timely submit a claim and the requisite supporting documentation shall constitute a waiver of such claim.

25.3.2 The Claim shall identify:

25.3.2.1 The issues, events, conditions, circumstances and/or causes giving rise to the dispute, and shall show, in detail, the cause and effect of same;

25.3.2.2 The pertinent dates and/or durations and actual and/or anticipated effects on the Contract Price, Contract Schedule milestones and/or Contract Time adjustments;

25.3.2.3 The line-item costs for labor, material, and/or equipment, if applicable; or

25.3.2.4 A request by Contractor, if any, to waive the claims procedure under Public Contract Code section 9204 and proceed directly to the commencement of a civil action or binding arbitration.

25.3.3 The Claim shall include the following certification by the Contractor:

25.3.3.1 The undersigned Contractor certifies under penalty of perjury that the attached dispute is made in good faith; that the supporting data is accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the adjustment for which Contractor believes the District is liable; and that I am duly authorized to certify the dispute on behalf of the Contractor.

25.3.3.2 Furthermore, Contractor understands that the value of the attached dispute expressly includes any and all of the Contractor's costs and expenses, direct and indirect, resulting from the Work performed on the Project, additional

time required on the Project and/or resulting from delay to the Project. Contractor may not separately recover for overhead or other indirect costs. Any costs, expenses, damages, or time extensions not included are deemed waived.

25.4 Claim Resolution pursuant to Public Contract Code section 9204

25.4.1 STEP 1:

25.4.1.1 Upon receipt of a Claim by registered or certified mail, return receipt requested, including the documents necessary to substantiate it, the District shall conduct a reasonable review of the Claim and, within a period **not to exceed 45 days**, shall provide the Contractor a written statement identifying what portion of the Claim is disputed and what portion is undisputed. Upon receipt of a Claim, the District and Contractor may, **by mutual agreement, extend the time period** to provide a written statement. If the District needs approval from its governing body to provide the Contractor a written statement identifying the disputed portion and the undisputed portion of the Claim, and the governing body does not meet within the 45 days or within the mutually agreed to extension of time following receipt of Claim sent by registered mail or certified mail, return receipt requested, the District shall have **up to three (3) days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension**, expires to provide Contractor a written statement identifying the disputed portion and the undisputed portion.

25.4.1.1.1 Any payment due on an undisputed portion of the Claim shall be processed and made within 60 days after the District issues its written statement. Amounts not paid in a timely manner as required by this section, section 25.4, shall bear interest at seven percent (7%) per annum.

25.4.1.2 Upon receipt of a Claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable. In this instance, District and Contractor must comply with the sections below regarding Public Contract Code section 20104 et seq. and Government Code Claim Act Claims.

25.4.1.3 If the District fails to issue a written statement, or to otherwise meet the time requirements of this section, this shall result in the Claim being deemed rejected in its entirety. A Claim that is denied by reason of the District's failure to have responded to a Claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the Claim or the responsibility or qualifications of Contractor.

25.4.2 STEP 2:

25.4.2.1 If Contractor disputes the District's written response, or if the District fails to respond to a Claim within the time prescribed, Contractor may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the District shall schedule a meet and confer conference within 30 days for settlement of the dispute. Within 10 business days following the conclusion of the meet and confer conference, if the Claim or any portion of the Claim remains in dispute, the District shall provide the Contractor a

written statement identifying the portion of the Claim that remains in dispute and the portion that is undisputed.

25.4.2.1.1.1 Any payment due on an undisputed portion of the Claim shall be processed and made within 60 days after the District issues its written statement. Amounts not paid in a timely manner as required by this section, section 25.4, shall bear interest at seven percent (7%) per annum.

25.4.3 STEP 3:

25.4.3.1 Any disputed portion of the Claim, as identified by Contractor in writing, shall be submitted to nonbinding mediation, with the District and Contractor sharing the associated costs equally. The District and Contractor shall mutually agree to a mediator within 10 business days after the disputed portion of the Claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the Claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the Claim remaining in dispute shall be subject to applicable procedures outside this section.

25.4.3.1.1 For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

25.4.3.2 Unless otherwise agreed to by the District and Contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Public Contract Code section 20104.4 to mediate after litigation has been commenced.

25.4.4 STEP 4:

25.4.4.1 If mediation under this section does not resolve the parties' dispute, the District may, but does not require arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program.

25.5 <u>Subcontractor Pass-Through Claims</u>

25.5.1 If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against a District because privity of contract does not exist, the contractor may present to the District a Claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier subcontractor, that Contractor present a Claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the Claim be presented to the District shall furnish reasonable documentation to support the Claim.

25.5.2 Within 45 days of receipt of this written request from a subcontractor, Contractor shall notify the subcontractor in writing as to whether the Contractor presented the Claim to the District and, if Contractor did not present the Claim, provide the subcontractor with a statement of the reasons for not having done so.

25.5.3 The Contractor shall bind all its Subcontractors to the provisions of this section and will hold the District harmless against Claims by Subcontractors.

25.6 Government Code Claim Act Claim

25.6.1 If a claim, or any portion thereof, remains in dispute upon satisfaction of all applicable Claim Resolution requirements, including those pursuant to Public Contract Code section 9204, the Contractor shall comply with all claims presentation requirements as provided in Chapter 1 (commencing with section 900) and Chapter 2 (commencing with section 910) of Part 3 of Division 3.6 of Title 1 of Government Code as a condition precedent to the Contractor's right to bring a civil action against the District. For purposes of those provisions, the running of the time within which a claim must be presented to the District shall be tolled from the time Contractor submits its written Claim until the time the Claim is denied, including any time utilized by any applicable meet and confer process.

25.7 Claim Resolution pursuant to Public Contract Code section 20104 et seq.

25.7.1 In the event of a disagreement between the parties as to performance of the Work, the interpretation of this Contract, or payment or nonpayment for Work performed or not performed, the parties shall attempt to resolve all claims of three hundred seventy-five thousand dollars ($375,000) or less which arise between Contractor and District by those procedures set forth in Public Contract Code section 20104, et seq., to the extent applicable.

25.7.1.1 Contractor shall file with the District any written Claim, including the documents necessary to substantiate it, upon the application for final payment.

25.7.1.2 For claims of less than fifty thousand dollars ($50,000), the District shall respond in writing within forty-five (45) days of receipt of the Claim or may request in writing within thirty (30) days of receipt of the Claim any additional documentation supporting the Claim or relating to defenses or claims the District may have against the Contractor.

25.7.1.2.1 If additional information is required, it shall be requested and provided by mutual agreement of the parties.

25.7.1.2.2 District's written response to the documented Claim shall be submitted to the Contractor within fifteen (15) days after receipt of the further documentation or within a period of time no greater than that taken by the Contractor to produce the additional information, whichever is greater.

25.7.1.3 For claims of over fifty thousand dollars ($50,000) and less than or equal to three hundred seventy-five thousand dollars ($375,000), the District shall respond in writing to all written Claims within sixty (60) days of receipt of the claim, or may request, in writing, within thirty (30) days of receipt of the

Claim any additional documentation supporting the Claim or relating to defenses or claims the District may have against the Contractor.

25.7.1.3.1 If additional information is required, it shall be requested and provided upon mutual agreement of the District and the Contractor.

25.7.1.3.2 The District's written response to the Claim, as further documented, shall be submitted to the Contractor within thirty (30) days after receipt of the further documentation, or within a period of time no greater than that taken by the Contractor to produce the additional information or requested documentation, whichever is greater.

25.7.1.4 If Contractor disputes the District's written response, or the District fails to respond within the time prescribed, Contractor may so notify the District, in writing, either within fifteen (15) days of receipt of the District's response or within fifteen (15) days of the District's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the District shall schedule a meet and confer conference within thirty (30) days for settlement of the dispute.

25.7.1.5 Following the meet and confer conference, if the Claim or any portion of it remains in dispute, the Contractor may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions the running of the time within which a claim must be filed shall be tolled from the time the Contractor submits its written Claim until the time the Claim is denied, including any period of time utilized by the meet and confer process.

25.7.1.6 For any civil action filed to resolve claims filed pursuant to this section, within sixty (60) days, but no earlier than thirty (30) days, following the filing of responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within fifteen (15) days by both parties of a disinterested third person as mediator, shall be commenced within thirty (30) days of the submittal, and shall be concluded within fifteen (15) days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

25.7.1.7 If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of the Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act of 1986, (Article 3 (commencing with Section 2016) of Chapter 3 of Title 3 of part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

25.7.1.8 The District shall not fail to pay money as to any portion of a Claim which is undisputed except as otherwise provided in the Contract Documents. In

any suit filed pursuant to this section, the District shall pay interest due at the legal rate on any arbitration award or judgment. Interest shall begin to accrue on the date the suit is filed in a court of law.

25.7.2 Contractor shall bind its Subcontractors to the provisions of this Section and will hold the District harmless against disputes by Subcontractors.

25.8 Claim Resolution Non-Applicability

25.8.1 The procedures for dispute and claim resolutions set forth in this Article shall not apply to the following:

25.8.1.1 Personal injury, wrongful death or property damage claims;

25.8.1.2 Latent defect or breach of warranty or guarantee to repair;

25.8.1.3 Stop payment notices;

25.8.1.4 District's rights set forth in the Article on Suspension and Termination;

25.8.1.5 Disputes arising out of labor compliance enforcement by the Department of Industrial Relations; or

25.8.1.6 District rights and obligations as a public entity set forth in applicable statutes; provided, however, that penalties imposed against a public entity by statutes, including, but not limited to, Public Contract Code sections 20104.50 and 7107, shall be subject to the Claim Resolution requirements provided in this Article.

25.9 Attorney's Fees

25.9.1 Should litigation be necessary to enforce any terms or provisions of this Agreement, then each party shall bear its own litigation and collection expenses, witness fees, court costs and attorney's fees.

26. STATE LABOR, WAGE & HOUR, APPRENTICE, AND RELATED PROVISIONS

26.1 Labor Compliance and Enforcement

Since this Project is subject to labor compliance and enforcement by the Department of Industrial Relations ("DIR"), Contractor specifically acknowledges and understands that it shall perform the Work of this Agreement while complying with all the applicable provisions of Division 2, Part 7, Chapter 1, of the Labor Code and Title 8 of the California Code of Regulations, including, without limitation, the requirement that the Contractor and all Subcontractors shall timely furnish complete and accurate electronic certified payroll records directly to the DIR. The District may not issue payment if this requirement is not met.

26.2 Wage Rates, Travel, and Subsistence

26.2.1 Pursuant to the provisions of Article 2 (commencing at section 1770), Chapter 1, Part 7, Division 2, of the Labor Code, the general prevailing rate of per

diem wages and the general prevailing rate for holiday and overtime work in the locality in which this public work is to be performed for each craft, classification, or type of worker needed to execute this Contract are on file at the District's principal office and copies will be made available to any interested party on request. Contractor shall obtain and post a copy of these wage rates at the job site.

26.2.2 Holiday and overtime work, when permitted by law, shall be paid for at the general prevailing rate of per diem wages for holiday and overtime work on file with the Director of the Department of Industrial Relations, unless otherwise specified. The holidays upon which those rates shall be paid need not be specified by the District, but shall be all holidays recognized in the applicable collective bargaining agreement. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code.

26.2.3 Contractor shall pay and shall cause to be paid each worker engaged in Work on the Project the general prevailing rate of per diem wages determined by the Director of the Department of Industrial Relations, regardless of any contractual relationship which may be alleged to exist between Contractor or any Subcontractor and such workers.

26.2.4 If during the period this bid is required to remain open, the Director of the Department of Industrial Relations determines that there has been a change in any prevailing rate of per diem wages in the locality in which the Work under the Contract is to be performed, such change shall not alter the wage rates in the Notice to Bidders or the Contract subsequently awarded.

26.2.5 Pursuant to Labor Code section 1775, Contractor shall, as a penalty to District, forfeit the statutory amount (believed by the District to be currently up to two hundred dollars ($200) for each calendar day, or portion thereof, for each worker paid less than the prevailing rates, determined by the District and/or the Director, for the work or craft in which that worker is employed for any public work done under Contract by Contractor or by any Subcontractor under it. The difference between such prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing wage rate shall be paid to each worker by Contractor.

26.2.6 Any worker employed to perform Work on the Project, which Work is not covered by any classification listed in the general prevailing wage rate of per diem wages determined by the Director, shall be paid not less than the minimum rate of wages specified therein for the classification which most nearly corresponds to Work to be performed by him, and such minimum wage rate shall be retroactive to time of initial employment of such person in such classification.

26.2.7 Pursuant to Labor Code section 1773.1, per diem wages are deemed to include employer payments for health and welfare, pension, vacation, travel time, subsistence pay, and apprenticeship or other training programs authorized by Labor Code section 3093, and similar purposes.

26.2.8 Contractor shall post at appropriate conspicuous points on the Site of Project, a schedule showing all determined minimum wage rates and all authorized deductions, if any, from unpaid wages actually earned. In addition, Contractor shall

post a sign-in log for all workers and visitors to the Site, a list of all subcontractors of any tier on the Site, and the required Equal Employment Opportunity poster(s).

26.3 Hours of Work

26.3.1 As provided in article 3 (commencing at section 1810), chapter 1, part 7, division 2, of the Labor Code, eight (8) hours of labor shall constitute a legal day's work. The time of service of any worker employed at any time by Contractor or by any Subcontractor on any subcontract under this Contract upon the Work or upon any part of the Work contemplated by this Contract shall be limited and restricted by Contractor to eight (8) hours per day, and forty (40) hours during any one week, except as hereinafter provided. Notwithstanding the provisions hereinabove set forth, Work performed by employees of Contractor in excess of eight (8) hours per day and forty (40) hours during any one week, shall be permitted upon this public work upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half times the basic rate of pay.

26.3.2 Contractor shall keep and shall cause each Subcontractor to keep an accurate record showing the name of and actual hours worked each calendar day and each calendar week by each worker employed by Contractor in connection with the Work or any part of the Work contemplated by this Contract. The record shall be kept open at all reasonable hours to the inspection of District and to the Division of Labor Standards Enforcement of the DIR.

26.3.3 Pursuant to Labor Code section 1813, Contractor shall as a penalty to the District forfeit the statutory amount (believed by the District to be currently twenty-five dollars ($25)) for each worker employed in the execution of this Contract by Contractor or by any Subcontractor for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of the provisions of article 3 (commencing at section 1810), chapter 1, part 7, division 2, of the Labor Code.

26.3.4 Any Work necessary to be performed after regular working hours, or on Sundays or other holidays shall be performed without additional expense to the District.

26.4 Payroll Records

26.4.1 Contractor shall upload, and shall cause each Subcontractor performing any portion of the Work under this Contract to upload, an accurate and complete certified payroll record ("CPR") electronically using DIR's eCPR System by uploading the CPRs by electronic XML file or entering each record manually using the DIR's iform (or current form) online on a weekly basis and within ten (10 days of any request by the District or Labor Commissioner at http://www.dir.ca.gov/Public-Works/Certified-Payroll-Reporting.html or current application and URL, showing the name, address, social security number, work classification, straight-time, and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by the Contractor and/or each Subcontractor in connection with the Work.

26.4.1.1 The CPRs enumerated hereunder shall be filed directly with the DIR on a weekly basis or to the requesting party, whether the District or DIR, within ten

(10) days after receipt of each written request. The CPRs from the Contractor and each Subcontractor for each week shall be provided on or before Wednesday of the week following the week covered by the CPRs. District may not make any payment to Contractor until:

26.4.1.1.1 Contractor and/or its Subcontractor(s) provide CPRs acceptable to the DIR; and

26.4.1.1.2 Any delay in Contractor and/or its Subcontractor(s) providing CPRs to the DIR in a timely manner may directly delay Contractor's payment.

26.4.2 All CPRs shall be available for inspection at all reasonable hours at the principal office of Contractor on the following basis:

26.4.2.1 A certified copy of an employee's CPR shall be made available for inspection or furnished to the employee or his/her authorized representative on request.

26.4.2.2 CPRs shall be made available for inspection or furnished upon request to a representative of District, Division of Labor Standards Enforcement, Division of Apprenticeship Standards, and/or the DIR.

26.4.2.3 CPRs shall be made available upon request by the public for inspection or copies thereof made; provided, however, that a request by the public shall be made through the District, Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested CPRs have not been provided pursuant to the provisions herein, the requesting party shall, prior to being provided the records, reimburse the costs of preparation by Contractor, Subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal office of Contractor.

26.4.3 Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by District, Division of Apprenticeship Standards, or Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address, and social security number. The name and address of Contractor awarded Contract or performing Contract shall not be marked or obliterated.

26.4.4 Contractor shall inform District of the location of the records enumerated hereunder, including the street address, city, and county, and shall, within five (5) working days, provide a notice of change of location and address.

26.4.5 In the event of noncompliance with the requirements of this section, Contractor shall have ten (10) days in which to comply subsequent to receipt of written notice specifying in what respects Contractor must comply with this section. Should noncompliance still be evident after the ten (10) day period, Contractor shall, as a penalty to District, forfeit up to one hundred dollars ($100) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Labor Commissioner, these penalties shall be withheld from progress payments then due.

26.4.6 [RESERVED]

26.5 [RESERVED]

26.6 Apprentices

26.6.1 Contractor acknowledges and agrees that, if this Contract involves a dollar amount greater than or a number of working days greater than that specified in Labor Code section 1777.5, then this Contract is governed by the provisions of Labor Code Section 1777.5. It shall be the responsibility of Contractor to ensure compliance with this Article and with Labor Code section 1777.5 for all apprenticeship occupations.

26.6.2 Apprentices of any crafts or trades may be employed and, when required by Labor Code section 1777.5, shall be employed provided they are properly registered in full compliance with the provisions of the Labor Code.

26.6.3 Every such apprentice shall be paid the standard wage paid to apprentices under the regulations of the craft or trade at which he/she is employed, and shall be employed only at the work of the craft or trade to which she/he is registered.

26.6.4 Only apprentices, as defined in section 3077 of the Labor Code, who are in training under apprenticeship standards and written apprentice agreements under chapter 4 (commencing at section 3070), division 3, of the Labor Code, are eligible to be employed. The employment and training of each apprentice shall be in accordance with the provisions of the apprenticeship standards and apprentice agreements under which he/she is training.

26.6.5 Pursuant to Labor Code section 1777.5, if that section applies to this Contract as indicated above, Contractor and any Subcontractors employing workers in any apprenticeable craft or trade in performing any Work under this Contract shall apply to the applicable joint apprenticeship committee for a certificate approving the Contractor or Subcontractor under the applicable apprenticeship standards and fixing the ratio of apprentices to journeymen employed in performing the Work.

26.6.6 Pursuant to Labor Code section 1777.5, if that section applies to this Contract as indicated above, Contractor and any Subcontractor may be required to make contributions to the apprenticeship program.

26.6.7 If Contractor or Subcontractor willfully fails to comply with Labor Code section 1777.5, then, upon a determination of noncompliance by the Administrator of Apprenticeship, it shall:

26.6.7.1 Be denied the right to bid on any subsequent project for one (1) year from the date of such determination;

26.6.7.2 Forfeit as a penalty to District the full amount as stated in Labor Code section 1777.7. Interpretation and enforcement of these provisions shall be in accordance with the rules and procedures of the California Apprenticeship Council and under the authority of the Chief of the Division of Apprenticeship Standards.

26.6.8 Contractor and all Subcontractors shall comply with Labor Code section 1777.6, which section forbids certain discriminatory practices in the employment of apprentices.

26.6.9 Contractor shall become fully acquainted with the law regarding apprentices prior to commencement of the Work. Special attention is directed to sections 1777.5, 1777.6, and 1777.7 of the Labor Code, and title 8, California Code of Regulations, section 200 et seq. Questions may be directed to the State Division of Apprenticeship Standards, 455 Golden Gate Avenue, 9th floor, San Francisco, California 94102.

26.7 Non-Discrimination

26.7.1 Contractor herein agrees to comply with the provisions of the California Fair Employment and Housing Act as set forth in part 2.8 of division 3 of the California Government Code, commencing at section 12900; the Federal Civil Rights Act of 1964, as set forth in Public Law 88-352, and all amendments thereto; Executive Order 11246; and all administrative rules and regulations found to be applicable to Contractor and Subcontractor.

26.7.2 Special requirements for Federally Assisted Construction Contracts: During the performance of this Contract, Contractor agrees to incorporate in all subcontracts the provisions set forth in Chapter 60-1.4(b) of Title 41 published in Volume 33 No. 104 of the Federal Register dated May 28, 1968.

26.8 Labor First Aid

Contractor shall maintain emergency first aid treatment for Contractor's workers on the Project which complies with the Federal Occupational Safety and Health Act of 1970 (29 U.S.C. § 651 et seq.) and the California Occupational Safety and Health Act of 1973 (Lab. Code, § 6300 et seq.; 8 Cal. Code of Regs., § 330 et seq.).

27. [RESERVED]

28. MISCELLANEOUS

28.1 Assignment of Antitrust Actions

28.1.1 Section 7103.5(b) of the Public Contract Code states:

In entering into a public works contract or subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commending with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, which assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties.

28.1.2 Section 4552 of the Government Code states:

In submitting a bid to a public purchasing body, the bidder offers and agrees that if the bid is accepted, it will assign to the purchasing body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section

16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by the bidder for sale to the purchasing body pursuant to the bid. Such assignment shall be made and become effective at the time the purchasing body tenders final payment to the bidder.

28.1.3 Section 4553 of the Government Code states:

If an awarding body or public purchasing body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under this chapter, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery.

28.1.4 Section 4554 of the Government Code states:

Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under this part if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action.

28.1.5 Under this Article, "public purchasing body" is District and "bidder" is Contractor.

28.2 Excise Taxes

If, under Federal Excise Tax Law, any transaction hereunder constitutes a sale on which a Federal Excise Tax is imposed and the sale is exempt from such Federal Excise Tax because it is a sale to a State or Local Government for its exclusive use, District, upon request, will execute documents necessary to show (1) that District is a political subdivision of the State for the purposes of such exemption, and (2) that the sale is for the exclusive use of District. No Federal Excise Tax for such materials shall be included in any Contract Price.

28.3 Taxes

Contract Price is to include any and all applicable sales taxes or other taxes that may be due in accordance with section 7051 et seq. of the Revenue and Taxation Code, Regulation 1521 of the State Board of Equalization or any other tax code that may be applicable.

28.4 Shipments

All shipments must be F.O.B. destination to Site or sites, as indicated in the Contract Documents. There must be no charge for containers, packing, unpacking, drayage, or insurance. The total Contract Price shall be all inclusive (including sales tax) and no additional costs of any type will be considered.

28.5 Compliance with Government Reporting Requirements

If this Contract is subject to federal or other governmental reporting requirements because of federal or other governmental financing in whole or in part for the Project of which it is part, or for any other reason, Contactor shall comply with those reporting requirements at the request of the District at no additional cost.

END OF DOCUMENT

DOCUMENT 00 73 13

SPECIAL CONDITIONS

THIS DOCUMENT MUST BE ADAPTED FOR EACH PROJECT – Delete any provision that is not applicable or if no change from the provision in the General Conditions.

*** THIS LIST OF SPECIAL CONDITION PROVISIONS IS FOR REFERENCE ONLY. REMOVE THIS PAGE BEFORE USING THIS DOCUMENT. ***

1. Mitigation Measures
2. Modernization Projects
3. Badge Policy for Contractors
4. Substitution for Specified Items
5. Weather Days
7. Insurance Policy Limits
8. Permits, Certificates, Licenses, Fees, Approval
9. Project Labor Agreement/Payroll Records
10. As-Builts and Record Drawings
11. Fingerprinting
12. Disabled Veteran Business Enterprises
13. Construction Manager
14. Program Manager
15. Federal Funds
16. Preliminary Schedule of Values

DOCUMENT 00 73 13

SPECIAL CONDITIONS

29. Mitigation Measures

Contractor shall comply with all applicable mitigation measures, if any, adopted by any public agency with respect to this Project pursuant to the California Environmental Quality Act. (Public Resources Code section 21000 *et seq*.)

30. Modernization Projects

a. Access. Access to the school buildings and entry to buildings, classrooms, restrooms, mechanical rooms, electrical rooms, or other rooms, for construction purposes, must be coordinated with District and onsite District personnel before Work is to start. Unless agreed to otherwise in writing, only a school custodian will be allowed to unlock and lock doors in existing building(s). The custodian will be available only while school is in session. If a custodian is required to arrive before 7:00 a.m. or leave after 3:30 p.m. to accommodate Contractor's Work, the overtime wages for the custodian will be paid by the Contractor, unless at the discretion of the District, other arrangements are made in advance.

b. Keys. Upon request, the District may, at its own discretion, provide keys to the school site for the convenience of the Contractor. The Contractor agrees to pay all expenses to re-key the entire school site and all other affected District buildings if the keys are lost or stolen, or if any unauthorized party obtains a copy of the key or access to the school.

c. Maintaining Services. The Contractor is advised that Work is to be performed in spaces regularly scheduled for instruction. Interruption and/or periods of shutdown of public access, electrical service, water service, lighting, or other utilities shall be only as arranged in advance with the District. Contractor shall provide temporary services to all facilities interrupted by Contractor's Work.

d. Maintaining Utilities. The Contractor shall maintain in operation during duration of Contract, drainage lines, storm drains, sewers, water, gas, electrical, steam, and other utility service lines within working area.

e. Confidentiality. Contractor shall maintain the confidentiality of all information, documents, programs, procedures and all other items that Contractor encounters while performing the Work. This requirement shall be ongoing and shall survive the expiration or termination of this Contract and specifically includes, without

limitation, all student, parent, and employee disciplinary information and health information.

f. Work during Instructional Time. By submitting its bid, Contractor affirms that Work may be performed during ongoing instruction in existing facilities. If so, Contractor agrees to cooperate to the best of its ability to minimize any disruption to school operations and any use of school facilities by the public up to, and including, rescheduling specific work activities, at no additional cost to District.

g. No Work during Student Testing. Contractor shall, at no additional cost to the District and at the District's request, coordinate its Work to not disturb District students including, without limitation, not performing any Work when students at the Site are taking State or Federally-required tests.

31. Badge Policy for Contractors

All Contractors doing work for the District will provide their workers with identification badges. These badges will be worn by all members of the Contractor's staff who are working in a District facility.

a. Badges must be filled out in full and contain the following information:

31.1.1 Name of Contractor

31.1.2 Name of Employee

31.1.3 Contractor's address and phone number

b. Badges are to be worn when the Contractor or his/her employees are on site and must be visible at all times. Contractors must inform their employees that they are required to allow District employees, the Architect, the Construction Manager, the Program Manager, or the Project Inspector to review the information on the badges upon request.

c. Continued failure to display identification badges as required by this policy may result in the individual being removed from the Project or assessment of fines against the Contractor.

32. Substitution for Specified Items

a. Whenever in the Specifications any materials, process, or article is indicated or specified by grade, patent, or proprietary name, or by name of manufacturer, that Specification shall be deemed to be followed by the words "or equal." Contractor may, unless otherwise stated, offer any material, process, or article that shall be

substantially equal or better in every respect to that so indicated or specified.

32.1.1 If the material, process, or article offered by Contractor is not, in the opinion of the District, substantially equal or better in every respect to that specified, then Contractor shall furnish the material, process, or article specified in the Specifications without any additional compensation or change order.

32.1.2 This provision shall not be applicable with respect to any material, product, thing or service for which District made findings and gave notice in accordance with Public Contract Code section 3400(c); therefore, Contractor shall not be entitled to request a substitution with respect to those materials, products or services.

b. A request for a substitution shall be submitted as follows:

32.1.3 Contractor shall notify the District in writing of any request for a substitution at least ten (10) days prior to bid opening as indicated in the Instructions to Bidders.

32.1.4 Requests for Substitutions after award of the Contract shall be submitted within thirty-five (35) days of the date of the Notice of Award.

c. Within 35 days after the date of the Notice of Award, Contractor shall provide data substantiating a request for substitution of "an equal" item, including but not limited to the following:

32.1.5 All variations of the proposed substitute from the material specified including, but not limited to, principles of operation, materials, or construction finish, thickness or gauge of materials, dimensions, weight, and tolerances;

32.1.6 Available maintenance, repair or replacement services;

32.1.7 Increases or decreases in operating, maintenance, repair, replacement, and spare parts costs;

32.1.8 Whether or not acceptance of the substitute will require other changes in the Work (or in work performed by the District or others under Contract with the District); and

32.1.9 The time impact on any part of the Work resulting directly or indirectly from acceptance of the proposed substitute.

d. No substitutions shall be made until approved, in writing, by the District. The burden of proof as to equality of any material, process, or article shall rest with Contractor. The Contractor warrants that if substitutes are approved:

32.1.10 The proposed substitute is equal or superior in all respects to that specified, and that such proposed substitute is suitable and fit for the intended purpose and will perform adequately the function and achieve the results called for by the general design and the Contract Documents;

32.1.11 The Contractor provides the same warranties and guarantees for the substitute that would be provided for that specified;

32.1.12 The Contractor shall be fully responsible for the installation of the substitute and any changes in the Work required, either directly or indirectly, because of the acceptance of such substitute, with no increase in Contract Price or Contract Time. Incidental changes or extra component parts required to accommodate the substitute will be made by the Contractor without a change in the Contract Price or Contract Time;

32.1.13 The Contractor shall be responsible for any re-design costs occasioned by District's acceptance and/or approval of any substitute; and

32.1.14 The Contractor shall, in the event that a substitute is less costly than that specified, credit the District with one hundred percent (100%) of the net difference between the substitute and the originally specified material. In this event, the Contractor agrees to execute a deductive Change Order to reflect that credit.

e. In the event Contractor furnishes a material, process, or article more expensive than that specified, the difference in the cost of that material, process, or article so furnished shall be borne by Contractor.

f. In no event shall the District be liable for any increase in Contract Price or Contract Time due to any claimed delay in the evaluation of any proposed substitute or in the acceptance or rejection of any proposed substitute.

g. Contractor shall be responsible for any costs the District incurs for professional services, DSA fees, or delay to the Project Schedule, if applicable, while DSA reviews changes for the convenience of Contractor and/or to accommodate Contractor's means and methods. District may deduct those costs from any amounts owing to the Contractor for the review of the request for substitution, even if the request for substitution is not approved. District, at its sole discretion, shall deduct from the payments due to and/or invoice Contractor for all the professional services and/or DSA fees or delay to the Project Schedule, if applicable, while DSA reviews changes for the convenience of Contractor and/or to accommodate Contractor's means and methods arising herein.

33. Weather Days

Delays due to Adverse Weather conditions will only be permitted in compliance with the provisions in the General Conditions and only if the number of days of Adverse Weather exceeds the following parameters and Contractor can verify that the excess days of Adverse Weather caused delays:

January	**6**	July	**0**
February	**7**	August	**0**
March	**5**	September	**1**
April	**3**	October	**2**
May	**2**	November	**2**
June	**1**	December	**4**

34. Insurance Policy Limits

All of Contractor's insurance shall be with insurance companies with an A.M. Best rating of no less than A-VII. The limits of insurance shall not be less than:

Commercial General Liability	Product Liability and Completed Operations, Fire Damage Liability – Split Limit	**[E.G.** Low Risk: $1,000,000 per occurrence; $2,000,000 aggregate
		Intermediate Risk: $2,000,000 per occurrence; $4,000,000 aggregate
		High Risk: $5,000,000 per occurrence; $10,000,000 aggregate**]**
Automobile Liability – Any Auto	Combined Single Limit	**[E.G.** Personal vehicles: $500,000 Commercial vehicles: $1,000,000
		Personal vehicles: $100,000 per person/ $300,000 per accident**]**
Workers' Compensation		Statutory limits pursuant to State law
Employers' Liability		**[E.G. $0]**
Builder's Risk (Course of Construction)		Issued for the value and scope of Work indicated herein.
Pollution Liability		**[E.G. $0]**

35. Permits, Certificates, Licenses, Fees, Approvals

a. Payment for Permits, Certificates, Licenses, Fees, and Approvals. As required in the General Conditions, the Contractor shall secure and pay for all permits, licenses, approvals, and certificates necessary for the prosecution of the Work with the exception of the following:

35.1.1 _____

With respect to the above-listed items, Contractor shall be responsible for securing such items; however, District will be responsible for payment of these charges or fees. Contractor shall notify the District of the amount due with respect to such

items and to whom the amount is payable. Contractor shall provide the District with an invoice and receipt with respect to such charges or fees.

b. **General Permit For Storm Water Discharges Associated With Construction and Land Disturbance Activities**

35.1.2 Contractor acknowledges that all California school districts are obligated to develop and implement the following requirements for the discharge of storm water to surface waters from its construction and land disturbance activities (storm water requirements), without limitation:

35.1.2.1 Municipal Separate Storm Sewer System (MS4) is a system of conveyances used to collect and/or convey storm water, including, without limitation, catch basins, curbs, gutters, ditches, man-made channels, and storm drains.

35.1.2.2 Storm Water Pollution Prevention Plan ("SWPPP") contains specific best management practices ("BMPs") and establishes numeric effluent limitations at:

35.1.2.2.1 Sites where the District engages in maintenance (e.g., fueling, cleaning, repairing) for transportation activities.

35.1.2.2.2 Construction sites where:

35.1.2.2.2.1 One (1) or more acres of soil will be disturbed, or

35.1.2.2.2.2 The project is part of a larger common plan of development that disturbs more than one (1) acre of soil.

35.1.3 Contractor shall comply with any District storm water requirements that are approved by the District and applicable to the Project, at no additional cost to the District.

35.1.4 At no additional cost to the District, Contractor shall provide a Qualified Storm Water Practitioner who shall be onsite and implement and monitor any and all SWPPP requirements applicable to the Project, including but not limited to:

35.1.4.1 At least forty eight (48) hours prior to a forecasted rain event, implementing the Rain Event Action Plan (REAP) for any rain event requiring implementation of the REAP, including any erosion and sediment control measures needed to protect all exposed portions of the site; and

35.1.4.2 Monitoring any Numeric Action Levels (NALs), if applicable.

36. Project Labor Agreement/Payroll Records

The District has entered into a Project Labor Agreement ("PLA"), which covers this Project. Accordingly, the following provision is added as Section 26.4.6:

26.4.6 As Contractor and its subcontractors have agreed to be bound by the terms of the PLA entered into by the District [on or about / dated] _____, Contractor and its subcontractors may be excused from

uploading CPRs electronically using DIR's eCPR System by uploading the CPRs by electronic XML file or entering each record manually using the DIR's iform (or current form) online at http://www.dir.ca.gov/Public-Works/Certified-Payroll-Reporting.html , or by using a more current application and URL. However, within ten (10) days of any request by the District or Labor Commissioner, Contractor and its subcontractors shall provide CPRs showing the name, address, social security number, work classification, straight time, and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by the Contractor and/or each subcontractor in connection with the Work.

37. As-Builts and Record Drawings

37.1 Contractor shall submit Record Drawings pursuant to the Contract Documents consisting of one set of computer-aided design and drafting ("CADD") files in the following format PDF.

38. Fingerprinting

Contractor shall comply with the provisions of Education Code section 45125.2 regarding the submission of employee fingerprints to the California Department of Justice and the completion of criminal background investigations of its employees, its subcontractor(s), and its subcontractors' employees. Contractor shall not permit any employee to have any contact with District pupils until such time as Contractor has verified in writing to the governing board of the District, that such employee has not been convicted of a violent or serious felony, as defined in Education Code section 45122.1. Contractor shall fully complete and perform all tasks required pursuant to the Criminal Background Investigation/ Fingerprinting Certification.

39. Disabled Veteran Business Enterprises

This Project uses or may plan to use funds allocated pursuant to the State of California School Facility Program ("Program") for the construction and/or modernization of school buildings. Therefore, Section 17076.11 of the Education Code requires the District to have a participation goal for disabled veteran business enterprises ("DVBE") of at least three percent (3%), per year, of the overall dollar amount expended each year by the District on projects that receive state funding. The Contractor must submit the Disabled Veteran Business Enterprise Participation Certification to the District with its executed Agreement, identifying the steps Contractor took to solicit DVBE participation in conjunction with this Contract.

40. Construction Manager

The District will use a Construction Manager on the Project that is the subject of this Contract. Annie Aung is the Construction Manager for this Project.

41. Program Manager

Annie Aung is the Program Manager designated for the Project that is the subject of this Contract.

42. Federal Funds

As this Project is funded in whole or in part by federal funds, Contractor and all Subcontractors are subject to civil or criminal prosecution for any violation of the federal False Claims Act set forth under section 1001 of title 18 and section 231 of title 31 of the United States Code.

The following provisions are added as Section 27 of the General Conditions:

27. FEDERAL LABOR, WAGE & HOUR, APPRENTICE, AND RELATED PROVISIONS

a. Minimum Wages

The Davis-Bacon Act and 29 CFR parts 1 through 7 shall apply if the Project is financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution.

42.1.1 All laborers and mechanics employed or working upon the Site of the Work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the Project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account, except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3) , the full amount of wages and bona fide fringe benefits, or cash equivalents thereof, due at time of payment computed at rates not less than those contained in the applicable wage determination of the Secretary of Labor regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of this section, including but not limited to paragraph 27.1.7; also, regular contributions made or costs incurred for more than a weekly period, but not less often than quarterly, under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of Work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing Work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which Work is performed. The wage determination including any additional classification and wage rates conformed under this section, including but not limited to paragraph 27.1.6 and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its Subcontractors at the Site of the Work in a prominent and accessible place where it can be easily seen by the workers.

42.1.2 Any class of laborers or mechanics, including helpers, and which is to be employed under the Contract which is not listed in the wage determination shall be classified in conformance with the wage determination. An additional classification

and wage rate and fringe benefits will not be approved unless when the following criteria have been met:

(1) The Work to be performed by the classification requested is not performed by a classification in the wage determination; and

42.1.2.1 The classification is utilized in the area by the construction industry; and

42.1.2.2 The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

42.1.3 If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the District agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the Contractor to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210.

42.1.4 In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the District do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the Contractor shall provide the questions, including the views of all interested parties and the recommendation of the District, to the District for the District's review and referral to the Administrator for determination.

42.1.5 The wage rate (including fringe benefits where appropriate) determined pursuant to this section, shall be paid to all workers performing Work in the classification under this Contract from the first day on which Work is performed in the classification.

42.1.6 Whenever the minimum wage rate prescribed in any applicable wage determination for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

42.1.7 If the Contractor does not make payments to a trustee or other third person, the Contractor may consider, as part of the wages of any laborer or mechanic, the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. If the Secretary of Labor so requires, the Contractor shall set aside in a separate account sufficient assets to meet obligations under the plan or program.

42.2 Withholding. District may, upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this Contract or any other Federal contract with the same Contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics,

including apprentices, trainees, and helpers, employed by the Contractor or any Subcontractor the full amount of wages required by the Contract. In the event of Contractor's or any Subcontractors' failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the Site of the Work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the Contract, the District may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as it deems necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

42.3 Payrolls and basic records.

42.3.1 Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the Work and preserved for a period of three years thereafter for all laborers and mechanics working at the Site of the Work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records that show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

42.3.2 The Contractor shall submit weekly for each week in which any Contract Work is performed a copy of all payrolls to the District. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information shall be submitted on a form acceptable to the District. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at https://www.dol.gov/whd/programs/dbra/wh347.htm or its successor site. Contractor is responsible for the submission of copies of payrolls by all Subcontractors. Contractor and Subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the District, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. Contractor may require a Subcontractor to provide

addresses and social security numbers to the Contractor for its own records, without weekly submission to the District or other government agency

42.3.3 Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or Subcontractor or his or her agent who pays or supervises the payment of the persons employed under the Contract and shall certify the following:

42.3.3.1 That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5,

42.3.3.2 That the appropriate information is being maintained under 29 CFR 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and

42.3.3.3 That such information is correct and complete;

42.3.3.4 That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and

42.3.3.5 That no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

42.3.3.6 That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of Work performed, as specified in the applicable wage determination incorporated into or applicable to the Contract.

42.3.3.7 The weekly submission of a properly executed certification in the form set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 27.3.3 of this section.

42.3.3.8 The falsification of any of the above certifications may subject the Contractor or one or more Subcontractors to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

42.3.3.9 The Contractor or Subcontractor shall make the records required under this section available for inspection, copying, or transcription by authorized representatives of the District or the federal Department of Labor, and shall permit representatives to interview employees during working hours on the job. If the Contractor or Subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

42.4 Apprentices and trainees

42.4.1 Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the Work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first ninety (90) days of probationary employment as an apprentice in an eligible apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job Site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of Work actually performed. In addition, any apprentice performing Work on the job Site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the Work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or Subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the Work performed until an acceptable program is approved.

42.4.2 Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to Work at less than the predetermined rate for the Work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job Site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the

corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of Work actually performed. In addition, any trainee performing Work on the job Site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the Work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the Work performed until an acceptable program is approved.

42.4.3 Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

42.5 Compliance with Copeland Act requirements. Contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this Contract.

42.6 Subcontracts. The Contractor or Subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal agency may by appropriate instructions require, and also a clause requiring the Subcontractors to include these clauses in any lower tier subcontracts. The Contractor shall be responsible for the compliance by any Subcontractor or lower tier Subcontractor with all the Contract clauses in 29 CFR 5.5.

42.7 Contract termination: debarment. A breach of the Contract clauses in 29 CFR 5.5 may be grounds for termination of the Contract, and for debarment as a Contractor and a Subcontractor as provided in 29 CFR 5.12.

42.8 Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this Contract.

42.9 Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this Contract shall not be subject to the general disputes clause of this Contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its Subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

42.10 Certification of eligibility.

42.10.1 By entering into this Contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is

a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

42.10.2 No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

42.10.3 Contractor shall be subject to the penalty for making false statements prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

42.11 Clauses Mandated by Contract Work Hours and Safety Standards Act.

As used in the following paragraphs, the terms laborers and mechanics include watchmen and guards.

42.11.1 Overtime requirements. No Contractor or Subcontractor contracting for any part of the Contract Work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such Work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

42.11.2 Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in the foregoing paragraph the Contractor and any Subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and Subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the foregoing paragraph, in the sum of $10 for each calendar day on which such individual was required or permitted to Work in excess of the standard workweek of forty hours without payment of the overtime wages required by the foregoing paragraph.

42.11.3 Withholding for unpaid wages and liquidated damages. The District may upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of Work performed by the Contractor or Subcontractor under the Contract or any other Federal contract with the same Contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or Subcontractor for unpaid wages and liquidated damages as provided in the forgoing paragraph.

42.11.4 Subcontracts. The Contractor or Subcontractor shall insert in any subcontracts the foregoing paragraphs concerning "Overtime requirements" and "Violation; liability for unpaid wages; liquidated damages" and also a clause requiring each Subcontractor to include these clauses in any lower tier subcontracts. Contractor shall be responsible for compliance by any Subcontractor or lower tier Subcontractor with the clauses set forth in paragraphs 27.11.1 through 27.11.4 of this section.

16. Preliminary Schedule of Values

The preliminary schedule of values shall include, at a minimum, the following information and the following structure:

Replace provision in the General Conditions with the following provisions:

16.1.1.2.3. The preliminary schedule of values shall not provide for values any greater than the following percentages of the Contract value:

16.1.2.3.1 Mobilization and layout combined to equal not more than **[1]**%;

16.1.1.2.3.2 Submittals, samples and shop drawings combined to equal not more than **[3]**%;

16.1.1.2.3.3 Bonds and insurance combined to equal not more than **[2]**%.

END OF DOCUMENT

DOCUMENT 01 11 00

SUMMARY OF WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Site Access Conditions and Requirements;

B. Special Conditions.

1.02 SUMMARY OF WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of this Contract consists of the following:

Selective demolition, exterior site preparation, and electrical work necessary to build out the Columbus High School welding program.

1.03 CONTRACTS

A. Perform the Work under a single, fixed-price Contract.

1.04 CODES, REGULATIONS, AND STANDARDS

A. The codes, regulations, and standards adopted by the state and federal agencies having jurisdiction shall govern minimum requirements for this Project. Where codes, regulations, and standards conflict with the Contract Documents, these conflicts shall be brought to the immediate attention of the District and the Architect.

B. Codes, regulations, and standards shall be as published effective as of date of bid opening, unless otherwise specified or indicated.

1.05 PROJECT RECORD DOCUMENTS

A. Contractor shall maintain on Site one set of the following record documents; Contractor shall record actual revisions to the Work:

(1) Contract Drawings.

(2) Specifications.

(3) Addenda.

(4) Change Orders and other modifications to the Contract.

(5) Reviewed shop drawings, product data, and samples.

(6) Field test records.

(7) Inspection certificates.

(8) Manufacturer's certificates.

B. Contractor shall store Record Documents separate from documents used for construction. Provide files, racks, and secure storage for Record Documents and samples.

C. Contractor shall record information concurrent with construction progress.

D. Specifications: Contractor shall legibly mark and record at each product section of the Specifications the description of the actual product(s) installed, including the following:

(1) Manufacturer's name and product model and number.

(2) Product substitutions or alternates utilized.

(3) Changes made by Addenda and Change Orders and written directives.

1.06 EXAMINATION OF EXISTING CONDITIONS

A. Contractor shall be held to have examined the Project Site and acquainted itself with the conditions of the Site and of the streets or roads approaching the Site.

B. Prior to commencement of Work, Contractor shall survey the Site and existing buildings and improvements to observe existing damage and defects such as cracks, sags, broken, missing or damaged glazing, other building elements and Site improvements, and other damage.

C. Should Contractor observe cracks, sags, and other damage to and defects of the Site and adjacent buildings, paving, and other items not indicated in the Contract Documents, Contractor shall immediately report same to the District and the Architect.

1.07 CONTRACTOR'S USE OF PREMISES

A. If unoccupied and only with District’s prior written approval, Contractor may use the building(s) at the Project Site without limitation for its operations, storage, and office facilities for the performance of the Work. If the District chooses to beneficially occupy any building(s), Contractor must obtain the District's written approval for Contractor's use of spaces and types of operations to be performed within the building(s) while so occupied. Contractor's access to the building(s) shall be limited to the areas indicated.

B. If the space at the Project Site is not sufficient for Contractor's operations, storage, office facilities and/or parking, Contractor shall arrange and pay for any additional facilities needed by Contractor.

C. Contractor shall not interfere with use of or access to occupied portions of the building(s) or adjacent property.

D. Contractor shall maintain corridors, stairs, halls, and other exit-ways of building clear and free of debris and obstructions at all times.

E. No one other than those directly involved in the demolition and construction, or specifically designated by the District or the Architect shall be permitted in the areas of work during demolition and construction activities.

F. The Contractor shall install the construction fence and maintain that it will be locked when not in use. Keys to this fencing will be provided to the District.

1.08 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

A. The Drawings show above-grade and below-grade structures, utility lines, and other installations that are known or believed to exist in the area of the Work. Contractor shall locate these existing installations before proceeding with excavation and other operations that could damage same; maintain them in service, where appropriate; and repair damage to them caused by the performance of the Work. Should damage occur to these existing installations, the costs of repair shall be at the Contractor's expense and made to the District's satisfaction.

B. Contractor shall be alert to the possibility of the existence of additional structures and utilities. If Contractor encounters additional structures and utilities, Contractor will immediately report to the District for disposition of same as indicated in the General Conditions.

1.09 UTILITY SHUTDOWNS AND INTERRUPTIONS

A. Contractor shall give the District a minimum of three (3) days written notice in advance of any need to shut off existing utility services or to effect equipment interruptions. The District will set exact time and duration for shutdown, and will assist Contractor with shutdown. Work required to re-establish utility services shall be performed by the Contractor.

B. Contractor shall obtain District's written approval as indicated in the General Conditions in advance of deliveries of material or equipment or other activities that may conflict with District's use of the building(s) or adjacent facilities.

1.10 STRUCTURAL INTEGRITY

A. Contractor shall be responsible for and supervise each operation and work that could affect structural integrity of various building elements, both permanent and temporary.

B. Contractor shall include structural connections and fastenings as indicated or required for complete performance of the Work.

PART 2 – PRODUCTS Not Used.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 25 13

PRODUCT OPTIONS AND SUBSTITUTIONS

PART 4 - GENERAL

4.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. Instructions to Bidders;

B. General Conditions, including, without limitation, Substitutions For Specified Items; and

C. Special Conditions.

4.02 SUBSTITUTIONS OF MATERIALS AND EQUIPMENT

A. Catalog numbers and specific brands or trade names followed by the designation "or equal" are used in conjunction with material and equipment required by the Specifications to establish the standards of quality, utility, and appearance required. Substitutions which are equal in quality, utility, and appearance to those specified may be reviewed subject to the provisions of the General Conditions.

B. Wherever more than one manufacturer's product is specified, the first-named product is the basis for the design used in the work and the use of alternative-named manufacturers' products or substitutes may require modifications in that design. If such alternatives are proposed by Contractor and are approved by the District and/or the Architect, Contractor shall assume all costs required to make necessary revisions and modifications of the design resulting from the substitutions requested by the Contractor.

C. When materials and equipment are specified by first manufacturer's name and product number, second manufacturer's name and "or approved equal," supporting data for the second product, if proposed by Contractor, shall be submitted in accordance with the requirements for substitutions. The District’s Board has found and determined that certain item(s) shall be used on this Project based on the purpose(s) indicated pursuant to Public Contract Code section 3400(c). These findings, as well as the products and brand or trade names, have been identified in the Notice to Bidders.

D. The Contractor will not be allowed to substitute specified items unless the request for substitution is submitted as follows:

(1) District must receive any notice of request for substitution of a specified item a minimum of ten (10) calendar days prior to bid opening.

(2) Within 35 days after the date of the Notice of Award, the Contractor shall submit data substantiating the request(s) for all substitution(s) containing sufficient information to assess acceptability of product or system and impact on Project, including, without limitation, the requirements specified in the Special Conditions and the technical Specifications. Insufficient information shall be grounds for rejection of substitution.

E. If the District and/or Architect, in reviewing proposed substitute materials and equipment, require revisions or corrections to be made to previously accepted Shop Drawings and supplemental supporting data to be resubmitted, Contractor shall promptly do so. If any proposed substitution is judged by the District and/or Architect to be unacceptable, the specified material or equipment shall be provided.

F. Samples may be required. Tests required by the District and/or Architect for the determination of quality and utility shall be made at the expense of Contractor, with acceptance of the test procedure first given by the District.

G. In reviewing the supporting data submitted for substitutions, the District and/or Architect will use for purposes of comparison all the characteristics of the specified material or equipment as they appear in the manufacturer's published data even though all the characteristics may not have been particularly mentioned in the Contract Documents. If more than two (2) submissions of supporting data are required, the cost of reviewing the additional supporting data shall be borne by Contractor, and the District will deduct the costs from the Contract Price. The Contractor shall be responsible for any re-design costs occasioned by District's acceptance and/or approval of any substitute.

H. The Contractor shall, in the event that a substitute is less costly than that specified, credit the District with one hundred percent (100%) of the net difference between the substitute and the originally specified material. In this event, the Contractor agrees to execute a deductive Change Order to reflect that credit. In the event Contractor furnishes a material, process, or article more expensive than that specified, the difference in the cost of that material, process, or article so furnished shall be borne by Contractor.

I. In no event shall the District be liable for any increase in Contract Price or Contract Time due to any claimed delay in the evaluation of any proposed substitute or in the acceptance or rejection of any proposed substitute.

PART 5 – PRODUCTS Not Used.

PART 6 – EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 25 13

PRODUCT OPTIONS AND SUBSTITUTIONS

PART 7 - GENERAL

7.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. Instructions to Bidders;

B. General Conditions, including, without limitation, Substitutions For Specified Items; and

C. Special Conditions.

7.02 SUBSTITUTIONS OF MATERIALS AND EQUIPMENT

A. Catalog numbers and specific brands or trade names followed by the designation "or equal" are used in conjunction with material and equipment required by the Specifications to establish the standards of quality, utility, and appearance required. Substitutions which are equal in quality, utility, and appearance to those specified may be reviewed subject to the provisions of the General Conditions.

B. Wherever more than one manufacturer's product is specified, the first-named product is the basis for the design used in the work and the use of alternative-named manufacturers' products or substitutes may require modifications in that design. If such alternatives are proposed by Contractor and are approved by the District and/or the Architect, Contractor shall assume all costs required to make necessary revisions and modifications of the design resulting from the substitutions requested by the Contractor.

C. When materials and equipment are specified by first manufacturer's name and product number, second manufacturer's name and "or approved equal," supporting data for the second product, if proposed by Contractor, shall be submitted in accordance with the requirements for substitutions. The District's Board has found and determined that certain item(s) shall be used on this Project based on the purpose(s) indicated pursuant to Public Contract Code section 3400(c). These findings, as well as the products and brand or trade names, have been identified in the Notice to Bidders.

D. The Contractor will not be allowed to substitute specified items unless the request for substitution is submitted as follows:

(1) District must receive any notice of request for substitution of a specified item a minimum of ten (10) calendar days prior to bid opening.

(2) Within 35 days after the date of the Notice of Award, the Contractor shall submit data substantiating the request(s) for all substitution(s) containing sufficient information to assess acceptability of product or system and impact on Project, including, without limitation, the requirements specified in the Special Conditions and the technical Specifications. Insufficient information shall be grounds for rejection of substitution.

E. If the District and/or Architect, in reviewing proposed substitute materials and equipment, require revisions or corrections to be made to previously accepted Shop Drawings and supplemental supporting data to be resubmitted, Contractor shall promptly do so. If any proposed substitution is judged by the District and/or Architect to be unacceptable, the specified material or equipment shall be provided.

F. Samples may be required. Tests required by the District and/or Architect for the determination of quality and utility shall be made at the expense of Contractor, with acceptance of the test procedure first given by the District.

G. In reviewing the supporting data submitted for substitutions, the District and/or Architect will use for purposes of comparison all the characteristics of the specified material or equipment as they appear in the manufacturer's published data even though all the characteristics may not have been particularly mentioned in the Contract Documents. If more than two (2) submissions of supporting data are required, the cost of reviewing the additional supporting data shall be borne by Contractor, and the District will deduct the costs from the Contract Price. The Contractor shall be responsible for any re-design costs occasioned by District's acceptance and/or approval of any substitute.

H. The Contractor shall, in the event that a substitute is less costly than that specified, credit the District with one hundred percent (100%) of the net difference between the substitute and the originally specified material. In this event, the Contractor agrees to execute a deductive Change Order to reflect that credit. In the event Contractor furnishes a material, process, or article more expensive than that specified, the difference in the cost of that material, process, or article so furnished shall be borne by Contractor.

I. In no event shall the District be liable for any increase in Contract Price or Contract Time due to any claimed delay in the evaluation of any proposed substitute or in the acceptance or rejection of any proposed substitute.

PART 8 – PRODUCTS Not Used.

PART 9 – EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 26 00

CHANGES IN THE WORK

CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE PROVISIONS IN THE AGREEMENT, GENERAL CONDITIONS, AND SPECIAL CONDITIONS, IF USED, RELATED TO CHANGES AND/OR REQUESTS FOR CHANGES.

END OF DOCUMENT

DOCUMENT 01 29 00

APPLICATION FOR PAYMENT AND CONDITIONAL AND UNCONDITIONAL WAIVER AND RELEASE FORMS

CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS IN THE GENERAL CONDITIONS RELATED TO APPLICATIONS FOR PAYMENT AND/OR PAYMENTS.

CONDITIONAL WAIVER AND RELEASE
ON PROGRESS PAYMENT
(CIVIL CODE SECTION 8132)

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Through Date: _____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check: _____

Amount of Check: $_____

Check Payable to: _____

Exceptions

This document does not affect any of the following:

(1) Retentions.

(2) Extras for which the claimant has not received payment.

(3) The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:

Date(s) of waiver and release: _____

Amount(s) of unpaid progress payment(s): $_____

(4) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

UNCONDITIONAL WAIVER AND RELEASE
ON PROGRESS PAYMENT
(CIVIL CODE SECTION 8134)

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Through Date: _____

Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has received the following progress payment: $_____

Exceptions

This document does not affect any of the following:

1. Retentions.

(5) Extras for which the claimant has not received payment.

(6) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

CONDITIONAL WAIVER AND RELEASE
ON FINAL PAYMENT
(CIVIL CODE SECTION 8136)

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check:

Amount of Check: $_____

Check Payable to: _____

Exceptions

This document does not affect any of the following: _____

Disputed claims for extras in the amount of: $_____

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

UNCONDITIONAL WAIVER AND RELEASE
ON FINAL PAYMENT
(CIVIL CODE SECTION 8138)

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for all labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has been paid in full.

Exceptions

This document does not affect any of the following: _____

Disputed claims for extras in the amount of: $_____

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

DOCUMENT 01 31 19

PROJECT MEETINGS

PART 10 – GENERAL

10.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions; and

B. Special Conditions.

10.02 PROGRESS MEETINGS:

A. Contractor shall schedule and hold regular weekly progress meetings after a minimum of one week's prior written notice of the meeting date and time to all Invitees as indicated below.

B. Location: Contractor's field office.

C. The Contractor shall notify and invite the following entities ("Invitees"):

(1) District Representative.

(2) Contractor.

(3) Contractor's Project Manager.

(4) Contractor's Superintendent.

(5) Subcontractors, as appropriate to the agenda of the meeting.

(6) Suppliers, as appropriate to the agenda of the meeting.

(7) Construction Manager, if any.

(8) Architect

(9) Engineer(s), if any and as appropriate to the agenda of the meeting.

(10) Others, as appropriate to the agenda of the meeting.

D. The District's and/or the Architect's Consultants will attend at their discretion, in response to the agenda.

E. The District representative, the Construction Manager, and/or another District Agent shall take and distribute meeting notes to attendees and other concerned parties. If exceptions are taken to anything in the meeting notes,

those exceptions shall be stated in writing to the District within five (5) working days following District's distribution of the meeting notes.

10.03 PRE-INSTALLATION/PERFORMANCE MEETING:

A. Contractor shall schedule a meeting prior to the start of each of the following portions of the Work: cutting and patching of plaster and roofing, and other weather-exposed and moisture-resistant products. Contractor shall invite all Invitees to this meeting, and others whose work may affect or be affected by the quality of the cutting and patching work.

B. Contractor shall review in detail prior to this meeting, the manufacturer's requirements and specifications, applicable portions of the Contract Documents, Shop Drawings, and other submittals, and other related work. At this meeting, invitees shall review and resolve conflicts, incompatibilities, or inadequacies discovered or anticipated.

C. Contractor shall review in detail Project conditions, schedule, requirements for performance, application, installation, and quality of completed Work, and protection of adjacent Work and property.

D. Contractor shall review in detail means of protecting the completed Work during the remainder of the construction period.

PART 11 - PRODUCTS Not Used.

PART 12 - EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 32 13

SCHEDULING OF WORK

PART 13 – GENERAL

13.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions;

B. Special Conditions;

C. Summary of Work; and

D. Submittals.

13.02 SECTION INCLUDES

A. Scheduling of Work under this Contract shall be performed by Contractor in accordance with requirements of this Section.

(1) Development of schedule, cost and resource loading of the schedule, monthly payment requests, and project status reporting requirements of the Contract shall employ computerized Critical Path Method ("CPM") scheduling ("CPM Schedule").

(2) CPM Schedule shall be cost loaded based on Schedule of Values as approved by District.

(3) Submit schedules and reports as specified in the General Conditions.

B. Upon Award of Contract, Contractor shall immediately commence development of Initial and Original CPM Schedules to ensure compliance with CPM Schedule submittal requirements.

13.03 CONSTRUCTION SCHEDULE

A. Within ten (10) days of being awarded the Contract and before request for first progress payment, the Contractor shall prepare and submit to the Project Manager a construction progress schedule conforming to the Milestone Schedule below.

B. The Construction Schedule shall be continuously updated, and an updated schedule shall be submitted with each application for progress payment. Each revised schedule shall indicate the work actually accomplished during the previous period and the schedule for completion of the remaining work.

C. Milestone Schedule:

ACTIVITY DESCRIPTION	**REQUIRED COMPLETION**
CONSTRUCTION STARTS	**November 15, 2021**
FINAL PROJECT COMPLETION	**December 24, 2021**

13.04 QUALIFICATIONS

A. Contractor shall employ experienced scheduling personnel qualified to use the latest version of [i.e., Primavera Project Planner]. Experience level required is set forth below. Contractor may employ such personnel directly or may employ a consultant for this purpose.

(1) The written statement shall identify the individual who will perform CPM scheduling.

(2) Capability and experience shall be verified by description of construction projects on which individual has successfully applied computerized CPM.

(3) Required level of experience shall include at least two (2) projects of similar nature and scope with value not less than three fourths (¾) of the Total Bid Price of this Project. The written statement shall provide contact persons for referenced projects with current telephone and address information.

B. District reserves the right to approve or reject Contractor's scheduler or consultant at any time. District reserves the right to refuse replacing of Contractor's scheduler or consultant, if District believes replacement will negatively affect the scheduling of Work under this Contract.

13.05 GENERAL

A. Progress Schedule shall be based on and incorporate milestone and completion dates specified in Contract Documents.

B. Overall time of completion and time of completion for each milestone shown on Progress Schedule shall adhere to times in the Contract, unless an earlier (advanced) time of completion is requested by Contractor and agreed to by District. Any such agreement shall be formalized by a Change Order.

(1) District is not required to accept an early completion schedule, i.e., one that shows an earlier completion date than the Contract Time.

(2) Contractor shall not be entitled to extra compensation in event agreement is reached on an earlier completion schedule and Contractor completes its Work, for whatever reason, beyond completion date shown in its early completion schedule but within the Contract Time.

(3) A schedule showing the work completed in less than the Contract Time, and that has been accepted by District, shall be considered to

have Project Float. The Project Float is the time between the scheduled completion of the work and the Completion Date. Project Float is a resource available to both District and the Contractor.

C. Ownership Project Float: Neither the District nor Contractor owns Project Float. The Project owns the Project Float. As such, liability for delay of the Completion Date rests with the party whose actions, last in time, actually cause delay to the Completion Date.

(1) For example, if Party A uses some, but not all of the Project Float and Party B later uses remainder of the Project Float as well as additional time beyond the Project Float, Party B shall be liable for the time that represents a delay to the Completion Date.

(2) Party A would not be responsible for the time since it did not consume the entire Project Float and additional Project Float remained; therefore, the Completion Date was unaffected by Party A.

D. Progress Schedule shall be the basis for evaluating job progress, payment requests, and time extension requests. Responsibility for developing Contract CPM Schedule and monitoring actual progress as compared to Progress Schedule rests with Contractor.

E. Failure of Progress Schedule to include any element of the Work, or any inaccuracy in Progress Schedule, will not relieve Contractor from responsibility for accomplishing the Work in accordance with the Contract. District's acceptance of schedule shall be for its use in monitoring and evaluating job progress, payment requests, and time extension requests and shall not, in any manner, impose a duty of care upon District, or act to relieve Contractor of its responsibility for means and methods of construction.

F. Software: Software shall be compatible with Windows operating system. Contractor shall transmit contract file to District on thumb drive at times requested by District.

G. Transmit each item under the form approved by District.

(1) Identify Project with District Contract number and name of Contractor.

(2) Provide space for Contractor's approval stamp and District's review stamps.

(3) Submittals received from sources other than Contractor will be returned to the Contractor without District's review.

13.06 INITIAL CPM SCHEDULE

A. Initial CPM Schedule submitted for review at the pre-construction conference shall serve as Contractor's schedule for up to ten (10) calendar days after the Notice to Proceed.

B. Indicate detailed plan for the Work to be completed in first ten (10) days of the Contract; details of planned mobilization of plant and equipment;

sequence of early operations; procurement of materials and equipment. Show Work beyond thirty (30) calendar days in summary form.

C. Initial CPM Schedule shall be time scaled.

D. Initial CPM Schedule shall be cost and resource loaded. Accepted cost and resource loaded schedule will be used as basis for monthly progress payments until acceptance of the Original CPM Schedule. Use of Initial CPM Schedule for progress payments shall not exceed thirty (30) calendar days.

E. District and Contractor shall meet to review and discuss the Initial CPM Schedule within seven (7) calendar days after it has been submitted to District.

(1) District's review and comment on the schedule shall be limited to Contract conformance (with sequencing, coordination, and milestone requirements).

(2) Contractor shall make corrections to schedule necessary to comply with Contract requirements and shall adjust schedule to incorporate any missing information requested by District. Contractor shall resubmit Initial CPM Schedule if requested by District.

F. If, during the first thirty (30) after Notice to Proceed, the Contractor is of the opinion that any of the Work included on its Initial CPM Schedule has been impacted, the Contractor shall submit to District a written Time Impact Evaluation ("TIE") in accordance with Article 1.12 of this Section. The TIE shall be based on the most current update of the Initial CPM Schedule.

13.07 ORIGINAL CPM SCHEDULE

A. Submit a detailed proposed Original CPM Schedule presenting an orderly and realistic plan for completion of the Work in conformance with requirements as specified herein.

B. Progress Schedule shall include or comply with following requirements:

(1) Time scaled, cost and resource (labor and major equipment) loaded CPM schedule.

(2) No activity on schedule shall have duration longer than fifteen (15) work days, with exception of submittal, approval, fabrication and procurement activities, unless otherwise approved by District.

(a) Activity durations shall be total number of actual work days required to perform that activity.

(3) The start and completion dates of all items of Work, their major components, and milestone completion dates, if any.

(4) District furnished materials and equipment, if any, identified as separate activities.

(5) Activities for maintaining Project Record Documents.

(6) Dependencies (or relationships) between activities.

(7) Processing/approval of submittals and shop drawings for all material and equipment required per the Contract. Activities that are dependent on submittal acceptance or material delivery shall not be scheduled to start earlier than expected acceptance or delivery dates.

(a) Include time for submittals, re-submittals and reviews by District. Coordinate with accepted schedule for submission of Shop Drawings, samples, and other submittals.

(b) Contractor shall be responsible for all impacts resulting from re-submittal of Shop Drawings and submittals.

(8) Procurement of major equipment, through receipt and inspection at jobsite, identified as separate activity.

(a) Include time for fabrication and delivery of manufactured products for the Work.

(b) Show dependencies between procurement and construction.

(9) Activity description; what Work is to be accomplished and where.

(10) The total cost of performing each activity shall be total of labor, material, and equipment, excluding overhead and profit of Contractor. Overhead and profit of the General Contractor shall be shown as a separate activity in the schedule. Sum of cost for all activities shall equal total Contract value.

(11) Resources required (labor and major equipment) to perform each activity.

(12) Responsibility code for each activity corresponding to Contractor or Subcontractor responsible for performing the Work.

(13) Identify the activities which constitute the controlling operations or critical path. No more than twenty-five (25%) of the activities shall be critical or near critical. Near critical is defined as float in the range of one (1) to (10) days.

(14) Twenty (20) workdays for developing punch list(s), completion of punch-list items, and final clean up for the Work or any designated portion thereof. No other activities shall be scheduled during this period.

(15) Interface with the work of other contractors, District, and agencies such as, but not limited to, utility companies.

(16) Show detailed Subcontractor Work activities. In addition, furnish copies of Subcontractor schedules upon which CPM was built.

(a) Also furnish for each Subcontractor, as determined by District, submitted on Subcontractor letterhead, a statement certifying that Subcontractor concurs with Contractor's Original CPM Schedule and that Subcontractor's related schedules have been incorporated, including activity duration, cost and resource loading.

(b) Subcontractor schedules shall be independently derived and not a copy of Contractor's schedule.

(c) In addition to Contractor's schedule and resource loading, obtain from electrical, mechanical, and plumbing Subcontractors, and other Subcontractors as required by District, productivity calculations common to their trades, such as units per person day, feet of pipe per day per person, feet of wiring per day per person, and similar information.

(d) Furnish schedule for Contractor/Subcontractor CPM schedule meetings which shall be held prior to submission of Original CPM schedule to District. District shall be permitted to attend scheduled meetings as an observer.

(17) Activity durations shall be in Work days.

(18) Submit with the schedule a list of anticipated non-Work days, such as weekends and holidays. The Progress Schedule shall exclude in its Work day calendar all non-Work days on which Contractor anticipates critical Work will not be performed.

C. Original CPM Schedule Review Meeting: Contractor shall, within sixty (60) days from the Notice to Proceed date, meet with District to review the Original CPM Schedule submittal.

(1) Contractor shall have its Project Manager, Project Superintendent, Project Scheduler, and key Subcontractor representatives, as required by District, in attendance. The meeting will take place over a continuous one (1) day period.

(2) District's review will be limited to submittal's conformance to Contract requirements including, but not limited to, coordination requirements. However, review may also include:

(a) Clarifications of Contract Requirements.

(b) Directions to include activities and information missing from submittal.

(c) Requests to Contractor to clarify its schedule.

(3) Within five (5) days of the Schedule Review Meeting, Contractor shall respond in writing to all questions and comments expressed by District at the Meeting.

13.08 ADJUSTMENTS TO CPM SCHEDULE

A. Adjustments to Original CPM Schedule: Contractor shall have adjusted the Original CPM Schedule submittal to address all review comments from original CPM Schedule review meeting and resubmit network diagrams and reports for District's review.

(1) District, within ten (10) days from date that Contractor submitted the revised schedule, will either:

(a) Accept schedule and cost and resource loaded activities as submitted, or

(b) Advise Contractor in writing to review any part or parts of schedule which either do not meet Contract requirements or are unsatisfactory for District to monitor Project's progress, resources, and status or evaluate monthly payment request by Contractor.

(2) District may accept schedule with conditions that the first monthly CPM Schedule update be revised to correct deficiencies identified.

(3) When schedule is accepted, it shall be considered the "Original CPM Schedule" which will then be immediately updated to reflect the current status of the work.

(4) District reserves right to require Contractor to adjust, add to, or clarify any portion of schedule which may later be discovered to be insufficient for monitoring of Work or approval of partial payment requests. No additional compensation will be provided for such adjustments, additions, or clarifications.

B. Acceptance of Contractor's schedule by District will be based solely upon schedule's compliance with Contract requirements.

(1) By way of Contractor assigning activity durations and proposing sequence of Work, Contractor agrees to utilize sufficient and necessary management and other resources to perform work in accordance with the schedule.

(2) Upon submittal of schedule update, updated schedule shall be considered "current" CPM Schedule.

(3) Submission of Contractor's schedule to District shall not relieve Contractor of total responsibility for scheduling, sequencing, and pursuing Work to comply with requirements of Contract Documents, including adverse effects such as delays resulting from ill-timed Work.

C. Submittal of Original CPM Schedule, and subsequent schedule updates, shall be understood to be Contractor's representation that the Schedule meets requirements of Contract Documents and that Work shall be executed in sequence indicated on the schedule.

D. Contractor shall distribute Original CPM Schedule to Subcontractors for review and written acceptance, which shall be noted on Subcontractors' letterheads to Contractor and transmitted to District for the record.

13.09 MONTHLY CPM SCHEDULE UPDATE SUBMITTALS

A. Following acceptance of Contractor's Original CPM Schedule, Contractor shall monitor progress of Work and adjust schedule each month to reflect actual progress and any anticipated changes to planned activities.

(1) Each schedule update submitted shall be complete, including all information requested for the Original CPM Schedule submittal.

(2) Each update shall continue to show all Work activities including those already completed. These completed activities shall accurately reflect "as built" information by indicating when activities were actually started and completed.

B. A meeting will be held on approximately the twenty-fifth (25th) of each month to review the schedule update submittal and progress payment application.

(1) At this meeting, at a minimum, the following items will be reviewed: Percent (%) complete of each activity; Time Impact Evaluations for Change Orders and Time Extension Request; actual and anticipated activity sequence changes; actual and anticipated duration changes; and actual and anticipated Contractor delays.

(2) These meetings are considered a critical component of overall monthly schedule update submittal and Contractor shall have appropriate personnel attend. At a minimum, these meetings shall be attended by Contractor's General Superintendent and Scheduler.

(3) Contractor shall plan on the meeting taking no less than four (4) hours.

C. Within five (5) working days after monthly schedule update meeting, Contractor shall submit the updated CPM Schedule update.

D. Within five (5) work days of receipt of above noted revised submittals, District will either accept or reject monthly schedule update submittal.

(1) If accepted, percent (%) complete shown in monthly update will be basis for Application for Payment by the Contractor. The schedule update shall be submitted as part of the Contractor's Application for Payment.

(2) If rejected, update shall be corrected and resubmitted by Contractor before the Application for Payment is submitted.

E. Neither updating, changing or revising of any report, curve, schedule, or narrative submitted to District by Contractor under this Contract, nor District's review or acceptance of any such report, curve, schedule or narrative shall

have the effect of amending or modifying in any way the Completion Date or milestone dates or of modifying or limiting in any way Contractor's obligations under this Contract.

13.10 SCHEDULE REVISIONS

A. Updating the Schedule to reflect actual progress shall not be considered revisions to the Schedule. Since scheduling is a dynamic process, revisions to activity durations and sequences are expected on a monthly basis.

B. To reflect revisions to the Schedule, the Contractor shall provide District with a written narrative with a full description and reasons for each Work activity revised. For revisions affecting the sequence of work, the Contractor shall provide a schedule diagram which compares the original sequence to the revised sequence of work. The Contractor shall provide the written narrative and schedule diagram for revisions two (2) working days in advance of the monthly schedule update meeting.

C. Schedule revisions shall not be incorporated into any schedule update until the revisions have been reviewed by District. District may request further information and justification for schedule revisions and Contractor shall, within three (3) days, provide District with a complete written narrative response to District's request.

D. If the Contractor's revision is still not accepted by District, and the Contractor disagrees with District's position, the Contractor has seven (7) calendar days from receipt of District's letter rejecting the revision to provide a written narrative providing full justification and explanation for the revision. The Contractor's failure to respond in writing within seven (7) calendar days of District's written rejection of a schedule revision shall be contractually interpreted as acceptance of District's position, and the Contractor waives its rights to subsequently dispute or file a claim regarding District's position.

E. At District's discretion, the Contractor can be required to provide Subcontractor certifications of performance regarding proposed schedule revisions affecting said Subcontractors.

13.11 RECOVERY SCHEDULE

A. If the Schedule Update shows a completion date twenty-one (21) calendar days beyond the Contract Completion Date, or individual milestone completion dates, the Contractor shall submit to District the proposed revisions to recover the lost time within seven (7) calendar days. As part of this submittal, the Contractor shall provide a written narrative for each revision made to recapture the lost time. If the revisions include sequence changes, the Contractor shall provide a schedule diagram comparing the original sequence to the revised sequence of work.

B. The revisions shall not be incorporated into any schedule update until the revisions have been reviewed by District.

C. If the Contractor's revisions are not accepted by District, District and the Contractor shall follow the procedures in paragraph 1.09.C, 1.09.D and 1.09.E above.

D. At District's discretion, the Contractor can be required to provide Subcontractor certifications for revisions affecting said Subcontractors.

13.12 TIME IMPACT EVALUATION ("TIE") FOR CHANGE ORDERS, AND OTHER DELAYS

A. When Contractor is directed to proceed with changed Work, the Contractor shall prepare and submit within fourteen (14) calendar days from the Notice to Proceed a TIE which includes both a written narrative and a schedule diagram depicting how the changed Work affects other schedule activities. The schedule diagram shall show how the Contractor proposes to incorporate the changed Work in the schedule and how it impacts the current schedule-update critical path. The Contractor is also responsible for requesting time extensions based on the TIE's impact on the critical path. The diagram must be tied to the main sequence of schedule activities to enable District to evaluate the impact of changed Work to the scheduled critical path.

B. Contractor shall be required to comply with the requirements of Paragraph 1.09.A for all types of delays such as, but not limited to, Contractor/Subcontractor delays, adverse weather delays, strikes, procurement delays, fabrication delays, etc.

C. Contractor shall be responsible for all costs associated with the preparation of TIEs, and the process of incorporating them into the current schedule update. The Contractor shall provide District with four (4) copies of each TIE.

D. Once agreement has been reached on a TIE, the Contract Time will be adjusted accordingly. If agreement is not reached on a TIE, the Contract Time may be extended in an amount District allows, and the Contractor may submit a claim for additional time claimed by contractor.

13.13 TIME EXTENSIONS

A. The Contractor is responsible for requesting time extensions for time impacts that, in the opinion of the Contractor, impact the critical path of the current schedule update. Notice of time impacts shall be given in accord with the General Conditions.

B. Where an event for which District is responsible impacts the projected Completion Date, the Contractor shall provide a written mitigation plan, including a schedule diagram, which explains how (e.g., increase crew size, overtime, etc.) the impact can be mitigated. The Contractor shall also include a detailed cost breakdown of the labor, equipment, and material the Contractor would expend to mitigate District-caused time impact. The Contractor shall submit its mitigation plan to District within fourteen (14) calendar days from the date of discovery of the impact. The Contractor is responsible for the cost to prepare the mitigation plan.

C. Failure to request time, provide TIE, or provide the required mitigation plan will result in Contractor waiving its right to a time extension and cost to mitigate the delay.

D. No time will be granted under this Contract for cumulative effect of changes.

E. District will not be obligated to consider any time extension request unless the Contractor complies with the requirements of Contract Documents.

F. Failure of the Contractor to perform in accordance with the current schedule update shall not be excused by submittal of time extension requests.

G. If the Contractor does not submit a TIE within the required fourteen (14) calendar days for any issue, it is mutually agreed that the Contractor does not require a time extension for said issue.

13.14 SCHEDULE REPORTS

A. Submit four (4) copies of the following reports with the Initial CPM Schedule, the Original CPM Schedule, and each monthly update.

B. Required Reports:

(1) Two activity listing reports: one sorted by activity number and one by total Project Float. These reports shall also include each activity's early/late and actual start and finish dates, original and remaining duration, Project Float, responsibility code, and the logic relationship of activities.

(2) Cost report sorted by activity number including each activity's associated cost, percentage of Work accomplished, earned value- to date, previous payments, and amount earned for current update period.

(3) Schedule plots presenting time-scaled network diagram showing activities and their relationships with the controlling operations or critical path clearly highlighted.

(4) Cash flow report calculated by early start, late start, and indicating actual progress. Provide an exhibit depicting this information in graphic form.

(5) Planned versus actual resource (i.e., labor) histogram calculated by early start and late start.

C. Other Reports:

In addition to above reports, District may request, from month to month, any two of the following reports. Submit four (4) copies of all reports.

(1) Activities by early start.

(2) Activities by late start.

(3) Activities grouped by Subcontractors or selected trades.

(4) Activities with scheduled early start dates in a given time frame, such as fifteen (15) or thirty (30) day outlook.

D. Furnish District with report files on compact disks containing all schedule files for each report generated.

13.15 PROJECT STATUS REPORTING

A. In addition to submittal requirements for CPM scheduling identified in this Section, Contractor shall provide a monthly project status report (i.e., written narrative report) to be submitted in conjunction with each CPM Schedule as specified herein. Status reporting shall be in form specified below.

B. Contractor shall prepare monthly written narrative reports of status of Project for submission to District. Written status reports shall include:

(1) Status of major Project components (percent (%) complete, amount of time ahead or behind schedule) and an explanation of how Project will be brought back on schedule if delays have occurred.

(2) Progress made on critical activities indicated on CPM Schedule.

(3) Explanations for any lack of work on critical path activities planned to be performed during last month.

(4) Explanations for any schedule changes, including changes to logic or to activity durations.

(5) List of critical activities scheduled to be performed next month.

(6) Status of major material and equipment procurement.

(7) Any delays encountered during reporting period.

(8) Contractor shall provide printed report indicating actual versus planned resource loading for each trade and each activity. This report shall be provided on weekly and monthly basis.

(a) Actual resource shall be accumulated in field by Contractor, and shall be as noted on Contractor's daily reports. These reports will be basis for information provided in computer-generated monthly and weekly printed reports.

(b) Contractor shall explain all variances and mitigation measures.

(9) Contractor may include any other information pertinent to status of Project. Contractor shall include additional status information requested by District at no additional cost.

(10) Status reports, and the information contained therein, shall not be construed as claims, notice of claims, notice of delay, or requests for changes or compensation.

13.16 WEEKLY SCHEDULE REPORT

At the Weekly Progress Meeting, the Contractor shall provide and present a time-scaled three (3) week look-ahead schedule that is based and correlated by activity number to the current schedule (i.e., Initial, Original CPM, or Schedule Update).

13.17 DAILY CONSTRUCTION REPORTS

On a daily basis, Contractor shall submit a daily activity report to District for each workday, including weekends and holidays when worked. Contractor shall develop the daily construction reports on a computer-generated database capable of sorting daily Work, manpower, and man-hours by Contractor, Subcontractor, area, sub-area, and Change Order Work. Upon request of District, furnish computer disk of this data base. Obtain District's written approval of daily construction report data base format prior to implementation. Include in report:

A. Project name and Project number.

B. Contractor's name and address.

C. Weather, temperature, and any unusual site conditions.

D. Brief description and location of the day's scheduled activities and any special problems and accidents, including Work of Subcontractors. Descriptions shall be referenced to CPM scheduled activities.

E. Worker quantities for its own Work force and for Subcontractors of any tier.

F. Equipment, other than hand tools, utilized by Contractor and Subcontractors.

13.18 PERIODIC VERIFIED REPORTS

Contractor shall complete and verify construction reports on a form prescribed by the Division of the State Architect and file reports on the first day of February, May, August, and November during the preceding quarter year; at the completion of the Contract; at the completion of the Work; at the suspension of Work for a period of more than one (1) month; whenever the services of Contractor or any of Contractor's Subcontractors are terminated for any reason; and at any time a special verified report is required by the Division of the State Architect. Refer to section 4-336 and section 4-343 of Part 1, Title 24 of the California Code of Regulations.

PART 14 – PRODUCTS Not Used.

PART 15 - EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 33 00

SUBMITTALS

PART 16 - GENERAL

16.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Contractor's Submittals and Schedules, Drawings and Specifications;

B. Special Conditions.

16.02 SECTION INCLUDES:

A. Definitions:

(1) Shop Drawings and Product Data are as indicated in the General Conditions and include, but are not limited to, fabrication, erection, layout and setting drawings, formwork and falsework drawings, manufacturers' standard drawings, descriptive literature, catalogues, brochures, performance and test data, wiring and control diagrams. In addition, there are other drawings and descriptive data pertaining to materials, equipment, piping, duct and conduit systems, and methods of construction as may be required to show that the materials, equipment or systems and all positions conform to the requirement of the Contract Documents, including, without limitation, the Drawings.

(2) "Manufactured" applies to standard units usually mass-produced; "fabricated" means specifically assembled or made out of selected materials to meet design requirements. Shop Drawings shall establish the actual detail of manufactured or fabricated items, indicated proper relation to adjoining work and amplify design details of mechanical and electrical equipment in proper relation to physical spaces in the structure.

(3) Manufacturer's Instructions: Where any item of Work is required by the Contract Documents to be furnished, installed, or performed, at a minimum, in accordance with a specified product manufacturer's instructions, the Contractor shall procure and distribute copies of these to the District, the Architect, and all other concerned parties and shall furnish, install, or perform the work, at a minimum, in accordance with those instructions.

B. Samples, Shop Drawings, Product Data, and other items as specified, in accordance with the following requirements:

(1) Contractor shall submit all Shop Drawings, Product Data, and Samples to the District, the Architect, the Project Inspector, and the Construction Manager.

(2) Contractor shall comply with all time frames herein and in the General Conditions and, in any case, shall submit required information in sufficient time to permit proper consideration and action before ordering any materials or items represented by such Shop Drawings, Product Data, and/or Samples.

(3) Contractor shall allow sufficient time so that no delay occurs due to required lead time in ordering or delivery of any item to the Site. Contractor shall be responsible for any delay in progress of Work due to its failure to observe these requirements.

(4) Time for completion of Work shall not be extended on account of Contractor's failure to promptly submit Shop Drawings, Product Data, and/or Samples.

(5) Reference numbers on Shop Drawings shall have Architectural and/or Engineering Contract Drawings reference numbers for details, sections, and "cuts" shown on Shop Drawings. These reference numbers shall be in addition to any numbering system that Contractor chooses to use or has adopted as standard.

(6) When the magnitude or complexity of submittal material prevents a complete review within the stated time frame, Contractor shall make this submittal in increments to avoid extended delays.

(7) Contractor shall certify on submittals for review that submittals conform to Contract requirements. Also certify that Contractor-furnished equipment can be installed in allocated space. In event of any variance, Contractor shall specifically state in transmittal and on Shop Drawings, portions vary and require approval of a substitute. Submittals shall not be used as a means of requesting a substitution.

(8) Unless specified otherwise, sampling, preparation of samples, and tests shall be in accordance with the latest standard of the American Society for Testing and Materials.

(9) Upon demand by Architect or District, Contractor shall submit samples of materials and/or articles for tests or examinations and consideration before Contractor incorporates same in Work. Contractor shall be solely responsible for delays due to sample(s) not being submitted in time to allow for tests. Acceptance or rejection will be expressed in writing. Work shall be equal to approved samples in every respect. Samples that are of value after testing will remain the property of Contractor.

C. Submittal Schedule:

(1) Contractor shall prepare its proposed submittal schedule that is coordinated with the proposed construction schedule and submit both to the District within ten (10) days after the date of the Notice to Proceed. Contractor's proposed schedules shall become the Project Construction Schedule and the Project Submittal Schedule after each is approved by the District.

(2) Contractor is responsible for all lost time should the initial submittal be rejected, marked "revise and resubmit", etc.

(3) All Submittals shall be forwarded to the District by the date indicated on the approved Submittal Schedule, unless an earlier date is necessary to maintain the Construction Schedule, in which case those Submittals shall be forwarded to the District so as not to delay the Construction Schedule.

(4) Contractor may be assessed $100 a day for each day it is late in submitting a shop drawing or sample. No extensions of time will be granted to Trade Contractor or any Subcontractor because of its failure to have shop drawings and samples submitted in accordance with the Schedule.

16.03 SHOP DRAWINGS:

A. Contractor shall submit one reproducible transparency and six (6) opaque reproductions. The District will review and return the reproducible copy and one (1) opaque reproduction to Contractor.

B. Before commencing installation of any Work, the Contractor shall submit and receive approval of all drawings, descriptive data, and material list(s) as required to accomplish Work.

C. Review of Shop Drawings is regarded as a service to assist Contractor and in all cases original Contract Documents shall take precedence as outlined under General Conditions.

D. No claim for extra time or payment shall be based on work shown on Shop Drawings unless the claim is (1) noted on Contractor's transmittal letter accompanying Shop Drawings and (2) Contractor has complied with all applicable provisions of the General Conditions, including, without limitation, provisions regarding changes and payment, and all required written approvals.

E. District shall not review Shop Drawings for quantities of materials or number of items supplied.

F. District's and/or Architect’s review of Shop Drawing will be general. District and/or Architect review does not relieve Contractor of responsibility for dimensions, accuracy, proper fitting, construction of Work, furnishing of materials, or Work required by Contract Documents and not indicated on

Shop Drawings. The District's and/or Architect's review of Shop Drawings is not to be construed as approving departures from Contract Documents.

G. Review of Shop Drawings and Schedules does not relieve Contractor from responsibility for any aspect of those Drawings or Schedules that is a violation of local, County, State, or Federal laws, rules, ordinances, or rules and regulations of commissions, boards, or other authorities or utilities having jurisdiction.

H. Before submitting Shop Drawings for review, Contractor shall check Shop Drawings of its subcontractors for accuracy, and confirm that all Work contiguous with and having bearing on other work shown on Shop Drawings is accurately drawn and in conformance with Contract Documents.

I. Submitted drawings and details must bear stamp of approval of Contractor:

(1) Stamp and signature shall clearly certify that Contractor has checked Shop Drawings for compliance with Drawings.

(2) If Contractor submits a Shop Drawing without an executed stamp of approval, or whenever it is evident (despite stamp) that Drawings have not been checked, the District and/or Architect will not consider them and will return them to the Contractor for revision and resubmission. In that event, it will be deemed that Contractor has not complied with this provision and Contractor shall bear risk of all delays to same extent as if it had not submitted any Shop Drawings or details.

J. Submission of Shop Drawings (in either original submission or when resubmitted with correction) constitutes evidence that Contractor has checked all information thereon and that it accepts and is willing to perform Work as shown.

K. Contractor shall pay for cost of any changes in construction due to improper checking and coordination. Contractor shall be responsible for all additional costs, including coordination. Contractor shall be responsible for costs incurred by itself, the District, the Architect, the Project Inspector, the Construction Manager, any other Subcontractor or contractor, etc., due to improperly checked and/or coordination of submittals.

L. Shop Drawings must clearly delineate the following information:

(1) Project name and address.

(2) Specification number and description.

(3) Architect's name and project number.

(4) Shop Drawing title, number, date, and scale.

(5) Names of Contractor, Subcontractor(s) and fabricator.

(6) Working and erection dimensions.

(7) Arrangements and sectional views.

(8) Necessary details, including complete information for making connections with other Work.

(9) Kinds of materials and finishes.

(10) Descriptive names of materials and equipment, classified item numbers, and locations at which materials or equipment are to be installed in the Work. Contractor shall use same reference identification(s) as shown on Contract Drawings.

M. Contractor shall prepare composite drawings and installation layouts when required to solve tight field conditions.

(1) Shop Drawings shall consist of dimensioned plans and elevations and must give complete information, particularly as to size and location of sleeves, inserts, attachments, openings, conduits, ducts, boxes, structural interferences, etc.

(2) Contractor shall coordinate these composite Shop Drawings and installation layouts in the field between itself and its Subcontractor(s) for proper relationship to the Work, the work of other trades, and the field conditions. The Contractor shall check and approve all submittal(s) before submitting them for final review.

16.04 PRODUCT DATA OR NON REPRODUCIBLE SUBMITTALS:

A. Contractor shall submit manufacturer's printed literature in original form. Any fading type of reproduction will not be accepted. Contract must submit a minimum of six (6) each, to the District. District shall return one (1) to the Contractor, who shall reproduce whatever additional copies it requires for distribution.

B. Contractor shall submit six (6) copies of a complete list of all major items of mechanical, plumbing, and electrical equipment and materials in accordance with the approved Submittal Schedule, except as required earlier to comply with the approved Construction Schedule. Other items specified are to be submitted prior to commencing Work. Contractor shall submit items of like kind at one time in a neat and orderly manner. Partial lists will not be acceptable.

C. Submittals shall include manufacturer's specifications, physical dimensions, and ratings of all equipment. Contractor shall furnish performance curves for all pumps and fans. Where printed literature describes items in addition to that item being submitted, submitted item shall be clearly marked on sheet and superfluous information shall be crossed out. If highlighting is used, Contractor shall mark all copies.

D. Equipment submittals shall be complete and include space requirements, weight, electrical and mechanical requirements, performance data, and supplemental information that may be requested.

E. Imported Materials Certification must be submitted at least ten (10) days before material is delivered.

16.05 SAMPLES:

A. Contractor shall submit for approval Samples as required and within the time frame in the Contract Documents. Materials such as concrete, mortar, etc., which require on-site testing will be obtained from Project Site.

B. Contractor shall submit four (4) samples except where greater or lesser number is specifically required by Contract Documents including, without limitation, the Specifications.

(1) Samples must be of sufficient size and quality to clearly illustrate functional characteristics, with integrally related parts and attachment devices.

(2) Samples must show full range of texture, color, and pattern.

C. Contractor shall make all Submittals, unless it has authorized Subcontractor(s) to submit and Contractor has notified the District in writing to this effect.

D. Samples to be shipped prepaid or hand-delivered to the District.

E. Contractor shall mark samples to show name of Project, name of Contractor submitting, Contract number and segment of Work where representative Sample will be used, all applicable Specifications Sections and documents, Contract Drawing Number and detail, and ASTM or FS reference, if applicable.

F. Contractor shall not deliver any material to Site prior to receipt of District's and/or Architect's completed written review and approval. Contractor shall furnish materials equal in every respect to approved Samples and execute Work in conformance therewith.

G. District's and/or Architect's review, acceptance, and/or approval of Sample(s) will not preclude rejections of any material upon discovery of defects in same prior to final acceptance of completed Work.

H. After a material has been approved, no change in brand or make will be permitted.

I. Contractor shall prepare its Submittal Schedule and submit Samples of materials requiring laboratory tests to specified laboratory for testing not less than ninety (90) days before such materials are required to be used in Work.

J. Samples which are rejected must be resubmitted promptly after notification of rejection and be marked "Resubmitted Sample" in addition to other information required.

K. Field Samples and Mock-Ups are to be removed by Contractor at District's direction:

(1) Size: As Specified.

(2) Furnish catalog numbers and similar data, as requested.

16.06 REVIEW AND RESUBMISSION REQUIREMENTS:

A. The District will arrange for review of Sample(s), Shop Drawing(s), Product Data, and other submittal(s) by appropriate reviewer and return to Contractor as provided below within twenty-one (21) days after receipt or within twenty-one (21) days after receipt of all related information necessary for such review, whichever is later.

B. One (1) copy of product or materials data will be returned to Contractor with the review status.

C. Samples to be incorporated into the Work will be returned to Contractor, together with a written notice designating the Sample with the appropriate review status and indicating errors discovered on review, if any. Other Samples will not be returned, but the same notice will be given with respect thereto, and that notice shall be considered a return of the Sample.

D. Contractor shall revise and resubmit any Sample(s), Shop Drawing(s), Product Data, and other submittal(s) as required by the reviewer. Such resubmittals will be reviewed and returned in the same manner as original Sample(s), Shop Drawing(s), Product Data, and other submittal(s), within fourteen (14) days after receipt thereof or within fourteen (14) days after receipt of all related information necessary for such review. Such resubmittal shall not delay the Work.

E. Contractor may proceed with any of the Work covered by Sample(s), Shop Drawing(s), Product Data, and other submittal(s) upon its return if designated as no exception taken, or revise as noted, provided the Contractor proceeds in accordance with the District and/or the Architect's notes and comments.

F. Contractor shall not begin any of the work covered by a Sample(s), Shop Drawing(s), Product Data, and other submittal(s), designated as revise and resubmit or rejected, until a revision or correction thereof has been reviewed and returned to Contractor.

G. Sample(s), Shop Drawing(s), Product Data, and other submittal(s) designated as revise and resubmit or rejected and requiring resubmittal, shall be revised or corrected and resubmitted to the District no later than fourteen (14) days or a shorter period as required to comply with the approved Construction Schedule, after its return to Contractor.

H. Neither the review nor the lack of review of any Sample(s), Shop Drawing(s), Product Data, and other submittal(s) shall waive any of the requirements of the Contract Documents, or relieve Contractor of any obligation thereunder.

I. District's and/or Architect's review of Shop Drawings does not relieve the Contractor of responsibility for any errors that may exist. Contractor is responsible for the dimensions and design of adequate connections and details and for satisfactory construction of all the Work.

PART 17 – PRODUCTS Not Used.

PART 18 - EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 35 13.23

SITE STANDARDS

PART 19 – GENERAL

19.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including without limitation, Site Access, Conditions, and Regulations;

B. Special Conditions;

C. Drug-Free Workplace Certification;

D. Tobacco-Free Environment Certification;

E. Criminal Background Investigation/Fingerprinting Certification;

F. Temporary Facilities and Controls.

19.02 REQUIREMENTS OF THE DISTRICT:

A. Drug-Free Schools and Safety Requirements:

(1) All school sites and other District Facilities have been declared "Drug-Free Zones." No drugs, alcohol and/or smoking are allowed at any time in any buildings and/or grounds on District property. No students, staff, visitors, or contractors are to use drugs on these sites.

(2) Smoking and the use of tobacco products by all persons is prohibited on or in District property. District property includes school buildings, school grounds, school-owned vehicles and vehicles owned by others while on District property. Contractor shall post: "Non-Smoking Area" in a highly visible location in each work area, staging area, and parking area. Contractor may designate a smoking area outside of District property within the public right-of-way, provided that this area remains quiet and unobtrusive to adjacent neighbors. This smoking area is to be kept clean at all times.

(3) Contractor shall ensure that no alcohol, firearms, weapons, or controlled substances enter or are used at the Site. Contractor shall immediately remove from the Site and terminate the employment of any employee(s) found in violation of this provision.

B. Language: Profanity or other unacceptable and/or loud language will not be tolerated, "Cat calls" or other derogatory language toward students, staff, volunteers, parents or public will not be allowed.

C. Disturbing the Peace (Noise and Lighting):

(1) Contractor shall observe the noise ordinance of the Site at all times including, without limitation, all applicable local, city, and/or state laws, ordinances, and/or regulations regarding noise and allowable noise levels.

(2) The use of radios, etc., shall be controlled to keep all sound at a level that cannot be heard beyond the immediate area of use. District reserves the right to prohibit the use of radios at the Site, except for mobile phones or other handheld communication radios.

(3) If portable lights are used after dark, all light must be located so as not to direct light into neighboring property.

D. Traffic:

(1) Driving on the Premises shall be limited to periods when students and public are not present. If driving or deliveries must be made during the school hours, two (2) or more ground guides shall lead the vehicle across the area of travel. In no case shall driving take place across playgrounds or other pedestrian paths during recess, lunch, and/or class period changes. The speed limit on-the Premises shall be five (5) miles per hour (maximum) or less if conditions require.

(2) All paths of travel for deliveries, including without limitation, material, equipment, and supply deliveries, shall be reviewed and approved by District in advance. Any damage will be repaired to the pre-damaged condition by the Contractor.

(3) District shall designate a construction entry to the Site. If Contractor requests, District determines it is required, and to the extent possible, District shall designate a staging area so as not to interfere with the normal functioning of school facilities. Location of gates and fencing shall be approved in advance with District and at Contractor's expense.

(4) Parking areas shall be reviewed and approved by District in advance. No parking is to occur under the drip line of trees or in softscape areas that could otherwise be damaged.

E. All of the above shall be observed and complied with by the Contractor and all workers on the Site. Failure to follow these directives could result in individual(s) being suspended or removed from the work force at the discretion of the District. The same rules and regulations shall apply equally to delivery personnel, inspectors, consultants, and other visitors to the Site.

PART 20 - PRODUCTS Not Used.

PART 21 - EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 41 00

REGULATORY REQUIREMENTS

PART 22 - GENERAL

22.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Obtaining of Permits, Licenses and Registrations and Work to Comply with All Applicable Laws and Regulations;

B. Special Conditions; and

C. Quality Control.

22.02 DESCRIPTION:

This section covers the general requirements for regulatory requirements pertaining to the Work and is supplementary to all other regulatory requirements mentioned or referenced elsewhere in the Contract Documents.

22.03 REQUIREMENTS OF REGULATORY AGENCIES:

A. All statutes, ordinances, laws, rules, codes, regulations, standards, and the lawful orders of all public authorities having jurisdiction over the Work, are hereby incorporated into these Contract Documents as if repeated in full herein and are intended to be included in any reference to Code or Building Code, unless otherwise specified, including, without limitation, the references in the list below. Contractor shall make available at the Site copies of all the listed documents applicable to the Work as the District and/or Architect may request, including, without limitation, applicable portions of the California Code of Regulations ("CCR").

(1) California Building Standards Administrative Code, Part 1, Title 24, CCR.

(2) California Building Code (CBC), Part 2, Title 24, CCR; (International Building Code volumes 1-2 and California Amendments).

(3) California Electrical Code (CEC), Part 3, Title 24, CCR; (National Electrical Code and California Amendments).

(4) California Mechanical Code (CMC), Part 4, Title 24, CCR; (Uniform Mechanical Code and California Amendments).

(5) California Plumbing Code (CPC), Part 5, Title 24, CCR; (Uniform Plumbing Code and California Amendments).

(6) California Fire Code (CFC), Part 9, Title 24, CCR; (International Fire Code and California Amendments).

(7) California Referenced Standards Code, Part 12, Title 24, CCR.

(8) State Fire Marshal Regulations, Public Safety, Title 19, CCR.

(9) Partial List of Applicable National Fire Protection Association (NFPA) Standards:

(a) NFPA 13 - Automatic Sprinkler System.

(b) NFPA 14 - Standpipes Systems.

(c) NFPA 17A - Wet Chemical System

(d) NFPA 24 - Private Fire Mains.

(e) (California Amended) NFPA 72 - National Fire Alarm Codes.

(f) NFPA 253 - Critical Radiant Flux of Floor Covering System.

(g) NFPA 2001 - Clean Agent Fire Extinguishing Systems.

(10) California Division of the State Architect interpretation of Regulations ("DSA IR"), including, without limitation:

(a) DSA IR A-6 — Construction Change Document Submittal and Approval Processes.

(b) DSA IR A-7 — Project Inspector Certification and Approval.

(c) DSA IR A-8 — Project Inspector and Assistant Inspector Duties and Performance.

(d) DSA IR A-12 — Assistant Inspector Approval.

(11) DSA Procedures ("DSA PR")

(a) DSA PR 13-01 – Construction Oversight Process

(b) DSA PR 13-02 – Project Certification Process

B. This Project shall be governed by applicable regulations, including, without limitation, the State of California's Administrative Regulations for the Division of the State Architect-Structural Safety (DSA/SS), Chapter 4, Part 1, Title 24, CCR, and the most current version on the date the bids are opened and as it pertains to school construction including, without limitation:

(1) Test and testing laboratory per Section 4-335. District shall pay for the testing laboratory.

(2) Special inspections per Section 4-333(c).

(3) Deferred Approvals per section 4-317(g).

(4) Verified reports per Sections 4-336 & 4-343(c).

(5) Duties of the Architect & Engineers shall be per Sections 4-333(a) and 4-341.

(6) Duties of the Contractor shall be per Section 4-343.

(7) Duties of Project Inspector shall be per Section 4-334.

(8) Addenda and Construction Change Documents per Section 4-338.

Contractor shall keep and make available all applicable parts of the most current version of Title 24 referred to in the plans and specifications at the Site during construction.

C. Items of deferred approval shall be clearly marked on the first sheet of the Architect's and/or Engineer's approved Drawings. All items later submitted for approval shall be per Title 24 requirements to the DSA.

(1) Contractor shall submit the following to Architect for review and endorsement:

(a) Product information on proposed material/system supplier.

(b) Drawings, specifications, and calculations prepared, signed, and stamped by an architect or engineer licensed in the State of California for that portion of the Work.

(c) All other requirements as may be required by DSA.

(2) Cost of preparing and submitting documentation per DSA Deferred Approval requirements including required modifications to Drawings and Specifications, whether or not indicated in the Contract Documents, shall be borne by Contractor.

(3) Contractor shall not begin fabrication and installation of deferred approval items without first obtaining DSA approval of Drawings and Specifications.

(4) Schedule of Work Subject to DSA Deferred Approval: Window wall systems exceeding 10 feet in span.

PART 23 – PRODUCTS Not Used.

PART 24 – EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 42 13

ABBREVIATIONS AND ACRONYMS

PART 25 – GENERAL

25.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions including without limitation, Definitions;

B. Special Conditions.

25.02 DOCUMENT INCLUDES:

A. Abbreviations used throughout the Contract Documents.

B. Reference to a technical society, organization, or body is by abbreviation, as follows:

1.	AA	The Aluminum Association
2.	AAMA	American Architectural Manufacturers Association
3.	AASHTO	American Association of State Highway and Transportation Officials
4.	ABPA	Acoustical and Board Products Association
5.	ACI	American Concrete Institute
6.	AGA	American Gas Association
7.	AGC	Associated General Contractors of America
8.	AHC	Architectural Hardware Consultant
9.	AI	Asphalt Institute
10.	AIA	American Institute of Architects
11.	AIEE	American Institute of Electrical Engineers
12.	AISC	American Institute of Steel Construction
13.	AISI	American Iron and Steel Institute
14.	AMCA	Air Moving and Conditioning Association
15.	ANSI	American National Standards Institute
16.	APA	American Plywood Association
17.	ARI	Air Conditioning and Refrigeration Institute
18.	ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
19.	ASME	American Society of Mechanical Engineers
20.	ASSE	American Society of Structural Engineers
21.	ASTM	American Society of Testing and Materials
22.	AWPB	American Wood Preservers Bureau
23.	AWPI	American Wood preservers Institute
24.	AWS	American Welding Society
25.	AWSC	American Welding Society Code
26.	AWI	Architectural Woodwork Institute
27.	AWWA	American Water Works Association
28.	BIA	Brick Institute of America

29.	CCR	California Code of Regulations
30.	CLFMI	Chain Link Fence Manufacturers Institute
31.	CMG	California Masonry Guild
32.	CRA	California Redwood Association
33.	CRSI	Concrete Reinforcing Steel Institute
34.	CS	Commercial Standards
35.	CSI	Construction Specifications Institute
36.	CTI	Cooling Tower Institute
37.	FGMA	Flat Glass Manufacturer's Association
38.	FIA	Factory Insurance Association
39.	FM	Factory Mutual
40.	FS	Federal Specification
41.	FTI	Facing Title Institute
42.	GA	Gypsum Association
43.	ICC	International Code Council
44.	IEEE	Institute of Electrical and Electronic Engineers
45.	IES	Illumination Engineering Society
46.	LIA	Lead Industries Association
47.	MIA	Marble Institute of America
48.	MLMA	Metal Lath Manufacturers Association
49.	MS	Military Specifications
50.	NAAMM	National Association of Architectural Metal Manufacturers
51.	NBHA	National Builders Hardware Association
52.	NBFU	National Board of Fire Underwriters
53.	NBS	National Bureau of Standards
54.	NCMA	National Concrete Masonry Association
55.	NEC	National Electrical Code
56.	NEMA	National Electrical Manufacturers Association
57.	NFPA	National Fire Protection Association/National Forest Products Association
58.	NMWIA	National Mineral Wool Insulation Association
59.	NTMA	National Terrazzo and Mosaic Association
60.	NWMA	National Woodwork Manufacturer's Association
61.	ORS	Office of Regulatory Services (California)
62.	OSHA	Occupational Safety and Health Act
63.	PCI	Precast Concrete Institute
64.	PCA	Portland Cement Association
65.	PDCA	Painting and Decorating Contractors of America
66.	PDI	Plumbing Drainage Institute
67.	PEI	Porcelain Enamel Institute
68.	PG&E	Pacific Gas & Electric Company
69.	PS	Product Standards
70.	SDI	Steel Door Institute; Steel Deck Institute
71.	SJI	Steel Joist Institute
72.	SSPC	Steel Structures Painting Council
73.	TCA	Tile Council of America
74.	TPI	Truss Plate Institute
75.	UBC	Uniform Building Code
76.	UL	Underwriters Laboratories Code
77.	UMC	Uniform Mechanical Code
78.	USDA	United States Department of Agriculture
79.	VI	Vermiculite Institute

80.	WCLA	West Coast Lumberman's Association
81.	WCLB	West Coast Lumber Bureau
82.	WEUSER	Western Electric Utilities Service Engineering Requirements
83.	WIC	Woodwork Institute of California
84.	WPOA	Western Plumbing Officials Association

PART 26 - PRODUCTS Not Used.

PART 27 - EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 42 16

DEFINITIONS

PART 28 - GENERAL

28.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions including without limitation, Definitions;

B. Special Conditions.

28.02 QUALITY ASSURANCE

A. For products or workmanship specified by association, trade, or Federal Standards, Contractor shall comply with requirements of the standard, except when more rigid requirements are specified in the Contract Documents, or are required by applicable codes.

B. Contractor shall conform to current reference standard publication date in effect on the date of bid opening.

C. Contractor shall obtain copies of standards unless specifically required not to by the Contract Documents.

D. Contractor shall maintain a copy of all standards at jobsite during submittals, planning, and progress of the specific Work, until final completion, unless specifically required not to by the Contract Documents.

E. Should specified reference standards conflict with Contract Documents, Contractor shall request clarification from the District and/or the Architect before proceeding.

F. The contractual relationship of the parties to the Contract shall not be altered from the contractual relationship as indicated in the Contract Documents by mention or inference otherwise in any referenced document.

G. Governing Codes shall be as shown in the Contract Documents including, without limitation, the Specifications.

END OF DOCUMENT

DOCUMENT 01 42 19

REFERENCES

PART 29 - GENERAL

29.01 SCHEDULE OF REFERENCES:

The following information is intended only for the general assistance of the Contractor, and the District does not represent that all of the information is current. It is the Contractor's responsibility to verify the correct information for each of the entities listed.

AA	The Aluminum Association 1400 Crystal Drive, Suite 430 Arlington, VA 22202 www.aluminum.org	703/358-2960
AABC	Associated Air Balance Council 1518 K Street, NW, Suite 503 Washington, DC 20005 www.aabc.com	202/737-0202
AAMA	American Architectural Manufacturers Association 1827 Walden Office Sq., Suite 550 Schaumburg, IL 60173-4268 www.aamanet.org	847/303-5664
AASHTO	American Association of State Highway and Transportation Officials 444 N Capitol St. NW - Suite 249 Washington, DC 20001 www.transportation.org	202/624-5800
AATCC	American Association of Textile Chemists and Colorists P.O. Box 12215 One Davis Drive Research Triangle Park, NC 27709 2215 www.aatcc.org	919/549-8141
ACA	American Coatings Association 1500 Rhode Island Ave., NW Washington DC, 20005 www.paint.org	202/462-6272

ACI	American Concrete Institute 38800 Country Club Dr. Farmington Hills, MI 48331-3439 www.concrete.org	248/848-3700
ACPA	American Concrete Pipe Association 8445 Freeport Parkway, Suite 350 Irving, TX 75063-2595 www.concrete-pipe.org	972/506-7216
ADC	Air Duct Council 1901 N. Roselle Road, Suite 800 Schaumburg, Illinois 60195 www.flexibleduct.org	847/706-6750
AF&PA	American Forest and Paper Association 1101 K Street, NW, Suite 700 Washington, DC 20005 www.afandpa.org	202/463-2700
AGA	American Gas Association 400 North Capitol Street, NW Washington, DC 20001 www.aga.org	202/824-7000
AGC	Associate General Contractors of America 2300 Wilson Blvd., Suite 300 Arlington, VA 22201 www.agc.org	703/548-3118
AHA	American Hardboard Association 1210 West Northwest Highway Palatine, IL 60067 domensino.com/AHA/default.htm	847/934-8800
AI	Asphalt Institute 2696 Research Park Drive Lexington, KY 40511-8480 www.asphaltinstitute.org	859/288-4960
AIA	The American Institute of Architects 1735 New York Ave., NW Washington, DC 20006-5292 www.aia.org	202/626-7300
AISC	American Institute of Steel Construction 130 East Randolph Street Suite 2000 Chicago, IL 60601 www.aisc.org	312.670.2400

AIA	American Insurance Association (formerly the National Board of Fire Underwriters) 555 12th St, NW, Suite 550 Washington DC 20004 www.aiadc.org	202/828-7100
AISI	American Iron and Steel Institute 25 Massachusetts Ave., NW, Suite 800 Washington, DC 20001 www.steel.org	202/452.7100
AITC	American Institute of Timber Construction 7012 S. Revere Parkway Suite 140 Centennial, CO 80112 www.aitc-glulam.org	503/639.0651
ALI	Associated Laboratories, Inc. P.O. Box 152837 Dallas, TX 75315 www.assoc-labs.com	214/565-0593
ALSC	American Lumber Standards Committee, Inc. 7470 New Technology Way, Suite F Frederick, MD 21703 www.alsc.org	301/972-1700
AMCA	Air Movement and Control Association International, Inc. 30 W. University Drive Arlington Heights, IL 60004 www.amca.org	847/394-0150
ANLA	American Nursery & Landscape Association (now AmericanHort) 525 9th St NW, Suite 80 Washington, DC 20004 www.americanhort.org	202/789-2900
ANSI	American National Standards Institute 1899 L Street, NW, 11th Floor Washington, DC, 20036 www.ansi.org	202/293.8020
APA	APA-The Engineered Wood Association 7011 S. 19th Street Tacoma, WA 98466-5333 www.apawood.org	253/565-6600

APA	Architectural Precast Association 325 John Know Rd, Ste L103 Tallahassee, FL 32303 www.archprecast.org	850/205.5637
ARI	Air Conditioning and Refrigeration Institute (now Air-Conditioning, Heating, & Refrigeration Institute) 2111 Wilson Blvd, Suite 500 Arlington, VA 22201 www.ahrinet.org	703/524-8800
ARMA	Asphalt Roofing Manufacturers Association Public Information Department 750 National Press Building 529 14th Street, NW Washington, DC 20045 www.asphaltroofing.org	202/591-2450
ASA	The Acoustical Society of America ASA Office Manager Suite 1NO1 2 Huntington Quadrangle Melville, NY 11747-4502 http://asa.aip.org	516/576-2360
ASCE	American Society of Civil Engineers 1801 Alexander Bell Drive Reston, VA 20191 www.asce.org	800/548-2723 703/295-6300
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers 1791 Tullie Circle, NE Atlanta, GA 30329-2305 www.ashrae.org	800/527-4723 404/636-8400
ASLA	American Society of Landscape Architects 636 Eye Street, NW Washington, DC 20001-3736 www.asla.org	202/898-2444
ASME	American Society of Mechanical Engineers Three Park Avenue New York, NY 10016-5990 www.asme.org	800/434-2763
ASPE	American Society of Plumbing Engineers 2980 S River Rd. Des Plaines, IL 60018 http://aspe.org	847/296-0002

ASQ	American Society for Quality P.O. Box 3005 Milwaukee, WI 53201-3005 or 600 North Plankinton Avenue Milwaukee, WI 53203 http://asq.org	800/248-1946 414/272-8575
ASSE	American Society of Sanitary Engineering 901 Canterbury, Suite A Westlake, Ohio 44145 www.asse-plumbing.org	440/835-3040
ASTM	ASTM International 100 Barr Harbor Drive PO Box C700 West Conshohocken, PA, 19428-2959 www.astm.org	610/832-9500
AWCI	Association of the Wall and Ceiling Industry 513 West Broad Street, Suite 210 Falls Church, VA 22046 www.awci.org	703/538-1600
AWPA	American Wood Protection Association P.O. Box 361784 Birmingham, AL 35236-1784 www.awpa.com	205/733-4077
AWPI	American Wood Preservers Institute 2750 Prosperity Ave. Suite 550 Fairfax, VA 22031-4312 www.arcat.com	800/356-AWPI 703/204-0500
AWS	American Welding Society 8669 Doral Boulevard, Suite 130 Doral, Florida 33166 www.aws.org	800/443-9353 305/443-9353
AWI	Architectural Woodwork Institute 46179 Westlake Drive, Suite 120 Potomac Falls, VA 20165-5874 www.awinet.org	571/323-3636
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235 www.awwa.org	800/926-7337 303/794 7711

BHMA	Builders Hardware Manufacturers Association 355 Lexington Avenue, 15th floor New York, NY 10017 www.buildershardware.com	212/297-2122
BIA	The Brick Industry Association 1850 Centennial Park Drive, Suite 301 Reston, VA 20191 www.gobrick.com	703/620-0010
CGA	Compressed Gas Association 14501 George Carter Way, Suite 103 Chantilly VA 20151-2923 www.cganet.com	703/788-2700
CISCA	Ceilings & Interior Systems Construction Association 1010 Jorie Blvd, Suite 30 Oak Brook, IL 60523 www.cisca.org	630/584-1919
CISPI	Cast Iron Soil Pipe Institute 1064 Delaware Avenue SE Atlanta, GA 30316 www.cispi.org	404/622-0073
CLFMI	Chain Link Fence Manufacturers Institute 10015 Old Columbia Road, Suite B-215 Columbia, MD 21046 www.associationsites.com/main-pub.cfm?usr=clfma	410/290-6267
CPA	Composite Panel Association 19465 Deerfield Avenue, Suite 306 Leesburg, VA 20176 www.compositepanel.org	703/724-1128
CPSC	Consumer Product Safety Commission 4330 East West Highway Bethesda, MD 20814 www.cpsc.gov	301/504-7923 800/638-2772
CRA	California Redwood Association 405 Enfrente Drive, Suite 200 Novato, CA 94949 www.calredwood.org	415/382-0662

CRI	Carpet and Rug Institute P.O. Box 2048 Dalton, Georgia 30722-2048 www.carpet-rug.org	706/278-3176
CRSI	Concrete Reinforcing Steel Institute 933 N. Plum Grove Road Schaumburg, IL 60173 4758 www.crsi.org	847/517-1200
CSI	The Construction Specifications Institute 110 South Union Street, Suite 100 Alexandria VA 22314 www.csinet.org	800/689-2900
CTIOA	Ceramic Tile Institute of America 12061 Jefferson Blvd. Culver City, CA 90230-6219 www.ctioa.org	310/574-7800
DHI	Door and Hardware Institute (formerly National Builders Hardware Association) 14150 Newbrook Dr. Chantilly, VA 20151 www.dhi.org	703/222-2010
DIPRA	Ductile Iron Pipe Research Association 2000 2nd Avenue, South Suite 429 Birmingham, AL 35233 www.dipra.org	205/402-8700
DOC	U.S. Department of Commerce 1401 Constitution Ave., NW Washington, D.C. 20230 www.commerce.gov	202/482-2000
DOT	U.S. Department of Transportation 1200 New Jersey Avenue, SE Washington, DC 20590 www.dot.gov	855/368-4200
EJMA	Expansion Joint Manufacturers Association, Inc. 25 North Broadway Tarrytown, NY 10591 www.ejma.org	914/332-0040

EPA	Environmental Protection Agency Ariel Rios Building 1200 Pennsylvania Avenue, N.W. Washington, DC 20460 www.epa.gov	202/272-0167
FCICA	Floor Covering Installation Contractors Association 7439 Millwood Drive West Bloomfield, MI 48322 www.fcica.com	248/661-5015 877/TO-FCICA
FM Global	Factory Mutual Insurance Company Amy Daley Global Practice Leader – Education, Public Entities, Health Care FM Global 270 Central Avenue Johnston, RI 02919-4949 www.fmglobal.com	401/275-3000 401/275-3029
FS	General Services Administration (GSA) Index of Federal Specifications, Standards and Commercial Item Descriptions 470 East L'Enfant Plaza, SW, Suite 8100 Washington, DC 20407 www.gsa.gov	202/619-8925
GA	The Gypsum Association 6525 Belcrest Road, Suite 480 Hyattsville, MD 20782 www.gypsum.org	301/277-8686
GANA	Glass Association of North America 800 SW Jackson St., Suite 1500 Topeka, KS 66612-1200 www.glasswebsite.com	785/271-0208
HMA	Hardwood Manufacturers Association 665 Rodi Road, Suite 305 Pittsburgh, PA 15235 http://hmamembers.org	412/244-0440
HPVA	Hardwood Plywood & Veneer Association 1825 Michael Faraday Drive Reston, Virginia 20190 www.hpva.org	703/435-2900

IAPMO	International Association of Plumbing and Mechanical Officials (formerly the Western Plumbing Officials Association) 4755 E. Philadelphia St. Ontario, CA 91761 www.iapmo.org	909/472-4100
ICC	International Code Council 500 New Jersey Avenue, NW, 6th Floor Washington, DC 20001 www.iccsafe.org	888/422-7233
IEEE	Institute of Electrical and Electronics Engineers 3 Park Avenue, 17th Floor New York, NY 10016-5997 www.ieee.org	212/419-7900
IES	Illuminating Engineering Society 120 Wall Street, Floor 17 New York, NY 10005-4001 www.ies.org	212/248-5000
ITRK	Intertek Testing Services 3933 US Route 11 Cortland, NY 13045 www.intertek.com	607/753-6711
MCAA	Mechanical Contractors Association of America 1385 Piccard Drive Rockville, MD 20850 www.mcaa.org	301/869-5800
MIA	Marble Institute of America 28901 Clemens Rd, Ste 100 Cleveland, OH 44145 www.marble-institute.com	440/250-9222
MMPA (formerly WMMPA)	Moulding & Millwork Producers Association (formerly Wood Moulding & Millwork Producers Association) 507 First Street Woodland, CA 95695 www.wmmpa.com	530/661-9591 800/550-7889

MSS	Manufacturers Standardization Society (MSS) of the Valve and Fittings Industry 127 Park Street, NE Vienna, VA 22180-4602 http://mss-hq.org	703/281-6613
NAAMM	National Association of Architectural Metal Manufacturers 800 Roosevelt Rd. Bldg. C, Suite 312 Glen Ellyn, IL 60137 www.naamm.org	630/942-6591
NAIMA	North American Insulation Manufacturers Association 44 Canal Center Plaza, Suite 310 Alexandria, VA 22314 www.naima.org	703/684-0084
NAPA	National Asphalt Pavement Association 5100 Forbes Blvd. Lanham, MD USA 20706-4407 www.asphaltpavement.org	888/468-6499 301/731-4748
NCSPA	National Corrugated Steel Pipe Association 14070 Proton Road, Suite 100 LB9 Dallas, TX 75244 www.ncspa.org	972/850-1907
NCMA	National Concrete Masonry Association 13750 Sunrise Valley Drive Herndon, VA 20171-4662 www.ncma.org	703/713-1900
NEBB	National Environmental Balancing Bureau 8575 Grovemont Circle Gaithersburg, MD 20877 www.nebb.org	301/977-3698
NECA	National Electrical Contractors Association 3 Bethesda Metro Center, Suite 1100 Bethesda, MD 20814 www.necanet.org	301/657-3110
NEMA	National Electrical Manufacturers Association 1300 North 17th Street, Suite 1752 Rosslyn, Virginia 22209 www.nema.org	703/841-3200

NEII	National Elevator Industry, Inc. 1677 County Route 64 P.O. Box 838 Salem, New York 12865-0838 www.neii.org	518/854-3100
NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, Massachusetts USA 02169-7471 www.nfpa.org	617/770-3000
NHLA	National Hardwood Lumber Association PO Box 34518 Memphis, TN 38184 www.nhla.com	901/377-1818
NIA	National Insulation Association 12100 Sunset Hills Road, Suite 330 Reston, VA 20190 www.insulation.org	703/464-6422
NRCA	National Roofing Contractors Association 10255 W. Higgins Road, Suite 600 Rosemont, IL 60018-5607 www.nrca.net	847/299-9070
NSF	NSF International P.O. Box 130140 789 N. Dixboro Road Ann Arbor, MI 48113-0140, USA www.nsf.org	800/673-6275 734/769-8010
NTMA	National Terrazzo and Mosaic Association PO Box 2605 Fredericksburg, TX 78624 www.ntma.com	800/323-9736
OSHA	Occupational Safety and Health Act U.S. Department of Labor Occupational Safety & Health Administration 200 Constitution Ave., NW Washington, D.C. 20210 www.osha.gov	800/321-OSHA (6742)

PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60077 or 500 New Jersey Ave., N.W. 7th Floor Washington, D.C. 20001 www.cement.org	847/966-6200 202/408-9494
PCI	Precast/Prestressed Concrete Institute 200 W. Adams St. #2100 Chicago, IL 60606 www.pci.org	312/786-0300
PDCA	Painting and Decorating Contractors of America 2316 Millpark Drive, Ste 220 Maryland Heights, MO 63043 www.pdca.com	800/332-PDCA (7322) 314/514-7322
PDI	Plumbing & Drainage Institute 800 Turnpike Street, Suite 300 North Andover, MA 01845 http://pdionline.org	978/557-0720 800/589-8956
PEI	Porcelain Enamel Institute, Inc. P.O. Box 920220 Norcross, GA 30010 www.porcelainenamel.com	770/676-9366
PG&E	Pacific Gas & Electric Company www.pge.com	800/743-5000
PLANET	Professional Landcare Network 950 Herndon Parkway, Suite 450 Herndon, Virginia 20170 www.landcarenetwork.org	703/736-9666 800/395-2522 703/736-9668
RFCI	Resilient Floor Covering Institute 115 Broad Street, Suite 201 La Grange GA 30240 www.rfci.com	706/882-3833
RIS	Redwood Inspection Service 818 Grayson Road, Suite 201 Pleasant Hill, CA 94523 www.redwoodinspection.com	925/935-1499
SDI	Steel Deck Institute P.O. Box 25 Fox River Grove, IL 60021 www.sdi.org	847/458-4647

SDI	Steel Door Institute 30200 Detroit Road Westlake, Ohio 44145 www.steeldoor.org	440/899-0010
SJI	Steel Joist Institute 234 W. Cheves Street Florence, SC 29501 http://steeljoist.org	843/407-4091
SMA	Stucco Manufacturers Association 500 East Yale Loop Irvine, CA 92614 www.stuccomfgassoc.com	949/387.7611
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association 4201 Lafayette Center Drive Chantilly, Virginia 20151-1219 www.smacna.org	703/803-2980
SPI	SPI: The Plastics Industry Trade Association, Inc. 1667 K St., NW, Suite 1000 Washington, DC 20006 www.plasticsindustry.org	202/974-5200
SSPC	Society for Protective Coatings (formerly the Steel Structures Painting Council) 40 24th St 6th Fl Pittsburgh, PA 15222 www.sspc.org	412/281-2331 877/281-7772
TCA	The Tile Council of North America 100 Clemson Research Blvd. Anderson, SC 29625 www.tcnatile.com	864/646-8453
TPI	Truss Plate Institute 218 North Lee Street, Suite 312 Alexandria, VA 22314 www.tpinst.org	703/683-1010
TPI	Turfgrass Producers International 2 East Main Street East Dundee, IL 60118 www.turfgrasssod.org	800/405-8873 847/649-5555

TCIA	Tree Care Industry Association (formerly the National Arborist Association) 136 Harvey Road, Suite 101 Londonderry, NH 03053 www.tcia.org	800/733-2622
TVI	The Vermiculite Institute c/o The Schundler Company 150 Whitman Avenue Edison, NJ. 08817 www.vermiculiteinstitute.org	732/287-2244
UL	Underwriters Laboratories Inc. 333 Pfingsten Road Northbrook, IL 60062-2096 www.ul.com	847/272-8800 877/854-3577
UNI	Uni-Bell PVC Pipe Association 2711 LBJ Freeway, Suite 1000 Dallas, TX 75234 www.uni-bell.org	972/243-3902
USDA	U.S. Department of Agriculture 1400 Independence Ave., S.W. Washington, DC 20250 www.usda.gov	202/720-2791
WA	Wallcoverings Association 401 North Michigan Avenue Suite 2200 Chicago, IL 60611 www.wallcoverings.org	312/321-5166

WCLIB	West Coast Lumber Inspection Bureau P.O. Box 23145 Portland, OR 97281 or 6980 S.W. Varns Tigard, OR 97223 www.wclib.org	503/639-0651
WCMA	Window Covering Manufacturers Association 355 Lexington Avenue 15th Floor New York, New York 10017 www.wcmanet.org	212/297-2122
WDMA	Window & Door Manufacturers Association 401 N. Michigan Avenue, Suite 2200 Chicago, IL 60611 or 2025 M Street, NW, Ste. 800 Washington, D.C. 20036-3309 www.wdma.com	312/321-6802 202/367-1157
WI	Woodwork Institute P.O. Box 980247 West Sacramento, CA 95798 www.wicnet.org	916/372-9943
WRI	Wire Reinforcement Institute 942 Main Street Hartford, CT 06103 www.wirereinforcementinstitute.org	860/240-9545
WWCA	Western Wall & Ceiling Contractors Association 1910 N. Lime St. Orange, California 92865 www.wwcca.org	714/221-5520
WWPA	Western Wood Products Association 522 SW Fifth Ave., Suite 500 Portland, OR 97204-2122 www2.wwpa.org	503/224-3930

PART 30 - PRODUCTS Not Used.

PART 31 - EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 43 00

MATERIALS AND EQUIPMENT

PART 32 - GENERAL

32.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Purchase of Materials and Equipment;

B. Special Conditions;

C. Imported Materials Certification.

32.02 MATERIAL AND EQUIPMENT

A. Only items approved by the District and/or Design Professional shall be used.

B. Contractor shall submit lists of products and other product information in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.

32.03 MATERIAL AND EQUIPMENT COLORS

A. The District and/or Architect will provide a schedule of colors.

B. No individual color selections will be made until after approval of all pertinent materials and equipment and after receipt of appropriate samples in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.

C. Contractor shall request priority in writing for any item requiring advance ordering to maintain the approved Construction Schedule.

32.04 DELIVERY, STORAGE, AND HANDLING

A. Contractor shall deliver manufactured materials in original packages, containers, or bundles (with seals unbroken), bearing name or identification mark of manufacturer.

B. Contractor shall deliver fabrications in as large assemblies as practicable; where specified as shop-primed or shop-finished, package or crate as required to preserve such priming or finish intact and free from abrasion.

C. Contractor shall store materials in such a manner as necessary to properly protect them from damage. Materials or equipment damaged by handling, weather, dirt, or from any other cause will not be accepted.

D. Materials are not acceptable that have been warehoused for long periods of time, stored or transported in improper environment, improperly packaged, inadequately labeled, poorly protected, excessively shipped, deviated from normal distribution pattern, or reassembled.

E. Contractor shall store material so as to cause no obstructions of sidewalks, roadways, access to the Site or buildings, and underground services. Contractor shall protect material and equipment furnished under Contract.

F. Contractor may store materials on Site with prior written approval by the District, all material shall remain under Contractor's control and Contractor shall remain liable for any damage to the materials. Should the Project Site not have storage area available, the Contractor shall provide for off-site storage at a bonded warehouse and with appropriate insurance coverage at no cost to District.

G. When any room in Project is used as a shop or storeroom, the Contractor shall be responsible for any repairs, patching, or cleaning necessary due to that use. Location of storage space shall be subject to prior written approval by District.

PART 33 - PRODUCTS

33.01 MANUFACTURERS

A. Manufacturers listed in various sections of Contract Documents are names of those manufacturers that are believed to be capable of supplying one or more of items specified therein.

B. The listing of a manufacturer does not imply that every product of that manufacturer is acceptable as meeting the requirements of the Contract Documents.

33.02 FACILITIES AND EQUIPMENT

Contractor shall provide, install, maintain, and operate a complete and adequate facility for handling, the execution, disposal, and distribution of material and equipment as required for proper and timely performance of Work connected with Contract.

33.03 MATERIAL REFERENCE STANDARDS

Where material is specified solely by reference to "standard specifications" and if requested by District, Contractor shall submit for review data on actual material proposed to be incorporated into Work of Contract listing name and address of vendor, manufacturer, or producer, and trade or brand names of those materials, and data substantiating compliance with standard specifications.

PART 34 - EXECUTION

34.01 WORKMANSHIP

A. Where not more specifically described in any other Contract Documents, workmanship shall conform to methods and operations of best standards and accepted practices of trade or trades involved and shall include items of fabrication, construction, or installation regularly furnished or required for completion (including finish and for successful operation, as intended).

B. Work shall be executed by tradespersons skilled in their respective lines of Work. When completed, parts shall have been durably and substantially built and present a neat appearance.

34.02 COORDINATION

A. Contractor shall coordinate installation of Work so as to not interfere with installation of others. Adjustment or rework because of Contractor's failure to coordinate will be at no additional cost to District.

B. Contractor shall examine in-place work for readiness, completeness, fitness to be concealed or to receive other work, and in compliance with Contract Documents. Concealing or covering Work constitutes acceptance of additional cost which will result should in-place Work be found unsuitable for receiving other Work or otherwise deviating from the requirements of the Contract Documents.

34.03 COMPLETENESS

Contractor shall provide all portions of the Work, unless clearly stated otherwise, installed complete and operational with all elements, accessories, anchorages, utility connections, etc., in manner to assure well-balanced performance, in accordance with manufacturer's recommendations and by Contract Documents. For example, electric water coolers require water, electricity, and drain services; roof drains require drain system; sinks fit within countertop, etc. Terms such as "installed complete," "operable condition," "for use intended," "connected to all utilities," "terminate with proper cap," "adequately anchored," "patch and refinish," "to match similar," should be assumed to apply in all cases, except where completeness of functional or operable condition is specifically stated as not required.

34.04 APPROVED INSTALLER OR APPLICATOR

Installation by a manufacturer's approved installer or applicator is an understood part of Specifications and only approved installer or applicator is to provide on-site Work where specified manufacturer has on-going program of approving (i.e. certifying, bonding, re-warranting) installers or applicators. Newly established relationships between a manufacturer and an installer or applicator who does not have other approved applicator work in progress or completed is not approved for this Project.

34.05 MANUFACTURER'S RECOMMENDATIONS

All installations shall be in accordance with manufacturer's published recommendations and specific written directions of manufacturer's representative. Should Contract Documents differ from recommendations of manufacturer or directions of his representative, Contractor shall analyze differences, make recommendations to the District and the Architect in writing, and shall not proceed until interpretation or clarification has been issued by the District and/or the Architect.

END OF DOCUMENT

DOCUMENT 01 45 00

QUALITY CONTROL

PART 35 - GENERAL

35.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Inspector, Inspections and Tests, Uncovering of Work and Non-conforming of Work and Correction of Work;

B. Special Conditions.

35.02 RELATED CODES:

A. The Work is governed by requirements of Title 24, California Code of Regulations ("CCR"), and the Contractor shall keep a copy of these available at the job Site for ready reference during construction.

B. The Division of the State Architect ("DSA") shall be notified at or before the start of construction.

35.03 OBSERVATION AND SUPERVISION:

A. The District and Architect or their appointed representatives will review the Work and the Contractor shall provide facilities and access to the Work at all times as required to facilitate this review. Administration by the Architect and any consulting Structural Engineer will be in accordance with applicable regulations, including, without limitation, CCR, Part 1, Title 24, Section 4-341.

B. One or more Project Inspector(s) approved by DSA and employed by or in contract with the District, referred to hereinafter as the "Project Inspector", will observe the work in accordance with CCR, Part 1, Title 24, Sections 4-333(b) and 4-342:

(1) The Project Inspector and Special Inspector(s) shall have access to the Work wherever it is in preparation or progress for ascertaining that the Work is in accordance with the Contract Documents and all applicable code sections. The Contractor shall provide facilities and operation of equipment as needed, and access as required and shall provide assistance for sampling or measuring materials.

(2) The Project Inspector will notify the District and Architect and call the attention of the Contractor to any observed failure of Work or material to conform to Contract Documents.

(3) The Project Inspector shall observe and monitor all testing and inspection activities required.

The Contractor shall conform with all applicable laws as indicated in the Contract Documents, including, without limitation, to CCR, Part 1, Title 24, Section 4-343. The Contractor shall supervise and direct the Work and maintain a competent superintendent on the job who is authorized to act in all matters pertaining to the Work. The Contractor's superintendent shall also inspect all materials, as they arrive, for compliance with the Contract Documents. Contractor shall reject defective Work or materials immediately upon delivery or failure of the Work or material to comply with the Contract Documents. The Contractor shall submit verified reports as indicated in the Contract Documents, including, without limitation, the Specifications and as required by Part 1, Title 24, Section 4-336.

35.04 TESTING AGENCIES:

A. Testing agencies and tests shall be in conformance with the General Documents and the requirements of Part 1, Title 24, Section 4- 335.

B. Testing and inspection in connection with earthwork shall be under the direction of the District's consulting soils engineer, if any, referred to hereinafter as the "Soils Engineer."

C. Testing and inspection of construction materials and workmanship shall be performed by a qualified laboratory, referred to hereinafter as the "Testing Laboratory." The Testing Laboratory shall be under direction of an engineer registered in the State of California, shall conform to requirements of ASTM E329, and shall be employed by or in contract with the District.

35.05 TESTS AND INSPECTIONS:

A. The Contractor shall be responsible for notifying the District and Project Inspector of all required tests and inspections. Contractor shall notify the District and Project Inspector at least seventy-two hours (72) hours in advance of performing any Work requiring testing or inspection.

B. The Contractor shall provide access to Work to be tested and furnish incidental labor, equipment, and facilities to facilitate all inspections and tests.

C. The District will pay for first inspections and tests required by the "CCR", and other inspections or tests that the District and/or the Architect may direct to have made, including the following principal items:

(1) Tests and observations for earthwork and paving.

(2) Tests for concrete mix designs, including tests of trial batches.

(3) Tests and inspections for structural steel work.

(4) Field tests for framing lumber moisture content.

(5) Additional tests directed by the District that establish that materials and installation comply with the Contract Documents.

(6) Tests and observations of welding and expansion anchors.

D. The District may at its discretion, pay and then back charge the Contractor for:

(1) Retests or reinspections, if required, and tests or inspections required due to Contractor error or lack of required identifications of material.

(2) Uncovering of work in accordance with Contract Documents.

(3) Testing done on weekends, holidays, and overtime will be chargeable to the Contractor for the overtime portion.

(4) Testing done off Site.

E. Testing and inspection reports and certifications:

(1) If initially received by Contractor, Contractor shall provide to each of the following a copy of the agency or laboratory report of each test or inspection or certification.

(a) The District;

(b) The Construction Manager, if any;

(c) The Architect;

(d) The Consulting Engineer, if any;

(e) Other engineers on the Project, as appropriate;

(f) The Project Inspector; and

(g) The Contractor.

(2) When the test or inspection is one required by the CCR, a copy of the report shall also be provided to the DSA.

PART 36 - PRODUCTS

36.01 TYPE OF TESTS AND INSPECTIONS

A. Testing and inspection shall be in accordance with DSA Form 103 (or current version)

B. Slump Test
ASTM C 143

C. Concrete Tests

Testing agency shall test concrete used in the work per the following paragraphs:

(1) Compressive Strength:

(a) Minimum number of tests required: One (1) set of three (3) cylinders for each 100 cubic yards (Sec. 2604(h) 01) of concrete or major fraction thereof, placed in one (1) day. See Title 24, Section 2605(g).

(b) Two cylinders of each set shall be tested at twenty-eight (28) days. One (1) cylinder shall be held in reserve and tested only when directed by the Architect or District.

(c) Concrete shall test the minimum ultimate compressive strength in twenty-eight 28 days, as specified on the structural drawings.

(d) In the event that the twenty-eight (28) day test falls below the minimum specified strength, the effective concrete in place shall be tested by taking cores in accordance with UBC Standard No. 26-13 and tested as required for cylinders.

(e) In the event that the test on core specimens falls below the minimum specified strength, the concrete will be deemed defective and shall be removed and replaced upon such direction of the Architect, and in a manner acceptable to the Division of the State Architect.

D. Reinforcing, Steel

E. Structural Steel Per Title 24 and as noted:

(1) Material: Steel per Table in Title 24, Section 2712.

(2) Qualification of Welders (UBC Std. 27-6).

(3) Shop fabrication (Section 2712(d). Structural steel only).

(4) Shop and field welding (Section 2712(e)).

PART 37 - EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 38 – GENERAL

38.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions;

B. Special Conditions;

C. Site Standards; and

D. Construction Waste Management and Disposal.

38.02 TEMPORARY UTILITIES:

A. Electric Power and Lighting:

(1) Contractor will pay for power during the course of the Work. To the extent power is available in the building(s) or on the Site, Contractor may use the District's existing utilities by making prearranged payments to the District for the utilities used by Contractor and all Subcontractors. Contractor shall be responsible for providing temporary facilities required to deliver that power service from its existing location in the building(s) or on the Site to point of intended use.

(2) Contractor shall verify characteristics of power available in building(s) or on the Site. Contractor shall take all actions required to make modifications where power of higher voltage or different phases of current are required. Contractor shall be fully responsible for providing that service and shall pay all costs required therefor.

(3) Contractor shall furnish, wire for, install, and maintain temporary electrical lights wherever it is necessary to provide illumination for the proper performance and/or observation of the Work: a minimum of 20 foot-candles for rough work and 50 foot-candles for finish work.

(4) Contractor shall be responsible for maintaining existing lighting levels in the project vicinity should temporary outages or service interruptions occur.

B. Heat and Ventilation:

(1) Contractor shall provide temporary heat to maintain environmental conditions to facilitate progress of the Work, to meet specified minimum conditions for the installation and curing of materials, and to

protect materials and finishes from damage due to improper temperature and humidity conditions. Portable heaters shall be standard units complete with controls.

(2) Contractor shall provide forced ventilation and dehumidification, as required, of enclosed areas for proper installation and curing of materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors, and gases.

(3) Contractor shall pay the costs of installation, maintenance, operation, and removal of temporary heat and ventilation, including costs for fuel consumed, required for the performance of the Work.

C. Water:

(1) Contractor shall pay for water used during the course of the Work. Contractor shall coordinate and pay for installation or use of water meter in compliance with local water agency requirements. To the extent water is then available in the building(s) or on the Site, Contractor may use the District's existing utilities by making prearranged payments to the District for the utilities used by Contractor and all Subcontractors. Contractor shall be responsible for providing temporary facilities required to deliver such utility service from its existing location in the building(s), on the Site, or other location approved by the local water agency, to point of intended use.

(2) Contractor shall use backflow preventers on water lines at point of connection to District's water supply. Backflow preventers shall comply with requirements of Uniform Plumbing Code.

(3) Contractor shall make potable water available for human consumption.

D. Sanitary Facilities:

(1) Contractor shall provide sanitary temporary facilities in no fewer numbers than required by law and such additional facilities as may be directed by the Inspector for the use of all workers. The facilities shall be maintained in a sanitary condition at all times and shall be left at the Site until removal is directed by the Inspector or Contractor completes all other work at the Site.

(2) Use of toilet facilities in the Work under construction shall not be permitted except by consent of the Inspector and the District.

E. Telephone Service:

(1) Contractor shall arrange with local telephone service company for telephone service as required for the performance of the Work. Contractor shall, at a minimum, provide in its field office one line for telephone and one line for fax machine.

(2) Contractor shall pay the costs for telephone and fax lines installation, maintenance, service, and removal.

F. Fire Protection:

(1) Contractor shall provide and maintain fire extinguishers and other equipment for fire protection. Such equipment shall be designated for use for fire protection only and shall comply with all requirements of the California Fire, State Fire Marshall and/or its designee.

(2) Where on-site welding and burning of steel is unavoidable, Contractor shall provide protection for adjacent surfaces.

G. Trash Removal:

(1) Contractor shall provide trash removal on a timely basis**.** Under no circumstance shall Contractor use District trash service.

H. Field Office:

(1) If Contractor chooses to provide a field office, it shall be an acceptable construction trailer that is well-lit and ventilated. The construction trailer shall be equipped with shelves, desks, filing cabinet, chairs, and such other items of equipment needed. Trailer and equipment are the property of the Contractor and must be removed from the Site upon completion of the Work. Contractor may use the corridor adjacent to the construction area for an office area, if approved in writing by District.

(2) Contractor shall provide any additional electric lighting and power required for the trailer. Contractor shall make adequate provisions for heating and cooling as required.

I. Temporary Facilities:

(1) Contractor shall have provide temporary construction fencing with vision screen as required.

38.03 CONSTRUCTION AIDS:

A. Plant and Equipment:

(1) Contractor shall furnish, operate, and maintain a complete plant for fabricating, handling, conveying, installing, and erecting materials and equipment; and for conveyances for transporting workers. Include elevators, hoists, debris chutes, and other equipment, tools, and appliances necessary for performance of the Work.

(2) Contractor shall maintain plant and equipment in safe and efficient operating condition. Damages due to defective plant and equipment, and uses made thereof, shall be repaired by Contractor at no expense to the District.

B. None of the District's tools and equipment shall be used by Contractor for the performance of the Work.

38.04 BARRIERS AND ENCLOSURES:

A. Contractor shall obtain the District's written permission for locations and types of temporary barriers and enclosures, including fire-rated materials proposed for use, prior to their installation.

B. Contractor shall provide and maintain temporary enclosures to prevent public entry and to protect persons using other buildings and portions of the Site and/or Premises, the public, and workers. Contractor shall also protect the Work and existing facilities from the elements, and adjacent construction and improvements, persons, and trees and plants from damage and injury from demolition and construction operations.

C. Contractor shall provide site access to existing facilities for persons using other buildings and portions of the Site, the public, and for deliveries and other services and activities.

D. Tree and Plant Protection:

(1) Contractor shall preserve and protect existing trees and plants on the Premises that are not designated or required to be removed, and those adjacent to the Premises.

(2) Contractor shall provide barriers to a minimum height of 4'-0" around drip line of each tree and plant, around each group of trees and plants, as applicable, in the proximity of demolition and construction operations, or as denoted on the Plans.

(3) Contractor shall not park trucks, store materials, perform Work or cross over landscaped areas. Contractor shall not dispose of paint thinners, water from cleaning, plastering or concrete operations, or other deleterious materials in landscaped areas, storm drain systems, or sewers. Plant materials damaged as a result of the performance of the Work shall, at the option of the District and at Contractor's expense, either be replaced with new plant materials equal in size to those damaged or by payment of an amount representing the value of the damaged materials as determined by the District.

(4) Contractor shall remove soil that has been contaminated during the performance of the Work by oil, solvents, and other materials which could be harmful to trees and plants, and replace with good soil, at Contractor's expense.

(5) Excavation around Trees:

(a) Excavation within drip lines of trees shall be done only where absolutely necessary and with written permission from the District.

(b) Where trenching for utilities is required within drip lines, tunneling under and around roots shall be by hand digging and shall be approved by the District. Main lateral roots and taproots shall not be cut. All roots 2 inches in diameter and

larger shall be tunneled under and heavily wrapped with wet burlap so as to prevent scarring or excessive drying. Smaller roots that interfere with installation of new work may be cut with prior approval by the District. Roots must first be cut with a Vermeer, or equivalent, root cutter prior to any trenching.

(c) Where excavation for new construction is required within drip line of trees, hand excavation shall be employed to minimize damage to root system. Roots shall be relocated in backfill areas wherever possible. If encountered immediately adjacent to location of new construction, roots shall be cut approximately 6 inches back from new construction.

(d) Approved excavations shall be carefully backfilled with the excavated materials approved for backfilling. Backfill shall conform to adjacent grades without dips, sunken areas, humps, or other surface irregularities. Do not use mechanical equipment to compact backfill. Tamp carefully using hand tools, refilling and tamping until Final Acceptance as necessary to offset settlement.

(e) Exposed roots shall not be allowed to dry out before permanent backfill is placed. Temporary earth cover shall be provided, or roots shall be wrapped with four layers of wet, untreated burlap and temporarily supported and protected from damage until permanently relocated and covered with backfill.

(f) Accidentally broken roots should be sawed cleanly 3 inches behind ragged end.

38.05 SECURITY:

The Contractor shall be responsible for project security for materials, tools, equipment, supplies, and completed and partially completed Work.

38.06 TEMPORARY CONTROLS:

A. Noise Control:

(1) Contractor acknowledges that adjacent facilities may remain in operation during all or a portion of the Work period, and it shall take all reasonable precautions to minimize noise as required by applicable laws and the Contract Documents.

(2) Notice of proposed noisy operations, including without limitation, operation of pneumatic demolition tools, concrete saws, and other equipment, shall be submitted to the District a minimum of forty-eight (48) hours in advance of their performance.

B. Noise and Vibration:

(1) Equipment and impact tools shall have intake and exhaust mufflers.

(2) Contractor shall cooperate with District to minimize and/or cease the use of noisy and vibratory equipment if that equipment becomes objectionable by its longevity.

C. Dust and Dirt:

(1) Contractor shall conduct demolition and construction operations to minimize the generation of dust and dirt, and prevent dust and dirt from interfering with the progress of the Work and from accumulating in the Work and adjacent areas including, without limitation, occupied facilities.

(2) Contractor shall periodically water exterior demolition and construction areas to minimize the generation of dust and dirt.

(3) Contractor shall ensure that all hauling equipment and trucks carrying loads of soil and debris shall have their loads sprayed with water or covered with tarpaulins, and as otherwise required by local and state ordinance.

(4) Contractor shall prevent dust and dirt from accumulating on walks, roadways, parking areas, and planting, and from washing into sewer and storm drain lines.

D. Water:

(1) Contractor shall not permit surface and subsurface water, and other liquids, to accumulate in or about the vicinity of the Premises. Should accumulation develop, Contractor shall control the water or other liquid, and suitably dispose of it by means of temporary pumps, piping, drainage lines, troughs, ditches, dams, or other methods.

E. Pollution:

(1) No burning of refuse, debris, or other materials shall be permitted on or in the vicinity of the Premises.

(2) Contractor shall comply with applicable regulatory requirements and anti-pollution ordinances during the conduct of the Work including, without limitation, demolition, construction, and disposal operations.

F. Lighting:

(1) If portable lights are used after dark, all light must be located so as not to direct light into neighboring property.

38.07 JOB SIGN(S):

A. General:

(1) Contractor shall provide and maintain a Project identification sign with the design, text, and colors designated by the District and/or the Design Professional; locate sign as approved by the District.

(2) Signs other than the specified Project sign and or signs required by law, for safety, or for egress, shall not be permitted, unless otherwise approved in advance by the District.

B. Materials:

(1) Structure and Framing: Structurally sound, new or used wood or metal; wood shall be nominal 3/4-inch exterior grade plywood.

(2) Sign Surface: Minimum 3/4-inch exterior grade plywood.

(3) Rough Hardware: Galvanized.

(4) Paint: Exterior quality, of type and colors selected by the District and/or the Design Professional.

C. Fabrication:

(1) Contractor shall fabricate to provide smooth, even surface for painting.

(2) Size: 4'-0" x 8'-0", unless otherwise indicated.

(3) Contractor shall paint exposed surfaces of supports, framing, and surface material with exterior grade paint: one coat of primer and one coat of finish paint.

(4) Text and Graphics: As indicated.

38.08 PUBLICITY RELEASES:

A. Contractor shall not release any information, story, photograph, plan, or drawing relating information about the Project to anyone, including press and other public communications medium, including, without limitation, on website(s) without the written permission of the District.

PART 39 – PRODUCTS Not used.

PART 40 – EXECUTION Not used.

END OF DOCUMENT

DOCUMENT 01 50 13

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 41 - GENERAL

41.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions;

B. Special Conditions; and

C. Temporary Facilities and Controls.

41.02 SECTION INCLUDES:

A. Administrative and procedural requirements for the following:

(1) Salvaging non-hazardous construction waste.

(2) Recycling non-hazardous construction waste.

(3) Disposing of non-hazardous construction waste.

41.03 DEFINITIONS:

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

41.04 PERFORMANCE REQUIREMENTS:

A. General: Develop waste management plan that results in end-of Project rates for salvage/recycling of sixty-five percent (65%) by weight (or by volume, but not a combination) of total waste generated by the Work.

41.05 SUBMITTALS:

A. Waste Management Plan: Submit waste management plan within 30 days of date established for commencement of the Work.

B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit copies of report. Include the following information:

(1) Material category.

(2) Generation point of waste.

(3) Total quantity of waste in tons or cubic yards.

(4) Quantity of waste salvaged, both estimated and actual in tons or cubic yards.

(5) Quantity of waste recycled, both estimated and actual in tons or cubic yards.

(6) Total quantity of waste recovered (salvaged plus recycled) in tons or cubic yards.

(7) Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

C. Waste Reduction Calculations: Before request for final payment, submit copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

H. Qualification Data: For Waste Management Coordinator.

I. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

J. Submittal procedures and quantities are specified in Document 01 33 00.

41.06 QUALITY ASSURANCE:

A. Waste Management Coordinator Qualifications: LEED Accredited Professional by U.S. Green Building Council.

B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

C. Waste Management Conference: Conduct conference at Project site to comply with requirements. Review methods and procedures related to waste management including, but not limited to, the following:

(1) Review and discuss waste management plan including responsibilities of Waste Management Coordinator.

(2) Review requirements for documenting quantities of each type of waste and its disposition.

(3) Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.

(4) Review procedures for periodic waste collection and transportation to recycling and disposal facilities.

(5) Review waste management requirements for each trade.

41.07 WASTE MANAGEMENT PLAN:

A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measurement throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

(1) Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.

(2) Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.

(3) Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.

(4) Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.

(5) Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.

(6) Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

PART 42 - PRODUCTS Not Used.

PART 43 - EXECUTION

43.01 PLAN IMPLEMENTATION:

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

(1) Comply with Document 01 50 00 for operation, termination, and removal requirements.

B. **[**Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.**]**

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

(1) Distribute waste management plan to everyone concerned within 3 days of submittal return.

(2) Distribute waste management plan to entities when they first begin work on site. Review plan procedures and locations established for salvage, recycling, and disposal.

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

(1) Designate and label specific areas of Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.

(2) Comply with Document 01 50 00 for controlling dust and dirt, environmental protection, and noise control.

43.02 RECYCLING CONSTRUCTION WASTE:

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to the Contractor.

C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

(1) Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project Site. Include list of acceptable and unacceptable materials at each container and bin.

(a) Inspect containers and bins for contamination and remove contaminated materials if found.

(2) Stockpile processed materials on site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

(3) Stockpile materials away from construction area. Do not store within drip line of remaining trees.

(4) Store components off the ground and protect from the weather.

(5) Remove recyclable waste off District property and transport to recycling receiver or processor.

D. Packaging:

(1) Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.

(2) Polystyrene Packaging: Separate and bag material.

(3) Pallets: As much as possible, require deliveries using pallets to remove pallets from Project Site. For pallets that remain on Site, break down pallets into component wood pieces and comply with requirements for recycling wood.

(4) Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

E. Site-Clearing Wastes: Chip brush, branches, and trees on site.

F. Wood Materials:

(1) Clean Cut-Offs of Lumber: Grind or chip into small pieces.

(2) Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

G. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.

(1) Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

43.03 DISPOSAL OF WASTE:

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project Site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

(1) Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on site.

(2) Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off District property and legally dispose of them.

END OF DOCUMENT

DOCUMENT 01 52 13

FIELD OFFICES

PART 44 – GENERAL

44.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions;

B. Special Conditions; and

C. Temporary Facilities and Controls.

44.02 SECTION INCLUDES:

A. Requirements for Field Offices and Field Office Trailers.

44.03 SUMMARY:

A. General: Contractor shall provide District's Field Office Trailer and contents, for District's use exclusively, during the term of the Contract.

B. Property: Trailer, furniture, furnishings, equipment, and the like, supplied by the Contractor with the Office Trailer shall remain the property of the Contractor; District property items installed, delivered, and the like by District within the Office Trailer will remain District's property.

C. Modifications: District reserves the right to modify the trailer or contents, or both, as may be deemed proper by District.

D. Condition: Trailer and contents shall be clean, neat, substantially finished, in good, proper, and safe condition for use, operation, and the like; the trailer and contents shall not be required to be new.

E. Installation Timing: Provide safe, fully furnished, functional, proper, complete, and finished trailer properly ready for entire use, within fourteen (14) calendar days of District's notification of the issuance of Notice to Proceed.

44.04 SUBMITTALS:

A. General: Submit submittals to District in quantity, format, type, and the like, as specified herein.

B. Office Trailer Data: One (1) copy of manufacturer's descriptive data, technical descriptions, regulatory compliance, industry standards, installation, removal, and maintenance instructions.

C. Equipment Data: Two (2) copies of manufacturer data for each type of equipment, if directed by District.

D. Furniture and Furnishings Data: Two (2) copies of manufacturer data for each type of equipment, if directed by District.

E. Plans: One (1) reproducible copy of appropriately scaled plans of trailer layout. Plans shall include, but not be limited to: lighting; furniture; equipment; telephone and electrical outlets; and the like.

F. Product Samples: One (1) complete and entire unit of each type, if directed by District.

44.05 QUALITY ASSURANCE

A. Standards: In the event that provisions of codes, regulations, safety orders, Contract Documents, referenced manufacturer's specifications, manufacturer's instructions, industry standards, and the like, are in conflict, the more restrictive and higher quality shall govern.

B. Installer: Installer or Installers engaged by Contractor must have a minimum of five (5) years of documented and properly authenticated successful experience of specialization in the installation of the items or systems, or both, specified herein.

C. Manufacturer: Contractor shall obtain products from nationally and industry recognized Manufacturer with five (5) years minimum, of immediately recent, continuous, documented and properly authenticated successful experience of specialization in the manufacture of the product specified herein.

D. State Personnel Training: Provide proper training for maintenance and operations, including emergency procedures, and the like, as directed by District.

E. Units: Shall be sound and free of defects, and shall not include any damage or defect that will impair the safety, installation, performance, or the durability of the entire Office Trailer and appurtenant systems.

44.06 REGULATORY REQUIREMENTS

A. General: Work shall be executed in accordance with applicable Codes, Regulations, Statutes, Enactments, Rulings, Laws, each authority having jurisdiction, and including, but not limited to, Regulatory Requirements specified herein.

B. California Building Standards Code ("CBSC").

C. California Code of Regulations, Title 25, Chapter 3, Sub Chapter 2, Article 3 ("CCR").

D. Coach Insignia: Trailer shall display California Commercial Coach Insignia; such insignia shall be deemed to show that the trailer is in accordance with the Construction and Fire Safety requirements of CCR.

PART 45 – PRODUCTS

45.01 FIELD OFFICE TRAILER

A. General: Provide entire Field Office Trailer of type, function, operation, capacity, size, complete with controls, safety devices, accessories, and the like, for proper and durable installation. Partitions, walls, ceiling, and other interior and exterior surfaces shall be appropriately finished, including, but not limited to, trim, painting, wall base, floor covering, suspended or similar ceiling, and the like; provide systems, components, units, nuts, bolts, screws, anchoring devices, fastening devices, washers, accessories, adhesives, sealants, and other items of type, grade, and class required for the particular use, not identified but required for a complete, weather-tight, appropriately operating, and finished installation.

B. Manufacturers: General Electric Capital Modular Space; The Space Place, Inc.; or equal.

C. Program: Provide a wheel-mounted trailer with stairs, landings, platforms, ramps, and the like, in good, proper, safe, clean, and properly finished condition; with proper heavy duty locks, and other proper and effective security at all doors, windows, and the like. Trailer shall be maintained in good, proper, safe, clean, and properly finished condition during the Contract.

(1) Nominal Trailer Size: Four hundred eighty (480) square feet, minimum.

(2) Stairs, Platform: Properly finished stairs, platforms, and ramps.

(3) Doors: Two (2), three (3) foot wide exterior doors with locksets; finished ramp, steps, and entry platform at each exterior door.

(4) Keys: Submit five (5) keys for each door, window, furniture unit, and the like. There shall be no other key copies or originals available; each key shall be identified for District; and shall be labeled, or tagged or both, as directed by District.

(5) Lighting: Sixty-five (65) foot-candles illumination minimum at any point, at thirty (30) inches above finished floor throughout from fluorescent light source, exclusively, or as directed by District.

(6) Electrical Outlets: One (1) duplex outlet evenly spaced every twelve (12) linear horizontal feet of wall face, and electrical service ready for use.

(7) Telephones and Telephone Outlets: Two (2) telephone lines wired, connected to telephone utility service, and ready for use, and two (2) telephone instruments, each with two (2)-line capability, speed dial and hands-free feature. Locate each outlet as directed by District.

45.02 FIELD OFFICE TRAILER ITEMS

A. General: Provide the Field Office Trailer with the following arranged into two (2) workstations:

(1) Desks: Two (2) desks: thirty-six (36) inches by sixty (60) inches; steel, laminated plastic top; locking, one (1) or two (2) file drawers single pedestal; steel; provide five (5) keys to District.

(2) Tables: Two (2) tables; thirty-six (36) inches by sixty (60) inches; twenty-nine (29) inches high; steel, laminated plastic top tables; one (1) at each desk.

(3) Chairs: Two (2) chairs: swivel; steel; with seat cushion and arms; one (1) at each desk.

(4) Waste Baskets: Two (2) waste baskets, one at each desk.

B. Furniture and Equipment: Provide in the space located to effect efficient and logical use.

(1) File cabinet: One (1); four (4) drawer; lateral; steel locking.

(2) Plan Table: One (1) plan table: thirty-six (36) inches deep by seventy-two (72) inches wide by forty-two (42) inches high; adjustable; wood or steel; with lockable plan and pencil drawers.

(3) Drafting Stool: One (1) drafting stool; swiveling; steel; padded; adjustable; with footrest and casters.

(4) Bookshelf: One (1) bookshelf: thirty-six (36) inches deep by seventy-two (72) inches wide by forty-two (42) inches high; adjustable; wood or steel; with lockable plan and pencil drawer.

(5) Plan Rack: One (1) wheel mounted plan rack.

(6) Waste Baskets: One (1) large waste basket.

(7) Coat/Hat Hanger: Wall mounted with minimum capacity for four (4) garments and ten (10) hats.

(8) Document Management System: Shall include an integrated high-volume printer, copier, and facsimile machine, including stand, base, and storage cabinet; and shall include the following features:

(a) Type: Laser, dry electrostatic transfer, plain paper, digital, multi-function imaging system.

(b) Network: Ethernet or Token Ring network ready, Plug-and-Play.

(c) Print, send/receive facsimile from any connected workstation.

(d) Resolution: Six hundred (600) dots per inch by six hundred (600) dots per inch, minimum.

(e) Print Speed: Twenty (20) pages per minute, minimum.

(f) Copies: Twenty (20) copies per minute, minimum.

(g) Document Handler: Forty (40) sheet, minimum

(h) Collator: Forty (40) bin, minimum, with stapling.

(i) Duplexing: Capable.

(j) Paper Size: Capable of handling paper sizes to eleven (11) inches by seventeen (17) inches.

(k) Paper Cassettes: One (1) each for eight and one half (8.5) inches by eleven (11) inches, eight and one half (8.5) inches by fourteen (14) inches, and eleven (11) inches by seventeen (17) inches paper sizes; minimum two hundred fifty (250) sheets per cassette.

(l) Reduction/Enlargement: Capable of reduction to twenty-five percent (25%) and enlargement to two hundred percent (200%).

(m) Facsimile Electronic Storage: Capable of storing minimum of fifty (50) speed dial numbers, group faxing and broadcast faxing.

(n) Facsimile Scanning: Capable of scanning into memory a minimum of one hundred (100) pages with maximum scan time of three (3) seconds per page.

(o) Halftone: Sixty-four (64) levels.

(p) Redial: Automatic and Manual.

(9) Maintenance: Contractor shall purchase service agreements for each unit of equipment for the duration of the project plus two (2) months, and shall maintain all equipment in proper working condition. Service agreements shall include provision for replacement of toner cartridges and other items required to effect proper unit use. Service agreements shall also provide for:

(a) Unlimited Service Calls.

(b) Same Day Response.

(c) All parts, labor, preventative maintenance and mileage.

(d) All chemicals, such as toner, fixing agent, and the like.

(e) System training and setup.

(10) Portable Toilets: Two (2); each shall include a urinal; each unit shall be a properly enclosed chemical unit conforming to ANSI Z4.3.

(a) Location: As directed by District.

(b) Maintenance: Maintain each unit and surrounding areas in a clean, hygienic and orderly manner, at all time. Empty, clean, and sanitize each unit each day at a location and time as directed by District.

(c) Removal: Relocate, or remove from the site, each Portable Toilet. Upon such directive by District, the Contractor shall forthwith relocate or remove each Portable Toilet and submit the affected areas to a condition which existed prior to the installation of each Portable Toilet, within three (3) calendar days, or as directed by District in writing, at no cost to District.

45.03 UTILITY AND SERVICES

A. Telephone Service: Contractor shall provide and interface the entire telephone service, and shall properly and timely pay for telephone service for District's non-long-distance use.

B. Electrical Service: Provide all proper connections and continuously pay for service for the duration of the Work.

45.04 FINISHES

A. General: Manufacturer standard finish system over surfaces properly cleaned, pretreated, and prepared to obtain proper bond; all visible surfaces shall be coated.

B. Finish: Color as selected by District from manufacturer standard palette.

PART 46 – EXECUTION

46.01 INSTALLATION

A. General: Properly prepare area and affected items to receive the Work. Set Work accurately in location, alignment, and elevation; rigidly, securely, and firmly anchor to appropriate structure; install plumb, straight, square, level, true, without racking, rigidly anchored to proper solid blocking, substrate, and the like; provide appropriate type and quantity of reinforcements, fasteners, adhesives, self-adhesive and other tapes; lubricants, coatings, accessories, and the like, as required for a complete, structurally rigid, stable, sound, and appropriately finished installation, in accordance with manufacturer's published instructions, and as indicated. The more restrictive and higher quality requirement shall govern. Moving parts shall be properly secured, without binding, looseness, noise, and the like.

B. Installation: Install in accordance with 25 CCR 3.2.3 and as directed by District; jack up trailer and level both ways; mount on proper concrete piers with all load off wheels; provide required tie down and accessories per Section 4368 of referenced CCR, and as directed by District.

C. Rejected Work: Work, materials, unit, items, systems, and the like, not accepted by District shall be deemed rejected, and shall forthwith be removed and replaced with proper and new Work, materials, unit, items, systems, and the like at no cost to District.

D. Standard: Comply with manufacturer's published instructions, or with instructions as shown or indicated; the more restrictive and higher quality requirement shall govern.

E. Location: As directed by District.

F. Fire Resistance: Construct and install in accordance with UL requirements.

G. Maintenance: Contractor shall maintain trailer and adjacent areas in a safe, clean and hygienic condition throughout the duration of the Work, and as directed by District. Properly repair or replace furniture or other items, as directed by District. Properly remove unsafe, damaged, or broken furniture, or similar items, and replace with safe and proper items. Contractor shall pay cost of all services, repair, and maintenance, or replacement of each item.

H. Janitorial Service: Provide professional janitorial services, including, but not limited to, trash, waste paper baskets, fill paper dispensers; clean and dust all furniture, files, and the like; sweep and mop resilient and similar flooring; and vacuum carpeting and similar flooring.

(1) Frequency: Two (2) times per week, minimum.

I. Removal: Properly remove the Office Trailer and contents from the Site upon completion of the Contract, or as directed by District in writing. Forthwith properly patch and repair affected areas; replace damaged items with new items. Carefully and properly inventory, clean, pack, store, and protect District property; submit District property to District at a date, time and location as directed by District.

END OF DOCUMENT

DOCUMENT 01 64 00

OWNER-FURNISHED PRODUCTS

PART 47 – GENERAL

47.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions;

B. Special Conditions; and

C. Materials and Equipment.

47.02 SECTION INCLUDES

A. Requirements for the following:

(1) Installing Owner-furnished materials and equipment.

(2) Providing necessary utilities, connections and rough-ins.

47.03 DEFINITIONS

A. Owner: District, who is providing/furnishing materials and equipment.

B. Installing Contactor: Contractor, who is installing the materials and equipment furnished by the Owner.

47.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Receive, store and handle products in accordance with the manufacturer's instructions.

B. Protect equipment items as required to prevent damage during storage and construction.

PART 48 – PRODUCTS

48.01 GENERAL PRODUCT REQUIREMENTS

A. Installing Contractor's Responsibilities:

(1) Verify mounting and utility requirements for Owner-furnished materials and equipment items.

(2) Provide mounting and utility rough in for all items where required.

(a) Rough in locations, sizes, capacities, and similar type items shall be as indicated and required by product manufacturer.

B. Owner and Installing Contractor(s) Responsibilities:

(1) Owner-Furnished/Contractor Installed ("OFCI"): Furnished by the Owner; installed by the Installing Contractor.

(a) General: Owner and Installing Contractor(s) will coordinate deliveries of materials and equipment to coincide with the construction schedule.

(b) Owner will furnish specified materials and equipment delivered to the site. Owner/vendor's representative shall be present on Site at the time of delivery to comply with the contract requirements.

(c) The Owner furnishing specified materials and equipment is responsible to provide manufacturer guarantees as required by the Contract to the Installing Contractor.

(d) The Installing Contractor shall:

1) Review, verify and accept the approved manufacturer's submittal/Shop Drawings for all materials and equipment required to be installed by the Installer Contractor and furnished by the Owner. Any discrepancies, including but not limited to possible space conflicts, should be brought to the attention of the Project Manager and/or Program Manager, if applicable.

2) Coordinate timely delivery. Installing Contractor shall receive materials and equipment at Site when delivered and give written receipt at time of delivery, noting visible defects or omissions; if such declaration is not given, the Installing Contractor shall assume responsibility for such defects and omissions.

3) Store materials and equipment until ready for installation and protect from loss and damage. Installing Contractor is responsible for providing adequate storage space.

4) Coordinate with other bid package contractors and field measurement to ensure complete installation.

5) Uncrate, assemble, and set in place.

6) Provide adequate supports.

7) Install materials and equipment in accordance with manufacturer's recommendations, instructions, and Shop Drawings, supply labor and material required, and

make mechanical, plumbing, and electrical connections required to operate equipment.

8) Be certified by equipment manufacturer for installation of the specific equipment supplied by the Owner.

9) Provide anchorage and/or bracing as required for seismic restraint per Title 24, UBC Standard 27-11 and all other applicable codes.

10) Provide the contract-required warranty and guarantee for all work, materials and equipment, and installation upon its completion and acceptance by the District. Guarantee includes all costs associated with the removal, shipping to and from the Site, and re-installation of any equipment found to be defective.

C. Compatibility with Space and Service Requirements:

(1) Equipment items shall be compatible with space limitations indicated and as shown on the Contract Documents and specified in other sections of the Specifications.

(2) Modifications to equipment items required to conform to space limitations specified for rough in shall not cause additional cost to the District.

D. Manufacturer's printed descriptions, specifications, and instructions shall govern the Work unless specifically indicated or specified otherwise.

48.02 FURNISHED MATERIALS AND EQUIPMENT

A. All furnished materials and equipment are indicated or scheduled on the Contract Documents.

PART 49 – EXECUTION

49.01 INSTALLATION

A. Install equipment items in accordance with the manufacturer's instructions.

B. Set equipment items securely in place, rigidly or flexibly mounted in accordance with manufacturers' directions.

C. Make electrical and mechanical connections as indicated and required.

D. Touch-up and restore damaged or defaced finishes to the Owner's satisfaction.

49.02 CLEANING AND PROTECTION

A. Repair or replace items not acceptable to the Architect or Owner.

B. Upon completion of installation, clean equipment items in accordance with manufacturer's recommendations, and protect from damage until final acceptance of the Work by the Owner.

END OF DOCUMENT

SECTION 01 66 00

PRODUCT DELIVERY, STORAGE AND HANDLING

PART 50 - GENERAL

50.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Site Access, Conditions and Requirements;

B. Special Conditions.

50.02 PRODUCTS

A. Products are as defined in the General Conditions.

B. Contractor shall not use and/or reuse materials and/or equipment removed from existing Premises, except as specifically permitted by the Contract Documents.

C. Contractor shall provide interchangeable components of the same manufacturer, for similar components.

50.03 TRANSPORTATION AND HANDLING

A. Contractor shall transport and handle Products in accordance with manufacturer's instructions.

B. Contractor shall promptly inspect shipments to confirm that Products comply with requirements, quantities are correct, and products are undamaged.

C. Contractor shall provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

50.04 STORAGE AND PROTECTION

A. Contractor shall store and protect Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Contractor shall store sensitive products in weather-tight, climate controlled enclosures.

B. For exterior storage of fabricated Products, Contractor shall place on sloped supports, above ground.

C. Contractor shall provide off-site storage and protection when Site does not permit on-site storage or protection.

D. Contractor shall cover products subject to deterioration with impervious sheet covering and provide ventilation to avoid condensation.

E. Contractor shall store loose granular materials on solid flat surfaces in a well-drained area and prevent mixing with foreign matter.

F. Contractor shall provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.

G. Contractor shall arrange storage of Products to permit access for inspection and periodically inspect to assure Products are undamaged and are maintained under specified conditions.

PART 51 – PRODUCTS Not Used.

PART 52 - EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 71 23

FIELD ENGINEERING

PART 53 - GENERAL

53.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Site Investigation, and Soils Investigation Report;

B. Special Conditions;

C. Site-Visit Certification.

53.02 REQUIREMENTS INCLUDED:

A. Contractor shall provide and pay for field engineering services by a California-registered engineer, required for the project, including, without limitations:

(1) Survey work required in execution of the Project.

(2) Civil or other professional engineering services specified, or required to execute Contractor's construction methods.

53.03 QUALIFICATIONS OF SURVEYOR OR ENGINEERS:

Contractor shall only use a qualified licensed engineer or registered land surveyor, to whom District makes no objection.

53.04 SURVEY REFERENCE POINTS:

A. Existing basic horizontal and vertical control points for the Project are those designated on the Drawings.

B. Contractor shall locate and protect control points prior to starting Site Work and preserve all permanent reference points during construction. In addition Contractor shall:

(1) Make no changes or relocation without prior written notice to District and Architect.

(2) Report to District and Architect when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

(3) Require surveyor to replace Project control points based on original survey control that may be lost or destroyed.

53.05 RECORDS:

Contractor shall maintain a complete, accurate log of all control and survey work as it progresses.

53.06 SUBMITTALS:

A. Contractor shall submit name and address of Surveyor and Professional Engineer to District and Architect prior to its/their work on the Project.

B. On request of District and Architect, Contractor shall submit documentation to verify accuracy of field engineering work, at no additional cost to the District.

C. Contractor shall submit a certificate signed by registered engineer or surveyor certifying that elevations and locations of improvements are in conformance or nonconformance with Contract Documents.

PART 54 – PRODUCTS Not Used.

PART 55 - EXECUTION

55.01 COMPLIANCE WITH LAWS:

Contractor is responsible for meeting all applicable codes, OSHA, safety and shoring requirements.

55.02 NONCONFORMING WORK:

Contractor is responsible for any re-surveying required by correction of nonconforming work.

END OF DOCUMENT

DOCUMENT 01 73 29

CUTTING AND PATCHING

PART 56 – GENERAL

56.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Inspector, Inspections, and Tests, Integration of Work, Nonconforming Work, and Correction of Work, and Uncovering Work;

B. Special Conditions;

C. Hazardous Materials Procedures and Requirements;

D. Hazardous Materials Certification;

E. Lead-Based Paint Certification;

F. Imported Materials Certification.

56.02 CUTTING AND PATCHING:

A. Contractor shall be responsible for all cutting, fitting, and patching, including associated excavation and backfill, required to complete the Work or to:

(1) Make several parts fit together properly.

(2) Uncover portions of Work to provide for installation of ill-timed Work.

(3) Remove and replace defective Work.

(4) Remove and replace Work not conforming to requirements of Contract Documents.

(5) Remove Samples of installed Work as specified for testing.

(6) Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.

(7) Attaching new materials to existing remodeling areas – including painting (or other finishes) to match existing conditions.

B. In addition to Contract requirements, upon written instructions from the District, Contractor shall uncover Work to provide for observations of covered Work in accordance with the Contract Documents; remove samples of installed materials for testing as directed by District; and remove Work to provide for alteration of existing Work.

C. Contractor shall not cut or alter Work, or any part of it, in such a way that endangers or compromises the integrity of the Work, the Project, or work of others.

56.03 SUBMITTALS:

A. Prior to any cutting or alterations that may affect the structural safety of Project, or work of others, and well in advance of executing such cutting or alterations, Contractor shall submit written notice to District pursuant to the applicable notice provisions of the Contract Documents, requesting consent to proceed with the cutting or alteration, including the following:

(1) The work of the District or other trades.

(2) Structural value or integrity of any element of Project.

(3) Integrity or effectiveness of weather-exposed or weather-resistant elements or systems.

(4) Efficiency, operational life, maintenance or safety of operational elements.

(5) Visual qualities of sight-exposed elements.

B. Contractor's Request shall also include:

(1) Identification of Project.

(2) Description of affected Work.

(3) Necessity for cutting, alteration, or excavations.

(4) Effects of Work on District, other trades, or structural or weatherproof integrity of Project.

(5) Description of proposed Work:

(a) Scope of cutting, patching, alteration, or excavation.

(b) Trades that will execute Work.

(c) Products proposed to be used.

(d) Extent of refinishing to be done.

(6) Alternates to cutting and patching.

(7) Cost proposal, when applicable.

(8) The scheduled date the Contractor intends to perform the Work and the duration of time to complete the Work.

(9) Written permission of District or other District contractor(s) whose work will be affected.

56.04 QUALITY ASSURANCE:

A. Contractor shall ensure that cutting, fitting, and patching shall achieve security, strength, weather protection, appearance for aesthetic match, efficiency, operational life, maintenance, safety of operational elements, and the continuity of existing fire ratings.

B. Contractor shall ensure that cutting, fitting, and patching shall successfully duplicate undisturbed adjacent profiles, materials, textures, finishes, colors, and that materials shall match existing construction. Where there is dispute as to whether duplication is successful or has been achieved to a reasonable degree, the District's decision shall be final.

56.05 PAYMENT FOR COSTS:

A. Cost caused by ill-timed or defective Work or Work not conforming to Contract Documents, including costs for additional services of the District, its consultants, including but not limited to the Construction Manager, the Architect, the Project Inspector(s), Engineers, and Agents, will be paid by Contractor and/or deducted from the Contract by the District.

B. District shall only pay for cost of Work if it is part of the original Contract Price or if a change has been made to the contract in compliance with the provisions of the General Conditions. Cost of Work performed upon instructions from the District, other than defective or nonconforming Work, will be paid by District on approval of written Change Order. Contractor shall provide written cost proposals prior to proceeding with cutting and patching.

PART 57 - PRODUCTS

57.01 MATERIALS:

A. Contractor shall provide for replacement and restoration of Work removed. Contractor shall comply with the Contract Documents and with the Industry Standard(s), for the type of Work, and the Specification requirements for each specific product involved. If not specified, Contractor shall first recommend a product of a manufacturer or appropriate trade association for approval by the District.

B. Materials to be cut and patched include those damaged by the performance of the Work.

PART 58 – EXECUTION

58.01 INSPECTION:

A. Contractor shall inspect existing conditions of the Site and the Work, including elements subject to movement or damage during cutting and patching, excavating and backfilling. After uncovering Work, Contractor shall inspect conditions affecting installation of new products.

B. Contractor shall report unsatisfactory or questionable conditions in writing to District as indicated in the General Conditions and shall proceed with Work as indicated in the General Conditions by District.

58.02 PREPARATION:

A. Contractor shall provide shoring, bracing and supports as required to maintain structural integrity for all portions of the Project, including all requirements of the Project.

B. Contractor shall provide devices and methods to protect other portions of Project from damage.

C. Contractor shall, provide all necessary protection from weather and extremes of temperature and humidity for the Project, including without limitation, any work that may be exposed by cutting and patching Work. Contractor shall keep excavations free from water.

58.03 ERECTION, INSTALLATION AND APPLICATION:

A. With respect to performance, Contractor shall:

(1) Execute fitting and adjustment of products to provide finished installation to comply with and match specified tolerances and finishes.

(2) Execute cutting and demolition by methods that will prevent damage to other Work, and provide proper surfaces to receive installation of repairs and new Work.

(3) Execute cutting, demolition excavating, and backfilling by methods that will prevent damage to other Work and damage from settlement.

B. Contractor shall employ original installer or fabricator to perform cutting and patching for:

(1) Weather-exposed surfaces and moisture-resistant elements such as roofing, sheet metal, sealants, waterproofing, and other trades.

(2) Sight-exposed finished surfaces.

C. Contractor shall execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes as shown or specified in the Contract Documents including, without limitation, the Drawings and Specifications.

D. Contractor shall fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. Contractor shall conform to all Code requirements for penetrations or the Drawings and Specifications, whichever calls for a higher quality or more thorough requirement. Contractor shall maintain integrity of both rated and non-rated fire walls, ceilings, floors, etc.

E. Contractor shall restore Work which has been cut or removed. Contractor shall install new products to provide completed Work in accordance with

requirements of the Contract Documents and as required to match surrounding areas and surfaces.

F. Contractor shall refinish all continuous surfaces to nearest intersection as necessary to match the existing finish to any new finish.

END OF DOCUMENT

DOCUMENT 01 76 00

ALTERATION PROJECT PROCEDURES

PART 59 – GENERAL

59.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Integration of Work, Purchase of Materials and Equipment, Uncovering of Work and Non-conforming Work and Correction of Work and Trenches;

B. Special Conditions.

PART 60 - PRODUCTS

60.01 PRODUCTS FOR PATCHING AND EXTENDING WORK:

A. New Materials: As specified in the Contract Documents including, without limitation, in the Specifications, Contractor shall match existing products, conditions, and work for patching and extending work.

B. Type and Quality of Existing Products: Contractor shall determine by inspection, by testing products where necessary, by referring to existing conditions and to the Work as a standard.

PART 61 - EXECUTION

61.01 EXAMINATION:

A. Contractor shall verify that demolition is complete and that areas are ready for installation of new Work.

B. By beginning restoration Work, Contractor acknowledges and accepts the existing conditions.

61.02 PREPARATION:

A. Contractor shall cut, move, or remove items as necessary for access to alterations and renovation Work. Contractor shall replace and restore these at completion.

B. Contractor shall remove unsuitable material not as salvage unless otherwise indicated in the Contract Documents. Unsuitable material may include, without limitation, rotted wood, corroded metals, and deteriorated masonry and concrete. Contractor shall replace materials as specified for finished Work.

C. Contractor shall remove debris and abandoned items from all areas of the Site and from concealed spaces.

D. Contractor shall prepare surface and remove surface finishes to provide for proper installation of new Work and finishes.

E. Contractor shall close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity. Contractor shall insulate ductwork and piping to prevent condensation in exposed areas. Contractor shall insulate building cavities for thermal and/or acoustical protection, as detailed.

61.03 INSTALLATION:

A. Contractor shall coordinate Work of all alternations and renovations to expedite completion and to accommodate District occupancy.

B. Designated Areas and Finishes: Contractor shall complete all installations in all respects, including operational, mechanical work and electrical work.

C. Contractor shall remove, cut, and patch Work in a manner to minimize damage and to provide a means of restoring Products and finishes to original or specified condition.

D. Contractor shall refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat and square or straight transition to adjacent finishes.

E. Contractor shall install products as specified in the Contract Documents, including without limitation, the Specifications.

61.04 TRANSITIONS:

A. Where new Work abuts or aligns with existing, Contractor shall perform a smooth and even transition. Patched Work must match existing adjacent work in texture and appearance.

B. When finished surfaces are cut so that a smooth transition with new Work is not possible, Contractor shall terminate existing surface along a straight line at a natural line of division and make a recommendation for resolution to the District and the Architect for review and approval.

61.05 ADJUSTMENTS:

A. Where removal of partitions or walls results in adjacent spaces becoming one, Contractor shall rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.

B. Where a change of plane of 1/4 inch or more occurs, Contractor shall submit a recommendation for providing a smooth transition to the District and the Architect for review and approval.

C. Contractor shall trim and seal existing wood doors and shall trim and paint metal doors as necessary to clear new floor finish and refinish trim as required.

D. Contractor shall fit Work at penetrations of surfaces.

61.06 REPAIR OF DAMAGED SURFACES:

A. Contractor shall patch or replace portions of existing surfaces, which are damaged, lifted, discolored, or showing other imperfections, in the area where the Work is performed.

B. Contractor shall repair substrate prior to patching finish.

61.07 CULTIVATED AREAS AND OTHER SURFACE IMPROVEMENTS:

A. Cultivated or planted areas and other surface improvements which are damaged by actions of the Contractor shall be restored by Contractor to their original condition or better, where indicated.

B. Contractor shall protect and replace, if damaged, all existing guard posts, barricades, and fences.

C. Contractor shall give special attention to avoid damaging or killing trees, bushes and/or shrubs on the Premises and/or identified in the Contract Documents, including without limitation, the Drawings.

61.08 FINISHES:

A. Contractor shall finish surfaces as specified in the Contract Documents, including without limitations, the provisions of all Divisions of the Specifications.

B. Contractor shall finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, Contractor shall refinish entire surface to nearest intersections.

61.09 CLEANING:

A. Contractor shall continually clean the Site and the Premises as indicated in the Contract Documents, including without limitation, the provisions in the General Conditions and the Specifications regarding cleaning.

END OF DOCUMENT

DOCUMENT 01 77 00

CONTRACT CLOSEOUT AND FINAL CLEANING

PART 62 - GENERAL

62.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Completion of Work;

B. Special Conditions;

C. Temporary Facilities and Controls.

62.02 CLOSEOUT PROCEDURES

Contractor shall comply with all closeout provisions as indicated in the General Conditions.

62.03 FINAL CLEANING

A. Contractor shall execute final cleaning prior to final inspection.

B. Contractor shall clean interior and exterior glass and all surfaces exposed to view; remove temporary labels, tape, stains, and foreign substances, polish transparent and glossy surfaces, wax and polish new vinyl floor surfaces, vacuum carpeted and soft surfaces.

C. Contractor shall clean equipment and fixtures to a sanitary condition.

D. Contractor shall replace filters of operating equipment.

E. Contractor shall clean debris from roofs, gutters, down spouts, and drainage systems.

F. Contractor shall clean Site, sweep paved areas, and rake clean landscaped surfaces.

G. Contractor shall remove waste and surplus materials, rubbish, and construction facilities from the Site and surrounding areas.

62.04 ADJUSTING

Contractor shall adjust operating products and equipment to ensure smooth and unhindered operation.

62.05 RECORD DOCUMENTS AND SHOP DRAWINGS

A. Contractor shall legibly mark each item to record actual construction, including:

(1) Measured depths of foundation in relation to finish floor datum.

(2) Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permit surface improvements.

(3) Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.

(4) Field changes of dimension and detail.

(5) Details not on original Contract Drawings

(6) Changes made by modification(s).

(7) References to related Shop Drawings and modifications.

B. Contractor will provide one set of Record Drawings to District.

C. Contractor shall submit all required documents to District and/or Architect prior to or with its final Application for Payment.

62.06 INSTRUCTION OF DISTRICT PERSONNEL

A. Before final inspection, at agreed upon times, Contractor shall instruct District's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. For equipment requiring seasonal operation, Contractor shall perform instructions for other seasons within six months or by the change of season.

C. Contractor shall use operation and maintenance manuals as basis for instruction. Contractor shall review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

D. Contractor shall prepare and insert additional data in Operation and Maintenance Manual when the need for such data becomes apparent during instruction.

E. Contractor shall review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

62.07 SPARE PARTS AND MAINTENANCE MATERIALS

A. Contractor shall provide products, spare parts, maintenance, and extra materials in quantities specified in the Specifications and in Manufacturer's recommendations.

B. Contractor shall provide District with all required Operation and Maintenance Data at one time. Partial or piecemeal submissions of Operation and Maintenance Data will not be accepted.

PART 63 – PRODUCTS Not Used.

PART 64 – EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 78 23

OPERATION AND MAINTENANCE DATA

PART 65 – GENERAL

65.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Completion of the Work;

B. Special Conditions.

65.02 QUALITY ASSURANCE:

Contractor shall prepare instructions and data by personnel experienced in maintenance and operation of described products.

65.03 FORMAT:

A. Contractor shall prepare data in the form of an instructional manual entitled "OPERATIONS AND MAINTENANCE MANUAL & INSTRUCTIONS" ("Manual").

B. Binders: Contractor shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size. When multiple binders are used, Contractor shall correlate data into related consistent groupings.

C. Cover: Contractor shall identify each binder with typed or printed title "OPERATION AND MAINTENANCE MANUAL & INSTRUCTIONS"; and shall list title of Project and identify subject matter of contents.

D. Contractor shall arrange content by systems process flow under section numbers and sequence of Table of Contents of the Contract Documents.

E. Contractor shall provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

F. Text: The content shall include Manufacturer's printed data, or typewritten data on 24 pound paper.

G. Drawings: Contractor shall provide with reinforced punched binder tab and shall bind in with text; folding larger drawings to size of text pages.

65.04 CONTENTS, EACH VOLUME:

A. Table of Contents: Contractor shall provide title of Project; names, addresses, and telephone numbers of the Architect, any engineers, subconsultants, Subcontractor(s), and Contractor with name of responsible parties; and schedule of products and systems, indexed to content of the volume.

B. For Each Product or System: Contractor shall list names, addresses, and telephone numbers of Subcontractor(s) and suppliers, including local source of supplies and replacement parts.

C. Product Data: Contractor shall mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

D. Drawings: Contractor shall supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Contractor shall not use Project Record Documents as maintenance drawings.

E. Text: Contractor shall include any and all information as required to supplement product data. Contractor shall provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

F. Warranties and Bonds: Contractor shall bind in one copy of each.

65.05 MANUAL FOR MATERIALS AND FINISHES:

A. Building Products, Applied Materials, and Finishes: Contractor shall include product data, with catalog number, size, composition, and color and texture designations. Contractor shall provide information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Contractor shall include Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

C. Moisture Protection and Weather Exposed Products: Contractor shall include product data listing applicable reference standards, chemical composition, and details of installation. Contractor shall provide recommendations for inspections, maintenance, and repair.

D. Additional Requirements: Contractor shall include all additional requirements as specified in the Specifications.

E. Contractor shall provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

65.06 MANUAL FOR EQUIPMENT AND SYSTEMS:

A. Each Item of Equipment and Each System: Contractor shall include description of unit or system, and component parts and identify function, normal operating characteristics, and limiting conditions. Contractor shall include performance curves, with engineering data and tests, and complete nomenclature, and commercial number of replaceable parts.

B. Panelboard Circuit Directories: Contractor shall provide electrical service characteristics, controls, and communications.

C. Contractor shall include color coded wiring diagrams as installed.

D. Operating Procedures: Contractor shall include start-up, break-in, and routine normal operating instructions and sequences. Contractor shall include regulation, control, stopping, shut-down, and emergency instructions. Contractor shall include summer, winter, and any special operating instructions.

E. Maintenance Requirements: Contractor shall include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

F. Contractor shall provide servicing and lubrication schedule, and list of lubricants required.

G. Contractor shall include manufacturer's printed operation and maintenance instructions.

H. Contractor shall include sequence of operation by controls manufacturer.

I. Contractor shall provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

J. Contractor shall provide control diagrams by controls manufacturer as installed.

K. Contractor shall provide Contractor's coordination drawings, with color coded piping diagrams as installed.

L. Contractor shall provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

M. Contractor shall provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

N. Additional Requirements: Contractor shall include all additional requirements as specified in Specification(s).

O. Contractor shall provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

65.07 SUBMITTAL:

A. Contractor shall submit to the District for review two (2) copies of preliminary draft or proposed formats and outlines of the contents of the Manual within thirty (30) days of Contractor’s start of Work.

B. For equipment, or component parts of equipment put into service during construction and to be operated by District, Contractor shall submit draft content for that portion of the Manual within ten (10) days after acceptance of that equipment or component.

C. Contractor shall submit two (2) copies of a complete Manual in final form prior to final Application for Payment. Copy will be returned with Architect/Engineer comments. Contractor must revise the content of the Manual as required by District prior to District's approval of Contractor's final Application for Payment.

D. Contractor must submit two (2) copies of revised Manual in final form within ten (10) days after final inspection.

PART 66 – PRODUCTS Not Used.

PART 67 – EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 78 36

WARRANTIES

PART 68 - GENERAL

68.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Warranty/Guarantee Information;

B. Special Conditions.

68.02 FORMAT

A. Binders: Contractor shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size.

B. Cover: Contractor shall identify each binder with typed or printed title "WARRANTIES" and shall list title of Project.

C. Table of Contents: Contractor shall provide title of Project; name, address, and telephone number of Contractor and equipment supplier; and name of responsible principal. Contractor shall identify each item with the number and title of the specific Specification, document, provision, or section in which the name of the product or work item is specified.

D. Contractor shall separate each warranty with index tab sheets keyed to the Table of Contents listing, providing full information and using separate typed sheets as necessary. Contractor shall list each applicable and/or responsible Subcontractor(s), supplier(s), and/or manufacturer(s), with name, address, and telephone number of each responsible principal(s).

68.03 PREPARATION:

A. Contractor shall obtain warranties, executed in duplicate by each applicable and/or responsible subcontractor(s), supplier(s), and manufacturer(s), within ten (10) days after completion of the applicable item or work. Except for items put into use with District's permission, Contractor shall leave date of beginning of time of warranty blank until the date of completion is determined.

B. Contractor shall verify that documents are in proper form, contain full information, and are notarized, when required.

C. Contractor shall co-execute submittals when required.

D. Contractor shall retain warranties until time specified for submittal.

68.04 TIME OF SUBMITTALS:

A. For equipment or component parts of equipment put into service during construction with District's permission, Contractor shall submit a draft warranty for that equipment or component within ten (10) days after acceptance of that equipment or component.

B. Contractor shall submit for District approval all warranties and related documents within ten (10) days after date of completion. Contractor must revise the warranties as required by the District prior to District's approval of Contractor's final Application for Payment.

C. For items of work delayed beyond date of completion, Contractor shall provide an updated submittal within ten (10) days after acceptance, listing the date of acceptance as start of warranty period.

PART 69 - PRODUCTS Not Used.

PART 70 – EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 78 39

RECORD DOCUMENTS

PART 71 - GENERAL

71.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Documents on Work;

B. Special Conditions.

PART 72 - RECORD DRAWINGS

72.01 GENERAL:

A. Contractor shall maintain at each Project Site one set of marked-up plans and shall transfer all changes and information to those marked-up plans, as often as required in the Contract Documents, but in no case less than once each month. Contractor shall submit to the Project Inspector one set of reproducible vellums of the Project Record Drawings ("As-Builts") showing all changes incorporated into the Work since the preceding monthly submittal. The As-Builts shall be available at the Project Site. The Contractor shall submit a thumb drive with as-builts in CAD or Revit file format at the conclusion of the Project following review.

B. Label and date each Record Drawing "RECORD DOCUMENT" in legibly printed letters.

C. All deviations in construction, including but not limited to pipe and conduit locations and deviations caused by without limitation Change Orders, Construction Claim Directives, RFI's, and Addenda, shall be accurately and legibly recorded by Contractor.

D. Locations and changes shall be done by Contractor in a neat and legible manner and, where applicable, indicated by drawing a "cloud" around the changed or additional information.

72.02 RECORD DRAWING INFORMATION:

A. Contractor shall record the following information:

(1) Locations of Work buried under or outside each building, including, without limitation, all utilities, plumbing and electrical lines, and conduits.

(2) Actual numbering of each electrical circuit to match panel schedule.

(3) Locations of significant Work concealed inside each building whose general locations are changed from those shown on the Contract Drawings.

(4) Locations of all items, not necessarily concealed, which vary from the Contract Documents.

(5) Installed location of all cathodic protection anodes.

(6) Deviations from the sizes, locations, and other features of installations shown in the Contract Documents.

(7) Locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stubouts, invert elevations, etc.

(8) Sufficient information to locate Work concealed in each building with reasonable ease and accuracy.

In some instances, this information may be recorded by dimension. In other instances, it may be recorded in relation to the spaces in the building near which it was installed.

B. Contractor shall provide additional drawings as necessary for clarification.

C. Contractor shall provide reproducible record drawings, made from final Shop Drawings marked "No Exceptions Taken" or "Approved as Noted."

D. After review and approval of the marked-up specifications by the Project Inspector, Contractor shall provide electronic copies of the drawings (in PDF format) with one file with all of the sheets and one set of individual sheet files at the conclusion of the Project.

PART 73 - RECORD SPECIFICATIONS

73.01 GENERAL:

A. Contractor shall mark each section legibly to record manufacturer, trade name, catalog number, and supplier of each Product and item of equipment actually installed.

B. After review and approval of the marked-up specifications by the Project Inspector, Contractor shall provide one electronic copy of the specifications (in PDF format) at the conclusion of the Project.

PART 74 - MAINTENANCE OF RECORD DOCUMENTS

74.01 GENERAL

A. Contractor shall store Record Documents apart from documents used for construction as follows:

(1) Provide files and racks for storage of Record Documents.

(2) Maintain Record Documents in a clean, dry, legible condition and in good order.

B. Contractor shall not use Record Documents for construction purposes.

PART 75 – PRODUCTS Not Used.

END OF DOCUMENT

DIVISION OF WORK AMONG TRADE CONTRACTORS

PART 1 - GENERAL

1.1 SUMMARY

A. GENERAL NOTE: WORK ITEMS LISTED IN THIS SECTION ARE FOR CLARIFICATION ONLY AND ARE NOT INTENDED TO BE A COMPREHENSIVE LIST OF INCLUSIONS. IT IS THE RESPONSIBILITY OF EACH TRADE CONTRACTOR TO INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO COMPLETE THE WORK OF THEIR OWN BID PACKAGE AS SHOWN ON THE DRAWINGS, SPECIFICATIONS, AND MISCELLANEOUS REPORTS (CONTRACT DOCUMENTS).

B. As explained in this division of work, work of the total project is planned to be accomplished by dividing the total work among the various Trade Contractors, each contract of which is identified by a Bid Package number and title.

1.2 SCOPE OF CONTRACTS

A. It is essential that Trade Contractors carefully study all Contract Documents including but not limited to, drawings, specifications, addenda, alternates, as-built drawings, proposal packages, etc., to determine the amount of plant, labor, material, equipment, etc., necessary to accomplish the particular type of work upon which the proposal is made and for proper coordination and completion of the project as designed and scheduled. Trade Contractors must study all drawings to ensure all portions of work related to that Bid Package are covered in proposal amount. Contractors may find work identified in an individual Bid Package that may not be clearly identified on the drawing sheets. It is each contractor's responsibility to identify ALL work shown on all the Contract Documents and include the combined scope of work in their perspective proposal.

B. This section defines scope-of-work of the various Bid Packages involved in its construction.

1.3 DIVISION OF WORK AMONG THE TRADE CONTRACTORS

A. The project will be constructed through bid packages, as explained above.

1. Bid Package number and title will identify each of the contracts.

2. To enable better communication regarding the project, all parties involved are encouraged to cite Bid Package number and title in all written communications.

3. Each contract awarded will require its successful contractor, to provide all labor, material and equipment and perform all work necessary to accomplish the work described in the Bid Package upon which proposal is made and contract is awarded. It is essential that contractors carefully study the drawings and specifications to determine the labor, and material

necessary to accomplish the work upon which the proposal is made.

B. Bid Package Numbering:

1. The Bid Package numbering on the project has no other significance except to help readily identify the groupings of work.

PART 2 – BID PACKAGES

2.1 ALL BID PACKAGES - THE FOLLOWING WORK ITEMS ARE INCLUDED IN ALL BID PACKAGES:

A. **SUBMITTALS:** Submittal process shall begin immediately upon notification of intent to award contract, unless otherwise noted. Submittals, including product data, shop drawings, mock-ups, and samples must be turned in to Downey USD Facilities Department as required to maintain orderly and sequential progress of work in accordance with the project milestone schedule, and within the time period defined for each Bid Package in this section (Division of Work Among Trade Contractors). If no such time period is defined, then all submittals must be turned in no later than FIFTEEN (15) calendar days from the date of issuance of the Notice to Proceed or FIFTEEN (15) calendar days from the date of issuance of the contract (whichever comes first). Submittals must be electronically submitted to Downey USD Facilities Department. All samples must be delivered to the Downey USD Facilities Department Office.

B. **SUBMITTAL APPROVAL:** Each contractor shall obtain approval of submittals prior to putting work in place. Should the contractor fail to provide required submittals within the time frame indicated in the project documents, that contractor shall be responsible for all costs for delay and applicable liquidated damages.

C. **PAPERLESS PROJECT:** Downey Unified School District is moving toward full paperless projects. Correspondence, RFIs, submittals, and change orders need to be submitted electronically and emailed directly to the project team. Submittals which cannot be provided electronically (samples, color charts, etc.) shall be provided to the jobsite.

D. **TESTING/INSPECTION AGENCY COORDINATION:** This Contractor shall attend/assist all local, state, and third-party testing laboratory inspections applicable to this scope of work. This Contractor shall provide the required Supervision and personnel to facilitate all these inspections. This Contractor will assist any testing agency in obtaining samples and gathering data as needed relative to this contractor's scope of work. It is this contractor's responsibility to correct any and all failures of this scope of work discovered by testing or any other method that verifies faulty or unacceptable work. Any retesting and or inspections as a result of this Contractor will be at the expense of this Contractor. A minimum of 48-hour notice is required for inspections.

E. **STORAGE:** Contractor is responsible for storage and security of own materials and/or equipment located on and off jobsite property. Location of staging area to be determined/approved by Downey USD Facilities Department. Staging area may be subject to several moves onsite over the duration of the project. Provide own work shed, yard, lighting and security fence if required for storage. Contractor shall spread all materials on elevated floors in order to avoid overloading the decks.

F. **SURROUNDING NEIGHBORHOOD:** Contractor shall take into consideration the close proximity of community and businesses when planning and performing all work activities for this contract. Contractor shall allow for, and accommodate, such activity including but not limited to, coordinating material delivery, hauling, import/export, etc. during off-peak hours as needed, providing traffic control, flagman, and barricades as required, to perform work safely and protect the public. Each contractor shall provide at least one dedicated traffic control flagman on-site for deliveries who will be responsible for ensuring public safety

G. **DEWATERING:** Each Contractor is responsible for providing and maintaining dewatering operations as required to perform own work and eliminate ponding of water immediately after rainfall has occurred in order to allow these areas to dry out as quickly as possible. Dewatering to be done by whatever means necessary, including mechanical pumps, siphons, etc. Any SWPPP measures defeated or removed in the dewatering process shall be replaced per the posted SWPPP plan by the removing contractor. Dewatering for grading operation, trenches, footings, pits, slab areas, etc., shall be done immediately by affected contractor.

H. **SOILS AND SPOILS:** Contractor is responsible for all loading, hauling, removal from site and export/dumping of excess soils and spoils generated by own work. Each contractor is responsible for UV Resistant covering and gravel bags covering stockpiled soils as required for SWPPP compliance. Each stockpile must be coordinated with Downey USD Facilities Department and removed from site within five calendar days.

I. **SCHEDULE:** Contractor shall be responsible for complying with the Project Milestone Schedule, and shall include all staffing/manpower, and the ordering, fabrication, delivery of all materials and mobilizations to the job site. Contractors must review the project milestone schedule and associated updates to ensure that long- lead items will be stored on site and installed to meet the schedule and intent. Furthermore, contractor shall prepare, submit for approval, and maintain a schedule which agrees with the dates set forth in the Milestone Schedule. Contractor shall provide four (4) week look ahead schedules at the beginning of every month providing more detail than the baseline schedule provided by the Contractor. Contractors shall be held responsible for any and all costs for additional rush charges, expediting of deliveries for fabrication, shipping and storage charges if applicable, to meet the schedule.

J. **OVERTIME:** In the event the Project is rained out or prevented from working a full normal work week, then extended hours are to be worked including evenings, weekends and holidays to make up time lost. A time extension for weather related delay may be granted conditional upon all of the following:

1. Weather conditions causing delay are deemed abnormal with historical data identifying the severe weather incurred as abnormal for that period of time and could not have reasonably been anticipated, and such weather conditions had an adverse effect on the scheduled construction.
2. Such documented request for time extension must be submitted within five (5) calendar days of the actual delay.
3. The Contractor is entitled to the same time extension.
4. Delay affected the critical path of this Contractor's work.
5. Extended overhead costs or premium time will not be granted for delays incurred due to weather and/or other natural phenomenon.

Contractor also understands and agrees that from time to time there may be some overtime required to complete an area ahead of other trades, and all

such costs for this type of situation is included in the and Contract Phase Price. Schedule extensions will not be allowed for inadequate expediting of materials and equipment or for substandard performance by Contractor's forces or other causes within Contractor's control or the control of those for which it is responsible under this Agreement. This Contractor will be responsible for some or all of the liquidated damages if he is partially or fully responsible for the Project not being completed on time.

K. **PRE-CON/COORDINATION MEETING:** Contractor is responsible for arranging and participating in an individual Pre-con/Coordination meeting with the Downey USD Facilities Department no less than one week prior to mobilizing.

L. **EXISTING UTILITIES**: The Contractor acknowledges that he has visited the site and has satisfied himself as to the existing conditions of the site and its surrounding areas and the work to be performed and has verified locations of all existing Utilities within the construction areas prior to commencing Work. Contractor shall be responsible for repair and/or replacement of any existing items (streets, lights, sidewalks, utilities, work of other trades, etc...) which may have been damaged by their company during construction.

M. **LIMITATION OF OPERATIONS:** The Contractor hereby agrees to arrange own Work and material so as not to interfere with the operations of other contractors engaged upon adjacent work and to join own work to that of others in a proper manner in accordance with the intent of the Plans and Specifications and to perform own work in the proper sequence in relation to that of other Contractors and as directed by Downey USD Facilities Department. Contractor is responsible for coordination and protection of own work with other contractors.

N. **EMPLOYEE TRANSPORTATION:** Contractor shall bear all costs for any/all transportation required for Contractor's workforce.

O. **TEMP POWER:** Each contractor is responsible for portable ("task") lighting and extension cords necessary to complete own work. Electrical Bid Package shall provide temporary electrical power distribution (spider boxes) within structures. Each proposal package will be responsible for providing own electrical power and extension cords for work beyond the reach of supplied 'spider boxes'. If required, contractors may need to suspend all electrical cables to prevent trip hazards.

P. **TEMP WATER:** District will provide source of water at nearest available hose bib. Contractor to verify location.

Q. **CONFORMANCE WITH ALL PROJECT DOCUMENTS:** Contractor is responsible for conformance with all project documents, including but not limited to, the project manual, specifications, project drawings, addenda, reports, etc. The project documents are complementary, and what is called for by any one shall be as binding as if called for by all. The most stringent requirement prevails in the event of a conflict. Furthermore, contractors shall review the entire drawing set and all specifications, General and Supplemental General Conditions, etc. as a single, integrated whole and shall propose all work related to their respective trades, regardless of where the reference to the work is located or described. No Change Order will be considered or approved for any contractor for any work shown on any one portion or section of the drawings and specifications but not shown on all portions or sections.

R. **DAILY CLEAN-UP:** Contractor is responsible for the daily clean-up of own debris, scrap, trash, spoils, packing materials, boxes and removal from site each day. Jobsite shall be kept in a "broom-swept" condition at all times. In case of failure by contractor to provide sufficient cleanup, and after issuance of

48-Hour Notice, Downey USD Facilities Department will perform the cleanup and assess all costs against the contractor's Contract. Contractor shall be responsible for dust control measures as determined by Downey USD Facilities Department.

S. **HOISTING AND SCAFFOLDING:** Unless otherwise provided in the Contract Scope of Work, Contractor will furnish all hoisting and scaffolding required to perform its Work and will coordinate that hoisting and scaffolding with Downey USD Facilities Department Contractor will be responsible for all loading and unloading of its materials, tools and equipment from and onto hoists, elevators and/or cranes. Contractor will exercise the highest degree of care when loading, handling, or unloading materials and/or equipment, and erecting and using scaffolding. Contractor will meet or exceed all state, local or federal safety requirements, including those of OSHA. During regular working hours and without charge, the Contractor may share with Downey USD Facilities Department and other contractors the use of any cranes, temporary elevators and material hoists which may be available, for temporary hoisting purposes. However, use of this equipment is subject to Downey USD Facilities Department schedule and reasonable construction priorities. If equipment is available on an overtime basis and Contractor elects to utilize it, the cost for this use (equipment and operator) will be paid by Contractor.

T. **WORKMANSHIP**: Contractor will promptly remove, replace and/or correct all Contract Work rejected by Contractor or Owner as failing to conform to the Contract Documents, and Contractor will pay all costs related to any damage or repair to work performed by others required by such removal, replacement and/or correction. If Owner or Contractor deems it more expedient to repair property damage caused by Contractor, or to remove, replace and/or correct nonconforming Contract Work, or complete incomplete Contract Work, it may do so, and the related costs will be charged to Contractor.

U. **PROTECTION OF WORK:** Contractor is responsible for and will protect and secure its Work in place and any stored materials or equipment from the elements and other causes of damage until final completion of its Work. Unless otherwise provided in the Contract Scope of Work, the cost of protection is included in the Contract Price. If the contractor fails to provide protection, the contractor will be required to fix or replace any damage that is done to a finished product at no extra cost to the District. Downey USD Facilities Department is not responsible for damage to Contractor's Work or stored materials or equipment caused by others, but will cooperate with Contractor to secure payment for such damage from the responsible party. Contractor will cover all floor and roof openings required for its work and comply with all applicable OSHA standards in doing so. Contractor will not cause damage to the work, materials, or equipment of other contractors, and if such damage should occur, Contractor will pay all costs of repairing or replacing such damage.

V. **STORAGE OF MATERIALS:** All materials stored on-site must be clean, contained, and covered at all times with UV Rated coverings which meet the requirements. Stored materials must be kept off the ground. Contractor shall limit storage and lay down areas to those areas designated by Downey USD Facilities Department. Site constraints may require material deliveries phased with construction progress, and may require revision based upon milestone schedule updates. Contractor shall be responsible for relocation of staging area as necessary due to Construction Progress and as directed by Downey USD Facilities Department.

W. **LAYOUT:** Each contractor shall be responsible for their own layout, survey

and staking as required for own work. Contractor may use layout provided by other contractors at their own risk. Unless specifically identified in the scope of work, no additional layout, such as transfer of layout to individual buildings within the institution, building corners, etc., will be provided by the District. Contractor to verify all building corners and control points, to the best of their ability, prior to using such points for layout of this package's work. Any and all discrepancies are to be brought to the Contractors attention immediately and prior to the commencement of any work. Each contractor is responsible for re-staking should it be required due to stakes damaged or removed by contractor. Responsibility for protection of stakes placed for own work, including rebar/stake caps.

X. **DISCREPANCIES:** The Contract Documents are complimentary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce a complete assembly, system, or product consistent with the intended results. Contractor is required to review all documents and all necessary provisions to complete the work under this agreement. Dimensions shall be figures and not determined by scale or rule and as required by specifications. In the event of a conflict among the Contract Documents (i.e. Contract Drawings, Specifications, and applicable codes) the Contractor shall provide the greatest quantity, largest degree of safety, highest quality, or most stringent conditions of the work.

Y. **JOBSITE SAFETY:** Contractor shall adhere to all safety requirements for own work, in compliance with OSHA regulations and Downey USD Facilities Department's safety program. Hardhats, boots and long pants are required for all personnel at all times during construction of the Project. Failure to comply with Safety Regulations will be grounds for removal of personnel from the jobsite.

Z. **FLAMMABLE PRODUCTS:** Flammable products must be continually stored per OSHA regulations.

AA. **COMPLIANCE:** Contractor shall comply with regulatory agency, trade organization, and governing body requirements having jurisdiction over own work.

BB. **PROVIDE:** For purposes of this Division of Work, "Provide" shall include materials, fabrication, delivery, coordination and installation required for a complete system.

CC. **FIRE EXTINGUISHERS:** Provide fire extinguishers for own work per OSHA regulations. Each contractor shall be required to provide a fire extinguisher within 10' of any open flame at all times while work is taking place. Any fire extinguisher onsite is required to be inspected on a monthly basis and signed off as being inspected and be fully charged, as well as certified within the past 12 months.

DD. **JOBSITE HOURS:** In general, jobsite hours are Monday through Friday from 7:00 am until 4:00 pm. Contractor may work additional hours on weekends and evenings at the discretion of the Contractor provided proper notice is given to Contractor personnel at least 48 hours prior to work activities. Unless specifically authorized, Contractors may not exclusively work 4 day weeks or weekends, and must maintain a minimum weekly 5-day presence and workforce on the project while Contractor's work is underway. When other trades are working on weekends, Contractor is expected to provide personnel to support ongoing work as necessary.

EE. **VEHICULAR AND PEDESTRIAN TRAFFIC**: The Contractor shall not block or

disturb any roads, sidewalks, gates or entrances used by institution operations for access to the existing facilities, nor use any part hereof for storage of materials unless approved by the Contractor and applicable operations staff.

FF. **DESIGNATED AREAS:** The use of tobacco products of any kind will not be allowed within the confines of the project site. Contractor shall police its own employees to ensure compliance with this policy. Break areas must be cleaned daily by all Contractors.

GG. **TEMPORARY FACILITIES**: The District shall provide all temporary jobsite power and water. Contractors that choose to use temporary power and water for their own on-site facilities shall be responsible for providing water and power lines from their own facilities to these connections.

HH. **JOB SIGNS:** No signs will be permitted to be displayed at the Jobsite unless authorized by Downey USD Facilities Department and that all work will be of good quality, free from faults and defects and in conformance with the Contract Documents. A minimum of three (3) copies of the warranties, guarantees, certificates, etc., or as required elsewhere by the Contract Documents, shall be submitted complete to Downey USD Facilities Department. One-year (or longer as specified in the Contract) warranty or guarantee time periods shall not commence until all of the following conditions have been satisfied (Note all cost associated with extended warranties, special warranties, guarantees, certificates, etc. required to meet the following requirements are included in this Contractors scope and Contract Price):

1. Substantial Completion issued for the Project;
2. Final Acceptance of the Project by the District;
3. This Contractor has provided all of the specified warranty/guarantee documentation to Contractor; this includes proof of Contractor payment for any specialty warranties required above and beyond the standard one-year contractor workmanship and materials warranty;
4. This Contractor has provided video training for the operation and maintenance of all Systems/Equipment; and
5. This Contractor has provided manuals for the operation and maintenance of the System/Equipment.
6. Failure to respond to warranty/guarantee work within forty-eight (48) hours of written notice and/or diligently pursuing corrective measure shall be considered a Contractor breach of warranty/guarantee.

II. **SUPERVISION AND COOPERATION:** Contractor will employ a competent and skilled Project staff, including a qualified English-speaking superintendent (or lead foreman) who will be in attendance full-time at the Project site during the progress of the Work (including work performed by subcontractors) and at other times necessary for the successful conclusion of the Project, including periods of warranty Work. The superintendent will be reasonably satisfactory to Downey USD Facilities Department and will not be changed except with the consent of the District, unless the superintendent proves to be unsatisfactory to Contractor or ceases to be in its employ. The superintendent will represent Contractor and will have full authority to make decisions and commitments regarding Contractor's Work; and all communications and notices given to the superintendent will be as binding as if given to Contractor. Contractor represents that its superintendent is an expert in the Work, is a competent person as defined by OSHA, and is knowledgeable of all EPA requirements, local safety regulations and local codes. Contractor will be represented at all job meetings by the superintendent and such other persons as Downey USD Facilities Department may from time to time reasonably request to have

present. After notice and consultation between Contractor and Contractor, the Contractor will immediately remove from the Project any employee, including the superintendent, who is not reasonably satisfactory to the District at no cost to the District and with no extension of time.

JJ. **POINT OF CONTACT:** Downey USD Facilities Department will be the main point-of-contact for all Trade Contractors.

KK. **DAILY REPORTS:** Contractor's superintendent, foreman, or other designated individual will email a report to Downey USD Facilities Department before the end of each shift whenever Contractor has employees working on the Project. The report will state the number of employees Contractor has on the Project that shift, subdividing same into categories (foreman, tradesmen, laborers, apprentices, and the like), the major equipment on site during that shift, and activities or Work performed that shift.

LL. **MULTIPLE MOBILIZATIONS:** Contractor shall include multiple mobilizations as to comply with construction schedule.

MM. **IMPORTED SOILS:** All contractors are responsible for compliance with the Department of Toxic Substances Control (DTSC) guidelines for imported soils. When soils import is required, each contractor shall be responsible to use and shall certify that the imported material it uses is free of any hazardous and/or toxic substance or material of any nature or type as defined in accordance with California Law and the California Health and Safety Code. The District reserves the right to reject any imported material that has come from agricultural or commercial land uses. Contractor must notify the District of the source of material, perform any required testing, and comply with all laws, regulations and requirements of the entities having jurisdiction and comply with the guidelines of DTSC.

NN. **PRE-DIG REQUIREMENTS:** All contractors that will be performing any excavation (Pot Holing/Trenching/Etc.) are required to attend a "Pre-Dig" conference with Downey USD Facilities Department personnel. Contractor attendees **MUST INCLUDE** jobsite foreman, Competent Person in Trenching & Excavation, Equipment operator and/or individual(s) performing the excavation, as well as any other lead personnel directly associated with the excavation phase of the project. A "Pre-Dig" authorization form and a job site specific excavation safety plan must be submitted prior to this conference and will be reviewed at this time.

OO. **BACKING:** It is the responsibility of the contractor to provide Downey USD Facilities Department and affected contractor(s) with all backing requirements for own work prior to associated construction activities (for example, wall framing operations, etc.). Contractors shall also verify that all backing is installed properly. Failure to provide backing requirements transfers backing responsibility to each contractor for their own work.

PP. **EMBEDDED ITEMS:** Contractor is responsible for the layout of its own items located in concrete, masonry, asphalt, decking, or framing prior to installation of concrete, masonry, asphalt, decking, or framing. In the event layout does not occur in a timely manner, that contractor becomes responsible for all rework, reframing, coring, cutting, etc. required to install own work, and any repairs or replacement required to bring the finished area back to as new condition. In addition, contractor shall provide cut sheets indicating layout dimensions.

QQ. **ADDITIONAL BACKING/EMBEDDED ITEMS REQUIREMENTS:** Contractor is expected to become fully aware of the most current schedule requirements in order to coordinate and provide all rough openings, backing, fastening, shoring, sleeve and curb layouts, and any other critical rough-in information

no later than five (5) days prior to pouring of concrete, asphalt operations, or framing start for each building and/or area. Failure to do so transfers responsibility back to that contractor. Contractor shall be responsible for all rework or added costs due to layout not being provided before work is laid out and placed.

RR. **MEP PENETRATIONS:** All Mechanical, Electrical and Plumbing penetrations through roof shall comply with the project documents. If requested by Downey USD Facilities Department or required in the project documents, contractor shall submit sleeve penetration plans for coordination.

SS. **SAW CUTS/CORE DRILLING**: Concrete saw cuts, removal and concrete replacement as required to install work within this agreement is included. No saw cuts or core drillings are to be performed without written approval from Contractor. It is understood that coring will not be done using on-site temporary power. For safety purposes, while conducting core drilling operations, a shop vacuum or wet dry vacuum must be used to keep surrounding work areas free of water slurry and other debris created by the core drilling operation. Any concrete slurry shall be removed by Contractor.

TT. **DEFERRED APPROVALS:** Contractor shall obtain all deferred approvals as specified on drawings or specifications in a timely manner so as not to impact the schedule.

UU. **APPLIED FIREPROOFING:** Contractor shall remove fireproofing only as needed to install own work. Contractor shall coordinate with fireproofing applicator to confirm locations and completion of all supports prior to application of fireproofing.

VV. **REMOVAL/DISPOSAL:** Each contractor is responsible for the removal & disposal of any site or exterior surfaces (i.e. hardscape, landscape, etc.) as required to perform own work (including but not limited to underground work, utility installation, etc.) and shall provide for the replacement of the same (i.e. new concrete, asphalt, sod, etc.). When concrete is being replaced, contractor shall remove and replace concrete from joint- to-joint including providing doweling as required.

WW. **WELDING:** Contractor shall provide all welding required for own work. Contractor shall submit welder's certifications. Additionally, Downey USD Facilities Department requires a hot work permit to be submitted and approved prior to the start of any related "hot" work.

XX. **ACCESS PANELS:** Contractor shall be responsible for providing all access panels necessary to properly access their own work (Floors, Walls, Soffits, or Ceilings). These access panels may or may not be shown on the Contract Documents and must meet the same fire rating as the floor/wall/ceiling in which it is installed. Contractor will be responsible for all security or non-security access panels based on the security requirements of the wall. If a security access panel/non security access panel is required, Contractor will be required to provide the necessary security locks matching the master key system. If the access panel is on-site prior to the Floor, Wall, Soffit, or Ceiling being constructed, the Contractor constructing the wall will be responsible for the installation. However, if the access panel is not on site during the construction of the wall, this Contractor shall install the panels. In either case this contractor is responsible for the layout and location of all necessary access panels.

YY. **FINISHED SURFACES:** Contractor acknowledges that some of the floors, walls, and ceilings are exposed concrete floors/finished product (including polished or stained concrete). Contractor shall protect all exposed surfaces from any type of staining or scarring associated with activities of their work.

Contractors shall further be aware of the project's finished wall and floor surfaces. The use of permanent layout markings (i.e.; spray paint, lumber pencil and crayon, dyes, concrete nail, wedge anchors, etc.) that leave a permanent mark or discoloration on exposed surfaces shall be strictly prohibited. All equipment with rubber tires used within structures or on- site concrete shall be protected from leaving tire or tread marks on finished surfaces. Any corrective actions required to remedy permanent damage or discoloration shall be by the responsible contractor(s).

ZZ. **NEW CONCRETE:** Newly placed concrete shall be secured and protected to ensure that concrete will be free of graffiti or other defacement at time of acceptance. Freshly placed concrete with graffiti (or otherwise defaced) shall be replaced at contractor's expense.

AAA. **NO PENETRATIONS:** No penetrations whatsoever will be permitted in a structural member or associated formwork without prior written approval.

BBB. **SHORING:** Contractor includes all shoring as required to perform own work, including engineering calculations as required.

CCC. **POSTED DOCUMENTS:** Contractor shall maintain a fully posted set of contract documents. It is the responsibility of the Contractor to maintain their own current set of documents.

DDD. **TESTING AND INSPECTION:** Each contractor is responsible for submitting and coordinating all inspection requests required of the IOR with at least 48-hour notice. Contractor shall coordinate testing and inspections in accordance with the drawings and specifications. Each contractor shall be responsible for all costs for re-testing, and re-inspections, should initial tests or inspections fail. Each contractor shall be responsible for all costs incurred due to late cancellation of inspection and/or testing. Each contractor shall be responsible for attending all pre-walks and shall complete all required contract work before requesting an inspection.

EEE. **PROGRESS PAYMENTS:** Each contractor shall furnish a Progress Billing that shall include an Application for Payment (AFP) on AIA Form G-702 standard form by the 15th day of each month in which work is performed. Each AFP that is turned in on the 15th of each month will be projected through the end of that current month. The application for payment form must be accompanied by an updated schedule of values and all required releases and supplier releases. As-built drawings must be updated by each contractor by the 15th day of each month as a pay-precedent requirement. Pay-precedent requirements also include the submission of documentation required by the project documents including – but not limited to – daily reports, certified payrolls, labor compliance documentation, scheduling information, safety documentation, etc.

FFF. **COST PROJECTIONS:** Each contractor shall provide detailed monthly cost projections on a quarterly basis. First quarter cost projections shall be submitted within 10 calendar days following schedule of values approval.

GGG. **AS-BUILT DRAWINGS (RECORD DRAWINGS):** During the progress of the work, all Contractors shall record on their field set of drawings the exact locations, as installed, of all underground and concealed conduit pipe and duct lines which were not installed exactly as shown on the drawings. Pipe lines and ducts which are installed in furred spaces, pipe chases, or other spaces which can be readily inspected by the use of access panels or other means will not be considered concealed. In electrical and security work, the exact conduit runs shall be shown on these drawings. Upon completion of the Work, this data shall be recorded to scale in ink or onto CAD drawings by a competent draftsman. Contractor shall provide preliminary as-built drawings for architect/engineer approval and a final as-built set in accordance with the

project specifications. Each contractor's as-built drawings will be reviewed on a monthly basis. This Contractor shall provide electronic copies of the as-built drawings as part of the closeout requirements. If CAD drawings are not available this Contractor shall provide PDFs of the hand drawings.

HHH. **CLOSEOUT:** Each contractor shall provide complete closeout documentation, extra stock, testing reports, operation and maintenance manuals, as-built drawings, guarantees and warranties as applicable to their own work one month upon delivery of major equipment or two months prior to completion of the project, whichever is greater, unless indicated otherwise within the contract documents and/or project schedule.

III. **TRAINING:** Provide all owner training and instruction for own work as shown on drawings or included in specifications. Provide videotaping of instructional sessions/training and DVD copies of same if requested by District at no additional cost to the District.

JJJ. **COMPOSITE CLEAN-UP CREW:** In order to ensure a clean, safe jobsite, a composite clean-up crew will be formed from all Contractors on the project. This crew will be responsible only for the cleaning and removal of the general accumulation of trash, waste materials, dirt, unidentifiable trash, SWPPP maintenance, etc., not attributable to a single Contractor; and, will be formed once weekly or as needed based on job conditions. Each contractor shall provide for the equivalent of one (1) man, for four (4) hours each week (in which a contractor is performing work on-site). The day and time will be determined by Downey USD Facilities Department. The composite crew does not relieve Contractor from responsibility of daily clean-up.

KKK. **TIME IS OF THE ESSENCE:** Time is of the essence for this Contract. Contractor will start work immediately when notified by Downey USD Facilities Department, and prosecute and complete the Contract Work at such times as to fully comply with the Contract Documents. The Milestone Schedule, supplementary schedules and revisions are incorporated and are collectively referred to as the 'Project Schedule'. Contractor will acquaint itself with and be familiar with its items of work and the relationship of its Contract Work with that by other persons in all such schedules and perform its Contract Work in accordance with the Project Schedule, including the supplementary schedules. Downey USD Facilities Department reserves the right to re-sequence or reschedule the Contract Work from time to time in order to meet the contractual completion date for the Project. In the event that Contractor believes that such re-sequencing or rescheduling will cause it to incur additional time or cost, Contractor shall notify Contractor immediately or will forfeit such claim. Contractor will, at all times, keep Downey USD Facilities Department informed about any pending or potential delays to the Contract Work, including any delivery delays. Contractor is bound by any damages provisions in the Contract Documents, including any provisions concerning liquidated or consequential damages owing to District, to the extent caused by Contractor.

LLL. **CERTIFIED PAYROLL:** Certified Payroll is to be sent electronically to the assigned jobsite Project Accountant. *NO HARD COPIES TO BE SENT*.

MMM. **INSURANCE:** Insurance is to be sent electronically to Downey USD Facilities Department.

NNN. **CHANGES IN WORK:** All change proposals must strictly comply with the Project Documents, including but not limited to any mark-up limitations, and be submitted in time for the Contractor to comply with the timeliness requirements thereof, or Contractor's claim is waived. Contractor is bound by any decisions of Owner or Architect relating thereto

OOO. **MOST STRINGENT SHALL APPLY:** Contractor agrees that work shown on the drawings but not included in specifications or included in specifications and not shown in drawings shall be as if included or shown in both for performance purposes of this Contract.

PPP. **DUPLICATE WORK:** The work noted in each Bid Package in this section must be included in that proposal, regardless of what any other Bid Package states. If there is a duplication of work between your package and another, forward a Proposal Clarification Request. If the time allotted for Proposal Clarification Requests has expired, include the work in your proposal. If duplications are discovered after award of proposal, Downey USD Facilities Department will make a determination of the responsibility to provide the duplicated work. Contractor not directed to perform work will provide a credit for the deleted work.

2.2 BID PACKAGE NUMBER 1 – GENERAL CONTRACTOR

A. 02 41 00 –Demolition
B. 31 10 00 – Site Clearing
C. 05 05 19 – Post-Installed Concrete Anchors
D. 05 50 00 – Metal Fabrications
E. 03 10 00 – Concrete Forming and Accessories
F. 03 20 00 – Concrete Reinforcing
G. 03 30 00 – Cast-In-Place Concrete
H. 03 35 11 – Concrete Floor Finishes
I. 31 22 00 – Grading
J. 31 23 16 – Excavation
K. 31 23 16.13 – Trenching
L. 31 23 23 – Fill
M. 32 11 23 – Aggregate Base Courses
N. 32 12 16 – Asphalt Paving
O. 32 13 13 – Concrete Paving
P. 32 31 13 – Chain Link Fences and Gates
Q. 03 20 00 – Concrete Reinforcement
R. 09 91 23 – Exterior Painting

S. Contractor shall coordinate timeline of work prior to demo activities as there may be activities that require structural preparation before the demolition can be completed.
T. Contractor is responsible for ensuring that all equipment on-site is in a safe, well-maintained condition and that all permits necessary to use the equipment are in place and available for review by Downey USD Facilities Department. Operators of all equipment shall be trained in the use of the specific piece of equipment and shall be certified as required by all governing authorities.
U. Provide all demolition and hazardous materials removal per drawings and specifications. This includes items specified under all specification sections and reports. Responsible for payment of all dump fees, hauling fees, or other costs associated with hazardous material demolition, removal, hauling, dumping, etc.
V. Repair, restore or replace items removed or damaged inadvertently by demolition and abatement operations but not shown to be removed.
W. Provide any and all shoring, temporary walls and/or beams if required for support due to demolition activities.
X. All penetrations through any slab or roof shall be covered and properly labeled.
Y. Remove, haul-off and dispose of all debris from the work area on a daily basis. After demolition of each area is complete leave area broom-clean and ready for the following trade.
Z. Removal of surplus material and debris to a legal disposal site, including payment of all dump fees.
AA. Provide street sweeping and dust control as required during all phases of construction and on a daily basis

when required.
BB. Contractor shall install safety flags on all existing overhead wiring prior to the start of work.
CC. The District has requested that existing spoils/debris on-site be removed. Contractor shall visit the site to determine quantity of spoils to be removed.
DD. This Contractor is responsible for providing waste removal and dumpsters required for own work.
EE. Contractor shall provide one (1) 40-yard dumpsters to be used at the direction of Downey USD Facilities Department. Dumpsters shall be itemized

on contractor's schedule of values. Provide credit for unused dumpsters. Dumpsters may be requested at any time during the project.

FF. Contractor shall provide all materials and labor required to provide all structural steel and metal fabrications per plans and specifications.

GG. All cutting, shaping, welding shall be by certified welders. Submit welder's certifications.

HH. Supply and install all fasteners, adhesives, steel to steel connections and any accessories required for a complete installation.

II. Provide all steel decking per plans and specifications, including all new nelson studs and strap bracing. Contractor shall be responsible for locating and coring for new nelson studs, including patch back as required.

JJ. Cleaning as required of any materials scheduled to receive paint or other finishes.

KK. All shop priming, galvanizing, & field touch up painting of own work. Field prime all connections performed on and off site. Primer to be approved by Architect.

LL. Contractor shall furnish ladders, lifts, scaffolding or any other materials and/or equipment needed to complete this scope of work.

MM. Supply of metal items embedded in concrete or masonry, including anchor bolt templates for structural steel, nuts and washers. All anchor bolts to be installed in templates with supervision by proposing contractor at time of concrete or masonry installation. Contractor shall provide all drilling/epoxy required for expansion anchors and bolts that cannot be embedded.

NN. Provide shop drawings showing dimensions, measurements, and elevations for embedded items to Downey USD Facilities Department and all affected contractors for coordination of field layout.

OO. Verification in writing of layout of embedded items prior to concrete pour. Failure to provide such verification shall result in this Bid Package assuming responsibility for any corrections that are required.

PP. Contractor is responsible for making their work areas safe for other trades. This includes, but is not limited to, signage, caution tape, physical barriers, welding blankets etc. Contractor is to protect all openings specific to this scope of work while installing this work. Contractor is to replace any barriers/opening covers removed due to the execution of this work.

QQ. Provide all steel framing supports and brackets required for casework and shelving.

RR. Furnish and install all miscellaneous metals per drawings and specifications, including but not limited to ornamental fencing & gates, all handrails, guardrails (including mesh), counter supports, grab rails, metal wall panels, parapet ladders and all associated sleeves per drawings and specifications. Contractor shall provide all metal cladding indicated in the project documents.

SS. Contractor shall provide all gate hardware.

TT. Provide concrete for all chain link and ornamental fencing and gates, including concrete for sliding gate tracks and poles.

UU. Contractor shall furnish and provide layout requirements for all embedded items. Contractor shall furthermore coordinate backing requirements and layout with other contractors.

VV. Contractor is responsible for re-priming where necessary due to handling, erection, and field welding. PP. Contractor shall remove fireproofing as necessary to install own work.

WW. Import materials as necessary to comply with project drawings and specification requirements. Obtain approval for all import material prior to import operations if required.

XX. Point and patch as necessary to produce a neat, uniform appearance ready to

receive caulking, sealant, plaster or other finish.

YY. Provide cleaning of streets and dust control as necessary for the duration of scheduled concrete operations, or as required by Downey USD Facilities Department.

ZZ. Layout and install bolts, embeds, ledgers, connectors, sleeves, or anchors, including templates, Coordinate layout and sequence of construction with other trades, allowing sufficient time for submittals and procurement of materials, and schedule coordination with other trades.

AAA. Fill existing abandoned openings, providing and installing all drilling, doweling, reinforcing, epoxy, caulks, and sealants.

BBB. Concrete trucks to be washed out at an area coordinated with Downey USD Facilities Department staff. This contractor to provide an approved washout bin and is responsible for removal of all washout debris to a legal, off-site disposal location. Provide signage reading "Concrete Washout Area". Provide water for washouts.

CCC. Provide all grading and earthwork per plans, specifications, and geotechnical reports within the building footprint. Contractor acknowledges conformance with the Asbestos Cement Management Plan.

DDD. Contractor shall remove and haul away existing soil per the Geotechnical reports.

EEE. Contractor shall provide all scarification, backfill and re-compaction per the Geotechnical reports.

FFF. Responsible for payment of all dump fees, hauling fees, or other costs associated with hazardous material demolition, removal, hauling, dumping, etc.

GGG. Remove, haul-off and dispose of all debris from the work area on a daily basis. After demolition of each area is complete leave area broom-clean and ready for the following trade.

HHH. Comply with all SWPPP requirements per drawings, specifications, addenda and Regional Water Quality Control Board (RWQCB) requirements.

III. Provide street sweeping and dust control as required during all phases of construction and on a daily basis when required.

JJJ. Contractor is responsible for survey for own work.

KKK. Provide for touch up and re-painting of damaged areas as necessary after installation of all finishes and prior to punch walk.

LLL. Scheduling for this work will be determined by Downey USD Facilities Department.

MMM. Store paint materials in a single suitable place in compliance with health and fire regulations. Keep such storage place neat and clean, void of oily or solvent containing rags, waste, etc. taking every precaution to avoid the danger of fire. Place waste cloths and used painting materials that may constitute a fire hazard in closed metal containers and remove from jobsite daily.

NNN. Provide a washout container approved for use by the State Water Resource Board. Empty as needed and on a regular basis.

OOO. Provide all staining, transparent finishing, high-performance coatings, and elastomeric coatings per plans and specifications.

PPP. All surfaces not deemed to be properly painted shall be corrected by this contractor at no additional cost. A properly painted surface shall be; uniform in appearance, color, texture, and sheen. Free of foreign material, lumps, skins, runs, sags, holidays, misses or insufficient coverage. Also free of drips, spatters, spills or overspray.

[END OF SECTION]

2.3 BID PACKAGE NUMBER 2 – ELECTRICAL

A. 26 01 00 – Basic Electrical Requirements
B. 26 01 60 – Cabinets and Enclosures
C. 26 05 00 – Common Work Results for Electrical
D. 26 05 19 – Low-Voltage Electrical Power Conductors and Cables
E. 26 05 26 – Grounding and Bonding for Electrical Systems
F. 26 05 29 – Hangers and Supports for Electrical Systems
G. 26 05 32 – Identification for Electrical Systems
H. 26 05 33 – Raceways and Boxes for Electrical Systems
I. 26 05 48 – Vibration and Seismic Control Electrical Systems
J. 26 05 72 – Acceptance Testing
K. 26 22 01 – Dry-Type Transformers
L. 26 24 16 – Panelboards
M. 26 27 26 – Wiring Devices
N. 31 23 16 – Excavation
O. 31 23 16.13 – Trenching
P. 31 23 23 – Fill

Q. Contractor shall provide, layout, and install all block outs in walls and floors required for own work.
R. Contractor shall provide power to all systems, including but not limited to, irrigation equipment, low voltage systems, signage (if required), building automation systems, audiovisual systems, PA/clock systems, security stems, CCTV systems, doors, motor-operated roller shades, visual display units, elevators, and plumbing, sprinkler, and HVAC equipment.
S. Contractor shall provide a code-compliant fire/life/safety system per the Project Documents, including, but not limited to, all fire alarm devices, wiring, connections, panels, etc. as required for a complete and operating system.
T. Contractor shall meet all fire/life/safety requirements as required by the Project Documents, Fire Marshall, or any other governing agency related to the electrical system. Contractor is responsible for pre-testing their system and to provide any reports required in order to schedule final testing.
U. Contractor shall provide access to all detectors, tampers, and miscellaneous equipment as required for inspections and servicing.
V. Contractor shall provide off-hours testing of the fire/life/safety system if required.
W. Contractor has visited the site and is aware of all existing condition. Contractor shall field-verify all POCs prior to commencing work.
X. Contractor shall provide all excavation, dewatering, bedding, backfill, compaction, tape, concrete and sleeves for underground electrical cables, conduits and duct banks.
Y. Provide saw-cutting and demolition in hardscapes for installation of own work. Contractor shall return disturbed surfaces to same condition as originated.
Z. Provide all signage and/or labeling required for own work.
AA. Provide all cabinets and mounting boards for own work, including plywood backboards.
BB. Provide power to and connection of tamper switches to fire alarm system.
CC. This Bid Package shall provide, install, and maintain temporary electrical distribution system for all areas of the project through the duration of construction. Service to be initiated immediately upon receipt of Notice to Proceed or issuance of Contract, whichever comes first. Temporary distribution to include spider boxes to within 100’ of any portion of construction on each floor. Temporary power shall be provided by the District—contractor to

coordinate/confirm location of POC.

DD. Contractor is responsible for all testing, cleaning, inspection, balancing and maintenance of own work until Owner's acceptance.

EE. Contractor shall provide formal owner training classes for all Electrical and Fire/Life/Safety systems which are installed by Contractor.

FF. Contractor shall provide as-built drawing in PDF.

GG. Fill existing abandoned openings, providing and installing all drilling, doweling, reinforcing, epoxy, caulks, and sealants.

HH. Concrete trucks to be washed out at an area coordinated with Downey USD Facilities Department staff. This contractor to provide an approved washout bin and is responsible for removal of all washout debris to a legal, off-site disposal location. Provide signage reading "Concrete Washout Area". Provide water for washouts.

[END OF SECTION]

Project Manual

Columbus Welding Program

Downey Unified School District
Downey, CA

sgh ARCHITECTS

707 Brookside Avenue
Redlands, CA 92373
909-375-3030

September 9, 2021
SGH Project No. 21-59101-00

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END OF SECTION

SECTION 00 01 07

SEALS PAGE

ARCHITECT OF RECORD (AOR)

SGH ARCHITECTS, INC.

707 Brookside Avenue, Redlands CA 92373

Scott N. Griffith, Architect of Record C-24897



ELECTRICAL ENGINEER OF RECORD (EEOR)

DCGA ENGINEERS

4750 East Ontario Parkway, Ontario, California 91764

Chen Hsing Fang E-16592



END OF SEALS PAGE

SECTION 02 41 00
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of built site elements.

1. Demolition and removal of existing site improvements within Project area, as indicated on Drawings and as necessary to accomplish the Work, including:
    a. Asphaltic concrete and portland cement concrete paving.
    b. Abandoned underground utility lines outside of utility easement.
    c. Pavement cutting and removal.
    d. Debris removal.
2. Handling and disposal of removed materials.
3. Dewatering of excavations as necessary to control surface and sub-surface water.

B. Abandonment and removal of existing utilities and utility structures.

1.02 RELATED REQUIREMENTS

A. Section 31 10 00 - Site Clearing: Vegetation and existing debris removal.

B. Section 31 22 00 - Grading: Topsoil removal.

C. Section 31 23 23 - Fill: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

1.03 REFERENCE STANDARDS

A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.

B. CFC Ch. 33 - Fire Safety During Construction and Demolition; Current Edition.

C. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2019.

1.04 DEFINITIONS

A. Remove: Remove and legally dispose of items, except those identified for use in recycling, re-use, and salvage programs.

B. Environmental Pollution and Damage: The presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human or animal life; affect other species of importance to humanity; or degrade the utility of the environment for aesthetic, cultural or historical purposes.

C. Inert Fill: A permitted facility that accepts inert waste such as asphalt and concrete exclusively for the purpose of disposal.

1. Inert Solids/Inert Waste: Non-liquid solid waste including, but not limited to, soil and concrete, that does not contain hazardous substances or soluble pollutants at

concentrations in excess of water-quality standards established by a regional water board and does not contain significant quantities of decomposable solid waste.

D. Class III Landfill: A landfill that accepts non-hazardous materials such as household, commercial, and industrial waste, resulting from construction, remodeling, repair, and demolition operations. A Class III landfill must have a solid waste facilities permit from the State of California.

E. Demolition Waste: Building materials and solid waste resulting from construction, remodeling, repair, cleanup, or demolition operations that are not hazardous. This term includes, but is not limited to, asphalt concrete, Portland cement concrete, brick, lumber, gypsum wallboard, cardboard and other associated packaging, roofing material, ceramic tile, carpeting, plastic pipe, and steel. The materials may include rock, soil, tree stumps, and other vegetative matter resulting from land clearing and landscaping for construction or land development projects.

F. Chemical Waste: Includes petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, organic chemicals and inorganic wastes.

G. Recycling: The process of sorting, cleansing, treating and reconstituting materials for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating or thermally destroying solid waste.

H. Reuse: The use, in the same or similar form as it was produced, of a material which might otherwise be discarded.

I. Solid Waste: All putrescible and nonputrescible solid, semisolid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, dewatered, treated, or chemically fixed sewage sludge which is not hazardous waste, manure, vegetable or animal solid and semisolid wastes, and other discarded solid and semisolid wastes. "Solid waste" does not include hazardous waste, radioactive waste, or medical waste as defined or regulated by State law.

1.05 ADMINISTRATIVE REQUIREMENTS

A. Pre-Construction Conference: Conduct a pre-construction conference one week prior to the start of the work of this section; require attendance by all affected trades.

B. Convene a conference at the Project site 3 days prior to starting demolition to review the Drawings and Specifications, requirements of authorities having jurisdiction, instructions and requirements of serving utilities, sequencing and interface considerations and project conditions.

C. Conference shall be attended by Construction Manager, supervisory and quality control personnel of Contractor and all subcontractors performing this and directly-related Work.

D. Submit minutes of meeting to District, Project Inspector and Architect, for Project record purposes.

E. Sequencing: Ensure that utility connections are achieved in an orderly and expeditious manner.

1.06 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain property of Saugus Union School District, demolished materials shall become the Contractor's property and shall be removed, recycled, or disposed from Project site in an appropriate and legal manner.

1. Arrange a meeting no less than ten (10) days prior to demolition with the District or Construction Manager and other designated representatives to review any salvageable items to determine if District wants to retain ownership, and discuss Contractor's Waste Management and Recycling Plan.

1.07 SUBMITTALS

A. Site Plan: Showing:

1. Areas for temporary construction and field offices.
2. Areas for temporary and permanent placement of removed materials.

B. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.

1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences.
2. Identify demolition firm and submit qualifications.
3. Include a summary of safety procedures.

C. Demolition phase:

1. Proposed dust-control measures.
2. Proposed noise-control measures.
3. Schedule of demolition activities indicating the following:
    a. Detailed sequence of demolition and removal work, including start and end dates for each activity.
    b. Dates for shutoff, capping, and continuation of utility services.
4. Contractor's Waste Management and Recycling Plan: See Section 01 50 13 - Construction Waste Management and Disposal.
    a. This plan will not otherwise relieve the Contractor of responsibility for adequate and continuing control of pollutants and other environmental protection measures.
5. Contractor's Reuse, Recycling, and Disposal Report: See Section 01 50 13 - Construction Waste Management and Disposal.

D. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1. Record drawings: Identify and accurately locate capped utilities and other subsurface structural, electrical, or mechanical conditions.

1.08 SUBMITTALS

A. Demolition and Removal Procedures and Schedule: Submit for Project record only.

B. Project Record Drawings: Submit in accordance with provisions specified in Division 01. Indicate verified locations of underground utilities and storm drainage system on project record drawings.

1.09 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Company specializing in the type of work required.

1. Minimum of 5 years of documented experience.

1.10 SCHEDULING

A. Schedule Work to precede new construction.

B. Describe demolition removal procedures and schedule.

C. Perform work between the hours of 8am and 5pm, subject to noise abatement regulations and District's approval for noise considerations.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.01 SCOPE

A. Remove paving and curbs as required to accomplish new work.

B. Remove all other paving and curbs within construction limits indicated on drawings.

C. Within area of new construction, remove foundation walls and footings to a minimum of 4 feet below finished grade.

D. Remove manholes and manhole covers, curb inlets and catch basins.

E. Remove other items indicated, for salvage, relocation, and recycling.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Conform to the relevant Article of the General Conditions, South Coast Air Quality Management District and other applicable regulatory procedures when discovering hazardous or contaminated materials.

B. Selective Demolition of Site and Building Elements:

1. Use techniques acceptable to authorities having jurisdiction and which will achieve intended results and provide protection of surrounding features to remain.

2. Some items may have been demolished prior to Work of this Contract. Verify existing conditions prior to start of demolition. If items are or have been demolished contact the Architect.

3. Some items may require postponement of demolition until late in Contract Time period.

4. Phase demolition as necessary to provide adequate interfacing of related Work.

5. Demolish in an orderly and careful manner. Protect existing foundations, retaining walls, utility structures, other structures and finish materials to remain.

C. Field Measurements and Conditions:

1. Survey existing conditions and correlate with requirements indicated to determine extent of demolition and recycling required.
2. In addition to provisions of the Conditions of the Contract, verify dimensions and field conditions prior to construction. Verify condition of substrate and adjoining Work before proceeding with demolition Work. If conflict is found notify Construction Manager, Project Inspector and Architect.

D. Comply with other requirements specified in Section 01 73 29.

E. Comply with governing EPA notification regulations before starting demolition. Comply with hauling and disposal regulations of authorities having jurisdiction. Obtain and pay for all permits required.

F. Environmental Controls

1. Comply with federal, state and local regulations pertaining to water, air, solid waste, recycling, chemical waste, sanitary waste, sediment and noise pollution.
2. Confine demolition activities to areas defined by public roads, easements, and work area limits indicated on the drawings.
3. Temporary Construction: Remove indications of temporary construction facilities, such as haul roads, work areas, structures, stockpiles or waste areas.
4. Water Resources: Comply with applicable regulations concerning the direct or indirect discharge of pollutants to underground and natural surface waters.
    a. Oily Substances: Prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water in such quantities as to affect normal use, aesthetics, or produce a measurable ecological impact on the area.
        1) Store and service construction equipment at areas designated for collection of oil wastes.
5. Dust Control, Air Pollution, and Odor Control: Prevent creation of dust, air pollution and odors.
    a. Use temporary enclosures and other appropriate methods to limit dust and dirt rising and scattering in air to lowest practical level.
    b. Store volatile liquids, including fuels and solvents, in closed containers.
    c. Properly maintain equipment to reduce gaseous pollutant emissions.
6. Noise Control: Perform demolition operations to minimize noise.
    a. Provide equipment, sound-deadening devices, and take noise abatement measures that are necessary to comply with the requirements of this Contract.
    b. At least once every five successive working days while work is being performed above 55 dB noise level, measure sound level for noise exposure due to the demolition.
        1) Measure sound levels on the 'A' weighing network of a General Purpose sound level meter at slow response.
        2) To minimize the effect of reflective sound waves at buildings, measurements may be taken three to six feet in front of any building face.

G. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.

1. Obtain required permits.
2. Comply with applicable requirements of NFPA 241 and CFC Ch. 33.
3. Use of explosives is not permitted.
4. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
    a. Prevent movement or settlement of adjacent structures. Provide bracing and shoring.
    b. Perform surveys as the Work progresses to detect hazards resulting from demolition activities.
5. Provide, erect, and maintain temporary barriers and security devices.
    a. Provide, erect, and maintain temporary barriers, safety and security devices , for protection of streets, sidewalks, curbs, adjacent property and the public.
    b. Protection: Protect existing construction and adjacent areas with temporary barriers and security devices in accordance with requirements specified in Section 01 50 00 - Temporary Facilities and Controls.
        1) Review location and type of construction of temporary barriers with District and/or the Construction Manager.
        2) Maintain protected egress and access at all times, in accordance with requirements of authorities having jurisdiction and with permission of DSA (AHJ having jurisdiction).
6. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
7. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
8. Do not close or obstruct roadways or sidewalks without permit.
9. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
10. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

H. Do not begin removal until receipt of notification to proceed from District.

I. Do not begin removal until built elements to be salvaged or relocated have been removed.

J. Protect existing structures and other elements that are not to be removed.
    1. Provide bracing and shoring.
    2. Prevent movement or settlement of adjacent structures.
    3. Stop work immediately if adjacent structures appear to be in danger.
    4. Protect existing landscaping materials, appurtenances, structures and items that are not to be demolished, or are on adjacent property.
    5. Mark location of utilities.

K. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

L. Hazardous Materials: Comply with 29 CFR 1926 and state and local regulations.

M. Perform demolition in a manner that maximizes salvage and recycling of materials.

1. Comply with requirements of Section 01 50 13 - Construction Waste Management and Disposal.
2. Dismantle existing construction and separate materials.
3. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

N. Damages: Promptly repair damages to adjacent facilities caused by demolition operations.

O. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.03 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to District.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to District.

F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.

I. Utility Lines, Posts and Structures:

1. Work by Utility: Posts, conductors, guy wires, boxes, structures and equipment shown to be cleared or removed by the responsible utility company or agency shall be considered work under a separate contract.
2. Coordination: The Contractor shall arrange, schedule and coordinate work by utility companies and agencies.
3. Payment: Costs, if any, imposed by utility companies and agencies shall be included in the Contract Sum.

3.04 BELOW-GRADE DEMOLITION

A. Below-Grade Construction: Demolish foundation walls and other below-grade construction, as follows:

1. Completely remove below-grade construction, including foundation walls and footings, unless indicated otherwise on Drawings.
2. Break up and completely remove below-grade concrete slabs, in small sizes, suitable for acceptance at recycling or disposal facilities.
3. Below-Grade Areas: Completely fill below-grade areas and voids resulting from building demolition operations to street level with satisfactory soil materials.

B. Backfill areas excavated, open pits, and holes caused as a result of demolition.

C. Rough grade and compact areas affected by demolition to maintain site grades and contours.

3.05 PORTLAND CEMENT CONCRETE AND ASPHALTIC CONCRETE PAVING DEMOLITION

A. Cutting: Make a saw cut at edges of existing paving to be removed, where portions of existing paving are indicated to remain.

B. Cutting Method: When adjacent to new paving, cut with abrasive type, water-cooled saw to a minimum depth of 1-1/2 inches. Cut lines straight and square to face of paving.

C. Aggregate Base: Existing aggregate base may be retained except where landscaping and overexcavation are indicated.

D. Concrete Removal: Break concrete and remove debris. Preserve straight cut.

E. Disposal: Remove debris from the site except where allowed or directed for fill for subsequent earthwork or for landscape walls.

3.06 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Remove from site all materials not to be reused on site; do not burn or bury.

C. Remove temporary work.

D. Leave site in clean condition, ready for subsequent work.

E. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 03 10 00

CONCRETE FORMING AND ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Formwork for cast-in place concrete, with shoring, bracing and anchorage.

B. Openings for other work.

C. Form accessories.

D. Form stripping.

1.02 RELATED REQUIREMENTS

A. Section 03 20 00 - Concrete Reinforcing.

B. Section 03 30 00 - Cast-in-Place Concrete.

C. Section 31 23 16 - Excavation: Shoring and underpinning for excavation.

1.03 REFERENCE STANDARDS

A. ACI 117 - Specifications for Tolerances for Concrete Construction and Materials; 2010 (Reapproved 2015).

B. ACI 301 - Specifications for Structural Concrete; 2016.

C. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2014 (Errata 2018).

1. Use 2016 as indicated in 2019 CBC Ch 35 Referenced Standards.

D. ACI 347R - Guide to Formwork for Concrete; 2014, with Errata (2017).

E. PS 1 - Structural Plywood; 2009.

F. CBC Chapter 19A.

1.04 DEFINITIONS

A. Unexposed Finish: A general-use finish, with no appearance criteria, applicable to all formed concrete concealed from view after completion of construction.

B. Exposed Finish: A general-use finish applicable to all formed concrete exposed to view and including surfaces which may receive a paint coating (if any).

1.05 SUBMITTALS

A. See Section 01 33 00 - Submittals, for submittal procedures.

B. Product Data: Provide data on void form materials and installation requirements.

1. Form release agent.

C. Shop Drawings: Indicate pertinent dimensions, materials, bracing, and arrangement of joints and ties.

1.06 QUALITY ASSURANCE

A. Industry Standard: Formwork design and construction shall be in accordance with ACI 301, ACI 318, and ACI 347R.

B. Maintain one copy of each installation standard on site throughout the duration of concrete work.

C. Regulatory Requirements: Conform to formwork construction requirements of the California Building Code (CBC) Title 24, Part 2, Chapter 19A as amended and adopted by authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver prefabricated forms and installation instructions in manufacturer's packaging.

B. Store prefabricated forms off ground in ventilated and protected manner to prevent deterioration from moisture.

PART 2 PRODUCTS

2.01 FORMWORK - GENERAL

A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.

B. Design and construct concrete that complies with design with respect to shape, lines, and dimensions.

C. Chamfer outside corners of beams, joists, columns, and walls.

D. Comply with applicable state and local codes with respect to design, fabrication, erection, and removal of formwork.

E. Comply with relevant portions of ACI 347R, ACI 301, and ACI 318.

F. Provide materials for contact with concrete which impart suitable surface quality to completed concrete. Use the following form types:

1. Forms for Exposed Finish Concrete:
    a. Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials to provide continuous, straight, smooth, exposed surfaces.
    b. Furnish in largest practical sizes to minimize number of joints and to conform to joint system shown on the Drawings.
2. Forms for Unexposed Finish Concrete:
    a. Plywood, lumber, metal, or another acceptable material.
    b. Provide lumber dressed on at least two edges and one side for tight fit.
    c. When unexposed concrete is intended to receive waterproofing, provide form as for exposed finish concrete.

G. Provide materials to construct formwork to support forming materials in contact with concrete, of sufficient capacity to withstand pressures of concrete placement and to support concrete in place until cured, without distortion.

2.02 WOOD FORM MATERIALS

A. Softwood Plywood for Concealed Surfaces: PS 1,undamaged face C Grade, Group 2 Plugged EXT or APA Structural I Sheathing.

B. Hardboard: For curved surfaces, tempered hardboard, Masonite Corp., or equal.

C. Lumber: Douglas fir or douglas fir-larch species; appropriate for intended use grade; with grade stamp clearly visible.

1. Sound and undamaged straight edges, and solid knots, to maintain principal shores to support concrete until minimum strength is achieved as approved by Structural Engineer.

D. Embedded Nailers: Clear all heart redwood or pressure preservative-treated (PPTDF) douglas fir, edges reverse beveled to key into concrete.

2.03 FORMWORK ACCESSORIES

A. Form Ties: Removable, adjustable-length or snap-off type, galvanized metal, fixed length, cone type, with waterproofing washer, free of defects that could leave holes larger than 1 inch in concrete surface.

B. Form Release Agent: Capable of releasing forms from hardened concrete without staining or discoloring concrete or forming bugholes and other surface defects, compatible with concrete and form materials, and not requiring removal for satisfactory bonding of coatings to be applied.

1. Do not use materials containing diesel oil or petroleum-based compounds.

2. Does not impair subsequent treatments of concrete surfaces or bond of applied coatings.

3. VOC Content: In compliance with applicable local, State, and federal regulations.

4. Products:

a. SpecChem, LLC; Bio Strip WB (water-based): www.specchemllc.com/#sle.

b. W. R. Meadows, Inc; Duogard: www.wrmeadows.com/#sle.

C. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

D. Embedded Anchor Shapes, Plates, Angles and Bars: As specified in Section 05 50 00 .

E. Screed Pins and Chairs:

1. Provide units that leave no metal closer than 1-1/2 inch to the plane of the exposed concrete surface.

2. Manufacturers:

a. Grann Adjustable Quick Screed (800/554-7266).

b. Dayton Richmond (800/745-3700).

c. Aztek (877/531-3344).

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

3.02 SYSTEM REQUIREMENTS

A. Formwork Design Requirements: Formwork products and execution specified herein are for finish surface quality only.

1. Design, layout and construction of formwork shall be solely the responsibility of the Contractor.
2. Design and construct formwork, shoring and bracing to conform to California Building Code (CBC), Title 24, Part 2, Chapter 19A requirements and ACI 318.
3. Resulting concrete shall conform to shapes, lines and dimensions indicated and required.

B. Coordination:

1. Coordinate Work specified in this Section with other Sections which require placement of embedded products and provision of openings and recesses.
2. If formwork is placed after reinforcement, resulting in insufficient concrete cover over reinforcement, request instructions from the Architect before proceeding.

3.03 EARTH FORMS

A. Earth (Soil) Forms, General: Except as otherwise indicated on Drawings, conform to ACI 301, ACI 347R and California Building Code (CBC) requirements. Refer also to notes on Structural Drawings.

B. Hand trim sides and bottom of earth forms. Remove loose soil prior to placing concrete.

3.04 ERECTION - FORMWORK

A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301, ACI 347R and California Building Code (CBC) Title 24, Part 2 requirements.

B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.

1. Use form ties of sufficient strength and sufficient quantities to prevent formwork spreading.
2. Maintain principal shores to support concrete until minimum required strength is achieved.

C. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.

1. Design and fabricate forms for easy removal, without impact, shock, or damage to concrete surfaces or other portions of the work.

2. Design to support all applied loads until concrete is adequately cured, within allowable tolerances and deflection limits.

D. Align joints and make watertight. Keep form joints to a minimum. Make forms watertight to prevent leakage of concrete mortar. Locate form joints, at exposed concrete, to be symmetrical about center of panel, unless otherwise noted. Align joints symmetrically at exposed conditions.

E. Permanent openings: Provide openings to accommodate Work specified in other Sections. Size and locate openings accurately. Securely support items built into forms; provide additional bracing at openings and discontinuities in formwork.

F. Temporary openings: Provide temporary openings for cleaning and inspection. Provide drain openings at bottoms of formwork to allow water to drain. Locate temporary openings in most inconspicuous locations at base of forms, closed with tight-fitting panels designed to minimize appearance of joints in finished concrete Work.

G. Obtain approval before framing openings in structural members that are not indicated on drawings.

H. Coordinate this section with other sections of work that require attachment of components to formwork.

I. If formwork is placed after reinforcement, resulting in insufficient concrete cover over reinforcement, request instructions from Architect before proceeding.

J. Inspection: Before placing of concrete, and after placement of reinforcing steel in the forms, provide notification so that proper inspection can be made. Make such notification at least 2 working days in advance of placing concrete.

K. Rejection of Defective Work: Any movement or bellying of forms during construction or variations in excess of the tolerances specified shall be considered just cause for the removal of such forms and, in addition, the concrete construction so affected. Reconstruct forms, place new concrete and required reinforcing steel at no additional cost to the District.

3.05 APPLICATION - FORM RELEASE AGENT

A. Form Release Agent: Provide either form materials with factory applied non-absorptive liner or field applied form coating to comply with applicable air quality regulations for VOC. If field applied coating is employed, thoroughly clean and recondition formwork and reapply coating before each use. Rust on form surfaces is not acceptable.

B. Apply form release agent on formwork in accordance with manufacturer's recommendations.

C. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.

D. Do not apply form release agent where concrete surfaces to receive special finishes or applied coverings that are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

3.06 INSERTS, EMBEDDED PARTS, AND OPENINGS

A. Provide formed openings where required for items to be embedded in passing through concrete work.

1. Install accessories in accordance with manufacturer's instructions and referenced standards, level, straight and plumb.

B. Locate and set in place items that are cast directly into concrete.

C. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other work.

1. Openings: Size and locate formed openings, depressions, recesses and chases to accommodate products to be applied to, built into and pass through concrete Work. Coordinate size, location and placement of inserts, embedded products, openings and recesses with Work specified in other Sections.

2. Anchors and Other Devices: Set and build into concrete formwork anchorage devices and other embedded products required for Work to be attached to or supported by concrete elements.

3. Locating Embedded Products and Openings: Use setting drawings, diagrams, instructions and templates to set embedded products.

4. Screeds: Set screeds and establish level for tops of concrete slabs and leveling for finish surfaces. Shape surfaces as indicated on the Drawings. Provide cradle, pad or base type screed supports for concrete over waterproof membranes and vapor retarders.

D. Install accessories in accordance with manufacturer's instructions, so they are straight, level, and plumb. Ensure items are not disturbed during concrete placement.

E. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.

F. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints are not apparent in exposed concrete surfaces.

3.07 FORM CLEANING

A. Clean forms as erection proceeds, to remove foreign matter within forms.

B. Clean formed cavities of debris prior to placing concrete.

1. At above grade forms, flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.

2. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.

C. Formwork Reuse: Do not reuse wood and plywood forming materials which contact concrete, except as follows:

1. High density plywood may be cleaned and reused for exposed concrete.

2. Unfaced plywood may be reused for concealed concrete.

3. Steel and fiberglass forming materials may be cleaned and reused.

D. Patching and Repairs: Patch tie holes with sheet metal patches and restore forms to like new condition prior to reuse.

3.08 FORMWORK TOLERANCES

A. Construct formwork to maintain tolerances required by ACI 117, unless otherwise indicated.

1. Also as specified in ACI 301, ACI 318, and ACI 347R, unless otherwise specified or indicated.

B. Camber slabs and beams in accordance with ACI 301.

3.09 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 45 00 - Quality Control.

B. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and to verify that supports, fastenings, wedges, ties, and items are secure.

1. Comply with CBC Table 1705A.3, item 12.

C. Do not reuse wood formwork more than 3 times for concrete surfaces to be exposed to view. Do not patch formwork.

3.10 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

1. Comply with California Building Code (CBC) requirements.

2. Formwork supporting weight of concrete may not be removed until concrete has reached a minimum of specified 28-day compressive strength and no earlier than 21 days after pour.

3. Removal of Load Bearing Formwork:

a. Do not remove shoring and forms supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements, until concrete has attained its 28 day specified compressive strength, unless otherwise specified or permitted by the Structural Engineer of Record.

b. Determine the actual compressive strength has attained is adequate to support the weight of the concrete and superimposed loads.

c. Maintain curing and protection operations after form removal.

4. Removal of Non Load Bearing Formwork After Superimposed Loads or as Approved by Engineer:

a. Provided that concrete has hardened sufficiently, that it is not damaged, and has achieved sufficient strength to support its own weight and all imposed construction and design loads, forms not actually supporting weight of concrete or weight of soffit forms may be removed after concrete has cured at not less than 50 degrees F for 24 hours.

b. Maintain curing and protection operations after form removal.

B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

1. Remove formwork progressively so no unbalanced loads are imposed on structure. Remove formwork without damaging concrete surfaces.

2. Remove or snap off metal spreader ties inside wall surface. Cut nails and form ties off flush and leave surfaces level and clean.

C. Store removed forms to prevent damage to form materials or to fresh concrete. Discard damaged forms.

3.11 PATCHING

A. Schedule: Patch forming and tie holes immediately after form removal.

B. Cleaning: Clean surface of all loose materials and soiling.

C. Patching: Patch all holes and depressions with grouting gun and grout mix of one part cement and 2-1/2 parts mortar sand.

3.12 FORMWORK SCHEDULE

A. Footings and Walls, Not Exposed to View: Site fabricated plywood or lumber, coated with form release agent.

B. Footings and Walls, Exposed to View: Site fabricated plywood, coated with form release agent compatible with applied finish coatings.

END OF SECTION

SECTION 03 20 00
CONCRETE REINFORCING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Reinforcing steel for cast-in-place concrete.

B. Supports and accessories for steel reinforcement.

1.02 RELATED REQUIREMENTS

A. Section 03 10 00 - Concrete Forming and Accessories.

B. Section 03 30 00 - Cast-in-Place Concrete.

C. Division 26 - Electrical: Grounding connection to concrete reinforcement.

1.03 REFERENCE STANDARDS

A. ACI 301 - Specifications for Structural Concrete; 2016.

B. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2014 (Errata 2018).

1. Use 2014 as indicated in 2019 CBC Ch 35 Referenced Standards.

C. ACI SP-66 - ACI Detailing Manual; 2004.

D. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2018.

1. Use 2015ae1 as indicated in 2019 CBC Ch 35 Referenced Standards.

E. ASTM A706/A706M - Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement; 2016.

1. Use 2016 as indicated in 2019 CBC Ch 35 Referenced Standards.

F. ASTM A996/A996M - Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement; 2016.

G. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2018a.

H. AWS A5.5/A5.5M - Specification for Low-Alloy Steel Electrodes for Shielded Metal Arc Welding; 2006.

I. AWS D1.4/D1.4M - Structural Welding Code - Reinforcing Steel; 2018.

J. CRSI (DA4) - Manual of Standard Practice; 2009.

K. CRSI (P1) - Placing Reinforcing Bars; 2011.

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittals, for submittal procedures.

B. Product Data:

1. Reinforcement supporting and spacing devices at exposed concrete only, to

demonstrate non-corroding and non-staining characteristics.

2. Adhesive compounds.

C. Shop Drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.

1. Submit for grade beam reinforcement at moment resisting frames.

2. Submit only as requested by Architect. Non-requested shop drawings will be returned with notation "Not Reviewed".

D. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.

E. Reports: Submit certified copies of mill test report of reinforcement materials analysis.

F. Quality Control Submittals: Submit the following information related to quality assurance requirements specified:

1. Certifications: Submit to the testing laboratory mill test certificates for all reinforcing steel, showing physical and chemical analysis. If steel is to be welded, include in chemical analysis the percentages of carbon, manganese, copper, nickel, and chromium, and optionally the percentages of molybdenum and vanadium.

2. Certifications: If steel is to be welded, submit certifications to the testing laboratory signed by AWS Certified Welding Inspector (CWI) of prequalified welding procedures, qualifications of welding procedures unless prequalified, qualification of welding operators, and qualification of welders.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with CRSI (DA4), CRSI (P1), ACI 301, and ACI 318.

1. Maintain one copy of each document on project site.

B. Regulatory Requirements: Conform to California Building Code (CBC) Title 24 Part 2, Chapter 19A requirements as amended and adopted by authorities having jurisdiction, for details of reinforcement.

C. Provide Architect, Project Inspector, and Special Inspector with access to fabrication plant to facilitate inspection of reinforcement. Provide notification of commencement and duration of shop fabrication in sufficient time to allow inspection.

D. Welders' Certificates: Submit certifications for welders employed on the project, verifying AWS qualification within the previous 12 months.

1. Qualification of Welds, Welding Operators, and Welders: Comply with applicable Building Code standard. Perform welding procedure qualification, except for prequalified procedures, as required by AWS D1.4/D1.4M, prior to executing any welding of reinforcing steel.

a. Only AWS Certified Welding Inspectors shall be used for tests and qualifications associated with welding of reinforcing steel.

b. Only AWS qualified welders or welding operators shall perform welding of reinforcing steel.

E. Coordinate Work specified in this Section with other Sections which require placement of embedded products and provision of openings and recesses.

F. If formwork is placed after reinforcement, resulting in insufficient concrete cover over reinforcement, request instructions from Architect (Structural Engineer) before proceeding.

1.06 DELIVERY, STORAGE AND HANDLING

A. Delivery: Deliver reinforcement bars new and free from rust and mill scale in original bundles marked with durable identification tags.

B. Storage: Store reinforcement to avoid excessive rusting or fouling with grease, oil, dirt or other bond-weakening coatings.

C. Handling: Take precautions to maintain reinforcement identification after bundles are broken.

PART 2 PRODUCTS

2.01 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
   1. Deformed billet-steel bars.
   2. Unfinished.

B. Reinforcing Steel: ASTM A706/A706M, deformed low-alloy steel bars.
   1. Unfinished.
   2. Carbon Content: 0.55 % maximum.

C. Reinforcing Steel: #3 Deformed bars, ASTM A996/A996M Grade 40 (280), Type A.

D. Stirrup Steel: ASTM A1064/A1064M steel wire, unfinished.

E. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gage, 0.0508 inch.
   2. Chairs, Bolsters, Bar Supports, Spacers: Wire-bar-type devices, complying with CRSI (DA4), for spacing, supporting and fastening reinforcing bars and welded wire reinforcement in place. Sized and shaped for adequate support of reinforcement during concrete placement.
      a. Supports at Slab on Grade: Provide devices with load-bearing pads or horizontal runners where base material does not support chair legs, to prevent puncture of vapor retarder/barrier or provide precast concrete block bar supports of equal or greater strength to specified concrete.
      b. Corrosion Resistance:
         1) Provide stainless steel or plastic components for placement within 1-1/2 inches of weathering surfaces.
            (a) Provide plastic coated, plastic-tipped (CRSI, Class 1) or stainless steel types at exposed-to-view concrete surfaces.
            (b) Provide only stainless steel (CRSI Class 2) at exterior exposed surfaces to be painted.
   3. Welding Electrodes: AWS A5.5/A5.5M E80XX, low hydrogen, with a minimum yield point of 80,000 psi, for welding grade 60 reinforcing steel.

2.02 RE-BAR SPLICING:

A. Coupler Systems: Mechanical devices for splicing reinforcing bars; capable of developing 160% of steel reinforcing design strength in tension and compression.

B. Dowel Bar Splicer with Dowel-Ins: Mechanical devices for connecting dowels; Type II capable of developing 160% of steel reinforcing design strength in tension and compression.

C. Grout: Cementitious, non-metallic, non-shrink grout for use with manufacturer's grout sleeve reinforcing bar coupler system.

2.03 FABRICATION

A. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice.

B. Welding of reinforcement is permitted only with the specific approval of Architect. Perform welding in accordance with AWS D1.4/D1.4M.

C. Fusion welded reinforcing steel assemblies are not permitted.

D. Locate reinforcing splices not indicated on drawings at point of minimum stress. See Structural Drawings,

1. Review locations of splices with Architect (Structural Engineer) before fabrication and placement. .

PART 3 EXECUTION

3.01 PREPARATION

A. Cleaning: Clean reinforcement to remove loose rust and mill scale, soil, and other materials which may reduce or destroy bond with concrete.

B. Adjustment and Inspection: Do not bend or straighten reinforcement in a manner injurious to material. Do not use bars with kinks or bends not shown on Drawings and reviewed shop drawings, or bars with reduced cross-section due to corrosion or other cause.

C. Do not bend bars No. 5 and larger in the field.

D. Do not bend bars more than once in the same location.

3.02 PLACEMENT

A. General: Place and secure reinforcement as specified herein, as indicated and noted on Drawings and in compliance with recommended details and methods of reinforcement placement and support specified in CRSI Placing Reinforcing Bars.

B. Place, support and secure reinforcement against displacement. Do not deviate from required position.

1. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

C. Do not displace or damage vapor barrier.

D. Accommodate placement of formed openings.

E. Maintain concrete cover around reinforcing as indicated on Structural Drawings:

F. Comply with applicable code for concrete cover over reinforcement.

1. If not otherwise indicated on Drawings or specified herein, provide concrete cover in compliance with ACI 318.

G. Bond and ground all reinforcement to requirements of Division 26.

H. Coordination: Locate reinforcement to accommodate embedded products and formed openings and recesses.

I. Slab on Grade Reinforcement: Do not displace or damage vapor retarder/barrier at slab on grade.

J. Wire Reinforcement Placement: Place reinforcement in sheets as long as practicable, lapping adjoining pieces at least one full mesh and lace splices with 16 gage wire. Offset end laps in adjacent widths to prevent continuous laps. Extend reinforcement to within 1-inch of edge at slabs on grade. Cut mesh at expansion joints and full depth control joints.

K. Dowels: Secure tie dowels in place before depositing concrete. Provide No. 3 bars for securing dowels where no other reinforcement is provided.

L. Reinforcement Splices, General: Provide standard reinforcement splices by lapping ends, placing bars in contact and tightly wire tying. Comply with details and requirements of ACI 318 for minimum lap of spliced bars and criteria indicated on the Drawings.

1. Clearances for Splices: Wherever possible, provide minimum 1-1/2 inch clearance between sets of splices. Stagger horizontal bars so that adjacent spices are minimum 48 inches apart.

M. Reinforcement Supports: Support reinforcement on metal chairs, spacers or metal hangers to provide required coverage and to properly locate reinforcement. Do not use wood. Avoid cutting or puncturing vapor retarder/barrier during reinforcement placement and concreting operations. Repair damages before placing concrete.

1. Support Spacing: Space chairs and accessories in conformance with CRSI Placing Reinforcing Bars.

N. Welding of Reinforcement Steel

1. Welding: Perform welding under continuous inspection and supervision of a qualified Registered Deputy Inspector employed by testing and inspection agency. Weld reinforcement as indicated on Drawings.

   If mill test report is not available, make chemical analysis of bars representative of bars to be welded. Bars with CE above 0.75 shall not be welded.

2. No welds shall be made at bends in reinforcing bars. Welds to be 1 inch minimum from bends

O. Corrections During Concrete Placement: Maintain reinforcing steel workers on-site during placement of concrete for resetting reinforcement displaced by runways, workers and other causes.

3.03 FIELD QUALITY CONTROL

A. An independent testing agency, as specified in Section 01 45 00 - Quality Control, will inspect installed reinforcement for compliance with contract documents before concrete placement.

1. Concrete floor slabs on grade are to be continuously inspected as recommended in the geotechnical report.

B. Defective Reinforcement Work: The following shall be considered defective and may be ordered to be removed and reconstructed at no change in Contract Time or Sum.

1. Bars with kinks or bends not shown on Drawings.
2. Bars injured due to bending or straightening.
3. Bars heated or bent.
4. Reinforcement not placed in accordance with Drawings and Specifications.
5. Rusty or oily bars.
6. Bars exposed in surface of concrete or without adequate concrete cover.

END OF SECTION

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Floors and slabs on grade.

B. Concrete foundations and anchor bolts.

C. Joint devices associated with concrete work.

D. Miscellaneous concrete elements, including equipment pads and thrust blocks.

E. Concrete curing.

1.02 RELATED REQUIREMENTS

A. Section 03 10 00 - Concrete Forming and Accessories: Forms and accessories for formwork.

B. Section 03 20 00 - Concrete Reinforcing.

C. Section 03 35 11 - Concrete Floor Finishes: Densifiers, hardeners, applied coatings, and polishing.

1.03 REFERENCE STANDARDS

A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).

B. ACI 301 - Specifications for Structural Concrete; 2016.

C. ACI 302.1R - Guide to Concrete Floor and Slab Construction; 2015.

D. ACI 302.2R - Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials; 2006.

E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).

F. ACI 305R - Guide to Hot Weather Concreting; 2010.

G. ACI 306R - Guide to Cold Weather Concreting; 2016.

H. ACI 308R - Guide to External Curing of Concrete; 2016.

I. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2014 (Errata 2018).

J. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

K. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2018.

L. ASTM A706/A706M - Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement; 2016.

M. ASTM C172/C172M - Standard Practice for Sampling Freshly Mixed Concrete; 2017.

N. ASTM C31/C31M - Standard Practice for Making and Curing Concrete Test Specimens in the Field; 2019a.

O. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2018.

P. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2018.

Q. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2019a.

R. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2016a.

S. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2015a.

T. ASTM C150/C150M - Standard Specification for Portland Cement; 2018.

U. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete; 2016.

V. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2016.

W. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2019.

X. ASTM C330/C330M - Standard Specification for Lightweight Aggregates for Structural Concrete; 2017a.

Y. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2017.

Z. ASTM C579 - Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes; 2018.

AA. ASTM C827/C827M - Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures; 2016.

AB. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2015.

AC. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 2013.

AD. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2017.

AE. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete; 2019.

AF. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2012.

AG. ASTM D1709 - Standard Test Methods for Impact Resistance of Plastic Film by the Free-Falling Dart Method; 2016a.

AH. ASTM D695 - Standard Test Method for Compressive Properties of Rigid Plastics; 2015.

AI. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2017.

AJ. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2016a.

AK. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2018.

AL. AWS D1.4/D1.4M - Structural Welding Code - Reinforcing Steel; 2018.

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittals for submittal procedures.

B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.

1. Including printed statement of VOC content and material safety data sheets.

C. Mix Design: Submit proposed concrete mix design.

1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.

2. Indicate proposed mix design complies with requirements of ACI 318, Chapter 5 - Concrete Quality, Mixing and Placing.

D. Shop Drawings: Submit proposed layout of construction and control joints for approval.

E. Samples: Submit samples of underslab vapor retarder to be used.

F. Test Reports: Submit report for each test or series of tests specified.

G. Mix Design: Submit mix designs prepared, stamped and signed by a Civil Engineer licensed in the State of California.

H. Quality Control Submittals:

1. Field tests: Submit reports of all slump, strength and air content tests as required by authorities having jurisdiction and as indicated on the Drawings and specified herein.

2. Delivery tickets: Have available copies of delivery tickets complying with ASTM C94/C94M for each load of concrete delivered to site. Include on the tickets the additional information specified in the ASTM document.

I. Manufacturer's Installation Instructions: For concrete accessories, indicate installation procedures and interface required with adjacent construction.

J. Project Record Documents: Accurately record actual locations of embedded utilities and components that are concealed from view upon completion of concrete work.

K. Warranty: Submit manufacturer warranty and ensure forms have been completed in District's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

1. Maintain one copy of each document on site.

B. Follow recommendations of ACI 305R when concreting during hot weather.

C. When air temperature in the shade and away from artificial heat falls below 40 degrees F, or when concrete without special protection is likely to be subject to freezing temperatures

before expiration of specified curing period, follow recommendations of ACI 306R when concreting during cold weather.

D. For slabs required to include moisture vapor reducing admixture (MVRA), do not proceed with placement unless manufacturer's representative is present for every day of placement.

E. Regulatory Requirements:

1. Conform to California Building Code (CBC) Chapter 19A requirement, as amended and adopted by authorities having jurisdiction.

2. Chemical products field-applied to concrete shall comply with applicable air quality requirements of authorities having jurisdiction.

a. Comply with CALGreen Section 5.504.4 Finish material pollutant control; 5.504.4.1 Adhesives, sealants and caulks; 5.504.4.3 Paints and coatings.

F. Testing Agency Services: District will engage an independent testing and inspection agency to conduct tests and perform other services specified for quality control during construction, as required by Sections 01 45 00 - Quality Control.

G. Coordination: Coordinate the placement of joint devices with erection of concrete formwork and placement of form accessories. Coordinate concrete requirements with Work specified for underground utilities and mechanical and electrical equipment pads and bases.

1.06 WARRANTY

A. See Section 01 78 23 - Operation and Maintenance Data, for additional warranty requirements.

B. Slabs with Moisture Vapor Reducing Admixture (MVRA): Provide warranty to cover cost of flooring failures due to moisture migration from slabs for life of the concrete.

1. Include cost of repair or removal of failed flooring, placement of topical moisture remediation system, and replacement of flooring with comparable flooring system.

2. Provide warranty by manufacturer of MVRA matching terms of flooring adhesive or primer manufacturer's material defect warranty.

C. Moisture Emission-Reducing Curing and Sealing Compound, Membrane-Forming: Provide warranty to cover cost of flooring delamination failures for 10 years.

1. Include cost of repair or removal of failed flooring, remediation with a moisture vapor impermeable surface coating, and replacement of flooring with comparable flooring system.

1.07 DELIVERY AND HANDLING

A. Protection During Concrete Placement: Provide protective coverings and runways, and use appropriate equipment and means of access to Work areas to avoid soiling or damage to existing conditions.

B. Runoff: Prevent run off of water contaminated by construction agents and chemicals from soiling existing surfaces and from contaminating existing and future landscape areas.

PART 2 PRODUCTS

2.01 FORMWORK

A. Comply with requirements of Section 03 10 00.

2.02 REINFORCEMENT MATERIALS

A. Comply with requirements of Section 03 20 00.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C150/C150M, Type II - Moderate Portland type.
   1. Cement used in contact with soil shall be Type V - Sulfate Resistant.
   2. Acquire cement for entire project from same source.

B. Fine and Coarse Aggregates: ASTM C33/C33M.
   1. Acquire aggregates for entire project from same source.
   2. Fine and coarse aggregates, CBC Title 24, Part 2, and as follows.
      a. Structural Concrete: Maximum size not larger than 1/5 of narrowest dimension between forms, 1/3 depth of slab nor 3/4 of minimum clear spacing between individual reinforcing bars. Maximum aggregate size shall be 1 inch.
      b. Other than Structural Concrete: Conform to requirements for structural concrete.

C. Lightweight Aggregate: ASTM C330/C330M.
   1. Aggregates for Lightweight Structural Concrete: For dry concrete weight as indicated on Drawings, expanded shale and as follows:
      a. Coarse Aggregates: Naturally expanded lightweight coarse aggregates are not acceptable.
      b. Fine Aggregates: Normal fine aggregate may be used in combination with lightweight fine aggregate.

D. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.04 ADMIXTURES

A. General: Concrete Admixtures shall not affect concrete strength or color of colored concrete.

B. The use of any chemical admixture is subject to prior approval by DSA.

C. Chemical Admixture:
   1. Use no admixtures not included in mix design. Products of the following manufacturers are specified and will be acceptable provided they comply with referenced standards all other requirements of the Contract Documents:
      a. Manufacturers:
         1) BASF Building Systems: www.buildingsystems.basf.com.
         2) Dayton Superior Corporation: www.daytonsuperior.com.
         3) Euclid Chemical Co.: www.euclidchemical.com.
         4) L&M Construction Chemicals, Inc.: www.lmcc.com.
         5) Larsen Products Corp.: www.larsenproducts.com.

6) MeadowBurke Co.: meadowburke.com.
7) W.R. Meadows, Inc.: www.wrmeadows.com.
8) Sika Corporation; www.us.sika.com.
9) Simpson Strong-Tie: www.strongtie.com
10) Specialty Products Group: www.SPGGoGreen.com.
11) US Spec Division of US Mix Products Co.: www.usspec.com.

D. Do not use chemicals that result in soluble chloride ions in excess of 0.1 percent by weight of cement.

E. Water Reducing and Accelerating Admixture: ASTM C494/C494M Type E.
   1. Manufacturers:
      a. Euclid Chemical Company; ACCELGUARD 80: www.euclidchemical.com/#sle.
      b. Accelguard 80 by Euclid Chemical Co.
      c. Pozzutec 20 by Master Builders Technology, Inc.

F. Water Reducing and Retarding Admixture: ASTM C494/C494M Type D.
   1. Manufacturers:
      a. L.M. Scofield Company: www.scofield.com.
      b. Eucon Retarder 75 by Euclid Chemical Co.
      c. Pozzolith R by Master Builders Technology, Inc.
      d. Plastiment by Sika Corporation.

G. Water Reducing Admixture: ASTM C494/C494M Type A.
   1. Manufacturers:
      a. Euclid Chemical Company; EUCON NW: www.euclidchemical.com/#sle.
      b. Eucon WR-75 by Euclid Chemical Co.
      c. Pozzolith Normal or Polyheed by Master Builders Technology, Inc.
      d. Plastocrete 161 by Sika Corporation.

H. Moisture Vapor Reduction Admixture (MVRA): Liquid, inorganic admixture free of volatile organic compounds (VOCs) and formulated to close capillary systems formed during curing to reduce moisture vapor emission and transmission with no adverse effect on concrete properties or finish flooring.
   1. Provide admixture in slabs to receive adhesively applied flooring.
   2. Installed admixture to meet or exceed Modified ASTM F1869 or ASTM F2170 testing to performance of moisture vapor emission rate (MVER) of 4 lbs/1,000 ft2/24 hours or lower.
      a. Alternative test methods shall be acceptable to the finish flooring manufacturer and installer.
   3. The concrete ready mix supplier must coordinate with the admixture manufacturer before designing and testing any new mix designs, to receive guidance on achieving proper water absorption characteristics.
   4. Manufacturers:
      a. Barrier One, Inc; Barrier One Moisture Vapor Reduction Admixture: www.barrierone.com/#sle.

b. Concure Systems; Concure Systems Admixture: www.concuresystems.com.
c. Hycrete, Inc: www.hycrete.com/#sle.
d. ISE Logik Industries, Inc; MVRA 900: www.iselogik.com/#sle.
e. Specialty Products Group; Vapor Lock 20/20: www.spggogreen.com/#sle.

2.05 ACCESSORY MATERIALS

A. Underslab Vapor Retarder:
1. Sheet Material: ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. Single ply polyethylene is prohibited.
2. Performance Requirements:
a. Comply with ACI 302.1R and ACI 302.2R.
b. Water Vapor Permeance: Not more than 0.010 perms, maximum.
1) Permeance as tested after conditioning (ASTM E1745).
c. Comply with ASTM E1745 Class A.
d. Puncture Resistance, ASTM D1709: 2,300 gms.
3. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations.
4. Manufacturers:
a. Fortifiber Building Systems Group; Moistop Ultra 15, 15 mils thick (0.010 max. permeance), Class A, unreinforced polyolefin: www.fortifiber.com/#sle.
b. ISI Building Products; Viper VaporCheck II 15-mil (Class A): www.isibp.com/#sle.
c. Raven Industries; VaporBlock VB15, 15 mils thick (0.01 perms), Class A, unreinforced polyolefin: ravenefd.com,
d. Reef Industries, Inc.; Vaporguard, 15 mil (E-96 0.000 perms), Class B: www.reefindustries.com
e. Stego Industries, LLC; Stego Wrap Vapor Barrier, 15 mils: www.stegoindustries.com.
f. W. R. Meadows, Inc; PERMINATOR Class A - 10 mils (0.25 mm): www.wrmeadows.com/#sle.
g. Substitutions: See Section 01 25 13 - Product Requirements.

B. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
1. Grout: Comply with ASTM C1107/C1107M.
2. Height Change, Plastic State; when tested in accordance with ASTM C827/C827M:
a. Maximum: Plus 4 percent.
b. Minimum: Plus 1 percent.
3. Minimum Compressive Strength at 48 Hours: 2,000 pounds per square inch.
4. Minimum Compressive Strength at 28 Days: 8,000 pounds per square inch.
5. Flowable Products:
a. Dayton Superior Corporation: www.daytonsuperior.com/#sle.

b. L&M Construction Chemicals, Inc, a subsidiary of Laticrete International, Inc; DURAGROUT: www.laticrete.com/our-products/concrete-construction-chemicals/#sle.
c. Sika Corporation; SikaGrout 328: www.us.sika.com.
d. SpecChem, LLC; SC Precision Grout: www.specchemllc.com/#sle.
e. US SPEC; MP Grout: www.usspec.com.
f. W. R. Meadows, Inc; 588-10K: www.wrmeadows.com/#sle.
g. W. R. Meadows, Inc; 1428 HP: www.wrmeadows.com/#sle.

6. Low-Slump, Dry Pack Products:
   a. Dayton Superior Corporation; Dri Pak Precast Grout: www.daytonsuperior.com/#sle.
   b. L&M Construction Chemicals, Inc, a subsidiary of Laticrete International, Inc; Duragrout: www.lmcc.com/#sle.
   c. Sika Corporation; SikaGrout 212: www.us.sika.com.
   d. US SPEC; GP Grout: www.usspec.com.

C. Non-Shrink Epoxy Grout: Moisture-insensitive, two-part; consisting of epoxy resin, non-metallic aggregate, and activator.

1. Composition: High solids content material exhibiting positive expansion when tested in accordance with ASTM C827/C827M.
   a. Maximum Height Change: Plus 4 percent.
   b. Minimum Height Change: Plus 1 percent.
2. Minimum Compressive Strength at 7 days, ASTM C579: 12,000 pounds per square inch.

   OR

3. Minimum Compressive Strength at 7 days, ASTM D695: 12,000 pounds per square inch.
4. Manufacturers:
   a. Euclid Chemical Company; E3-DEEP POUR: www.euclidchemical.com/#sle.
   b. Dayton Superior Corporation: www.daytonsuperior.com/#sle.
   c. Euclid Chemical Co.; www.euclidchemical.com.
   d. Five Star Products, Inc; Five Star DP Epoxy Grout: www.fivestarproducts.com.
   e. L&M Construction Chemicals, Inc.; www.lmcc.com.
   f. Sika Corporation; Sika Grout Pak 42: www.us.sika.com.
   g. SpecChem, LLC; SpecPoxy Grout: www.specchemllc.com.
   h. US Mix Products Co.; www.usspec.com.
   i. W.R. Meadows, Inc.; REZI-WELD 3/2: www.wrmeadows.com.

2.06 BONDING AND JOINTING PRODUCTS

A. Bonding Compounds, General: Products of the following manufacturers are specified and will be acceptable provided they comply with requirements of the Contract Documents:

1. BASF Building Systems: www.buildingsystems.basf.com.
2. Dayton Superior Corporation: www.daytonsuperior.com.
3. Euclid Chemical Co.: www.euclidchemical.com.

4. L&M Construction Chemicals, Inc.: www.lmcc.com.
5. Larsen Products Corp.: www.larsenproducts.com.
6. MeadowBurke Co.: meadowburke.com.
7. W.R. Meadows, Inc.: www.wrmeadows.com.
8. Sika Corporation; www.us.sika.com.
9. Simpson Strong-Tie: www.strongtie.com
10. US Spec Division of US Mix Products Co.: www.usspec.com.

B. Interior Exposed Control Joints: Sawcut joints after concrete placement and finish. Preformed joint materials are not acceptable.

C. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.
   1. Acrylic or Styrene Butadiene:
   2. Manufacturers:
      a. BASF Building Systems; MasterEmaco A 400 or A 600: www.buildingsystems.basf.com.
      b. Dayton Superior Corp.; Acrylic Bonding Agent J40: www.daytonsuperior.com
      c. Euclid Chemical Company; AKKRO-7T: www.euclidchemical.com/#sle.
      d. L&M Construction Chemicals, Inc.; Everbond: www.lmcc.com.
      e. MeadowBurke Co.; Arcylic Bond: meadowburke.com.
      f. Sika Corporation; Sika Latex by Sika Corporation: www.us.sika.com.
      g. Simpson Strong-Tie; FX-Bondcrete: www.strongtie.com
      h. SpecChem, LLC; Strong Bond Acrylic Bonder: www.specchemllc.com/#sle.
      i. W. R. Meadows, Inc; ACRY-LOK-: www.wrmeadows.com/#sle.
      j. US Spec Division of US Mix Products Co.; Acrylcoat, Dura: www.usspec.com.

D. Epoxy Bonding System:
   1. Complying with ASTM C881/C881M and of Type required for specific application.
   2. Manufacturers:
      a. Adhesives Technology Corporation; Crackbond SLV-302, Crackbond LR-321, Crackbond LR-321 LPL, Ultrabond 2100 LPL, Ultrabond 2100, Ultrabond 1, Ultrabond 2, or Ultrabond HS200: www.atcepoxy.com/#sle.
      b. Euclid Chemical Company; DURAL FAST SET LV: www.euclidchemical.com/#sle.
      c. Euclid Chemical Company; DURALFLEX GEL: www.euclidchemical.com/#sle.
      d. Euclid Chemical Company; DURALFLEX LV: www.euclidchemical.com/#sle.
      e. Euclid Chemical Company; DURAL 452 GEL, DURAL 452 LV, or DURAL 452 MV: www.euclidchemical.com/#sle.
      f. Dayton Superior Corporation; Slow Set Bonding Agent: www.daytonsuperior.com/#sle.
      g. Sika Corporation; Sikadur 31 Hi Mod Gel or Sikadur 32 Hi Mod Bonder: www.us.sika.com.

h. Simpson Strong-Tie; FX-752 Epoxy Bonding Agent, FX-762 High-Modulus Epoxy Bonding Agent, FX-792LPL Long Pot Life Epoxy Bonding Agent: www.strongtie.com

i. SpecChem, LLC; SpecPoxy 1000, SpecPoxy 2000, SpecPoxy 3000, or SpecPoxy 3000FS: www.specchemllc.com/#sle.

j. W. R. Meadows, Inc; Rezi-Weld Gel Paste, Rezi-Weld Gel Paste State, Rezi-Weld 1000: www.wrmeadows.com/#sle.

E. Acetate Bonding Agent: Non-redispersable polyvinyl acetate.

1. Interior only except areas exposed to moisture

2. Manufacturers:

a. Dayton Superior Corp.; PVA Bonding Agent J41: www.daytonsuperior.com

b. Euclid Chemical Co.; Tammsweld: www.euclidchemical.com.

c. L&M Construction Chemicals, Inc.; Everweld II: www.lmcc.com.

d. Larsen Products Corp; Weldcrete: www.larsenproducts.com/#sle.

e. W.R. Meadows, Inc.; Deck-O-Weld: www.wrmeadows.com.

F. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.

1. Material: Closed-cell, non-absorbent, compressible polymer foam in sheet form.

2. Manufacturers:

a. W. R. Meadows, Inc; Deck-O-Foam Joint Filler with pre-scored top strip: www.wrmeadows.com/#sle.

G. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with rectangular or round knockout holes for conduit or rebar to pass through joint form at 6 inches on center; ribbed steel stakes for setting.

1. Provide removable plastic cap strip that forms wedge-shaped joint for sealant installation.

2. Height: To suit slab thickness.

2.07 CURING MATERIALS

A. Evaporation Reducer: Liquid thin-film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement.

1. Manufacturers:

a. Atlas Tech Products Division of Atlas Construction Supply, Inc.;; Atlas Finish-Film: www.atlastechptoducts.com.

b. Dayton Superior Corporation; AquaFilm Concentrate J74: www.daytonsuperior.com/#sle.

c. Euclid Chemical Company ; EUCOBAR: www.euclidchemical.com/#sle.

d. Nox-Crete Inc; Monofilm: www.nox-crete.com/#sle.

e. Master Builder Solutions by BASF; MasterKure ER 50: www.master-builders-solutions.basf.us.

f. Nox-Crete Products Group; Monofilm: www.nox-crete.com

g. Sika Corp.; SikaFilm: usa.sika.com.

h. SpecChem, LLC; SpecFilm Concentrate or SpecFilm: www.specchemllc.com/#sle.
i. W. R. Meadows, Inc ; Evapre or Evapre-RTU: www.wrmeadows.com/#sle.

B. Curing Compound, Naturally Dissipating: Clear, water-based, liquid membrane-forming compound; complying with ASTM C309.
1. Application: Use at concrete slab on grade.
2. Product dissipates within 4 to 6 weeks.
3. Provide product containing fugitive red dye.
4. Manufacturers:
a. Dayton Superior Corporation: www.daytonsuperior.com/#sle.
b. Euclid Chemical Company; COLOR-CRETE CURE AND SEAL VOC: www.euclidchemical.com/#sle.
c. SpecChem, LLC; SpecRez: www.specchemllc.com/#sle.
d. Paul M. Wolff Co.; SHUR-CURE: www.paulwolffco.com.
e. W. R. Meadows, Inc; 1100-Clear: www.wrmeadows.com/#sle.

C. Curing and Sealing Compound, Moisture Emission-Reducing, Membrane-Forming: Liquid, membrane-forming, clear sealer, for application to newly-placed concrete; capable of providing adequate bond for flooring adhesives, initially and over the long term; with sufficient moisture vapor impermeability to prevent deterioration of flooring adhesives due to moisture emission.
1. Use this product to cure and seal all slabs to receive adhesively applied flooring or roofing.
2. Comply with ASTM C309 and ASTM C1315 Type I Class A.
3. VOC Content: Less than 100 g/L.
4. Manufacturers:
a. Obex; Creteseal CS2000: www,obexco.com.
b. Floor Seal Technology, Inc; VaporSeal 309 System: www.floorseal.com/#sle.
c. Nox-Crete Inc; Cure & Seal 1200E: www.nox-crete.com/#sle.

D. Curing and Sealing Compound, Low Gloss: Liquid, membrane-forming, clear, non-yellowing acrylic; complying with ASTM C1315 Type 1 Class A.
1. Application: Use at areas without floor coverings.
2. Solids by Mass: 25 percent, minimum.
3. VOC Content: OTC compliant.
4. Manufacturers:
a. SpecChem, LLC; Cure and Seal WB 25: www.specchemllc.com.
b. Paul M Wolff Company; Shur-Seal: www.paulwolff.com
c. W. R. Meadows, Inc; CS-309-25: www.wrmeadows.com/#sle.

E. Moisture-Retaining Sheet: ASTM C171.
1. Curing paper, regular.
2. Polyethylene film, white opaque, minimum nominal thickness of 4 mil, 0.004 inch.

3. White-burlap-polyethylene sheet, weighing not less than 3.8 ounces per square yard.

F. Water: Potable, not detrimental to concrete.

2.08 CONCRETE MIX DESIGN

A. Mix Design: Contractor shall coordinate with the Testing Laboratory of Record, under supervision of Civil Engineer licensed in the State of California, to determine mix proportions to fulfill specified requirements for strength, aggregate, size and workability of concrete.

B. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

1. Comply with Chapter 19A requirements.

C. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.

1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.

D. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.

E. Normal Weight Concrete:

1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: As indicated on Structural Drawings.

2. Proportions: For normal weight concrete, in accordance with ACI 301, and as noted on the Drawings.

3. Structural Concrete: Structural concrete strengths (including non-structural floor slabs on grade), aggregate sizes and slumps indicated on Structural Drawings.

4. Water/Cement Ratio for Concrete in Contact with Soil: Not to exceed 0.45, unless otherwise indicated on Structural Drawings.

5. Water-Cement Ratio: As indicated on Structural Drawings.

6. Maximum Slump: As indicated on Structural Drawings.

7. Maximum Aggregate Size: As indicated on Structural Drawings.

F. Structural Lightweight Concrete:

1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 pounds per square inch.

2. Water/Cement Ratio: Not to exceed ratio indicated on Structural Drawings.

3. Total Air Content: 3 percent, determined in accordance with ASTM C173/C173M.

4. Maximum Slump: As indicated on Structural Drawings.

5. Maximum Aggregate Size: As indicated on Structural Drawings.

6. Maximum dry unit weight: As indicated on Structural Drawings.

7. Maximum coarse aggregate absolute volume is limited to 9.0 CF/CY concrete.

2.09 MIXING

A. Transit Mixers: Comply with ASTM C94/C94M.

B. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

B. Layout construction and control joints according to the drawing details and plans following these guidelines:

1. Finished exposed concrete floors are critical for aesthetics.
2. Layout joints on exposed concrete floors to allow for installation of utilities without sawcutting or concrete placement of different production batches subject to different colors. Staining and integral color concrete is not exempt from this requirement.
3. Architect to review joint pattern submittal each floor.
4. No lengthwise joints in corridors; place cross-corridor, if required.
5. Place joint at 90 degree wall corners.
6. Place joints at center line of columns.
7. Equally space all joints.

C. Verify that concrete cover requirements are met in formwork construction and reinforcement placement.

D. Verify that base material (sand, gravel or natural as specified or indicated on Drawings) level, vapor barrier/retarder properly placed and that required clearances to reinforcing steel have been maintained.

E. Verify that all embedded products and formed openings and recesses are correctly placed.

F. At slabs on grade, verify that vapor retarder/barrier is properly placed and free of damage.

3.02 PREPARATION

A. Verify that forms are clean and free of rust before applying release agent.

B. Prepare previously placed concrete by cleaning with hydro-blasting or wet sand blasting to provide suitable surface for bonding. Provide minimum aggregate exposure of 1/4 inch.

C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

D. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.

1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
2. Use latex bonding agent only for non-load-bearing applications.

E. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Lap joints minimum 6 inches. Seal joints, seams and penetrations watertight with manufacturer's

recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.

1. See Section 07 26 16 - Under-Slab Vapor Retarder.
2. Vapor Retarder Over Granular Fill: Install compactible granular fill before placing vapor retarder as shown on the drawings. Do not use sand.
    a. Install total thickness indicated on Drawings. Provide crushed rock, 1/2 inch grading, clean washed, complying with ASTM C33/C33M.
    b. Comply with CALGreen Code Secton 4.505.2.1 Capillary Break.

3.03 CONCRETE MIXING

A. Concrete Mixing, General: Comply with ACI 318 as adopted by CBC, Title 24, Part 2, Chapter 19A and ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete. Introduce and mix admixtures in compliance with manufacturer's instructions and recommendations.

3.04 PLACING CONCRETE

A. Notify District's Inspector and DSA at least 2 working days in advance of placing concrete.

B. Place concrete in accordance with ACI 304R. General: Comply with ACI 318 as adopted by CBC, Title 24, Part 2, Chapter19A and as follows:

1. Schedule continuous placement of concrete to prevent the formation of cold joints.
2. Ready mix concrete shall be delivered in accordance with ASTM C94/C94M. Concrete shall be placed within 90 minutes after start of mixing.
3. Provide construction joints if concrete for a particular element or component cannot be placed in a continuous operation.
    a. Submit for review, proposed locations of joints prior to pouring. See Structural Drawings for additional requirements.
4. Deposit concrete as close as possible to its final location, to avoid segregation.

C. Placement in Forms: Limit horizontal layers to depths which can be properly consolidated, but in no event greater than 24 inches.

1. Consolidate concrete by means of mechanical vibrators, inserted vertically in freshly placed concrete in a systematic pattern at close intervals. Penetrate previously placed concrete to ensure that separate concrete layers are knitted together.
2. Vibrate concrete sufficiently to achieve consistent consolidation without segregation of coarse aggregates.
3. Do not use vibrators to move concrete laterally.

D. Place concrete for floor slabs in accordance with ACI 302.1R. Schedule continuous placement and consolidation of concrete within planned construction joints.

1. Place concrete in linear pattern, with control joints at slab on grade conditions only, with joints located as indicated on the Drawings.
2. Thoroughly consolidate concrete without displacing reinforcement or embedded items, using internal vibrators, vibrating screeds, roller pipe screeds or vibrating laser screed as described below.

3. Screeding Procedures: Strike off and level concrete slab surfaces before bleed water can collect on surface. Do not work concrete further until finishing operations are commenced.
    a. Typical Slabs: Strike off and level surface using highway straight edges, darbies or bull floats.
4. Create control and construction joints true to line and profile. Do not radius the joints. Refer to the Drawings for structural requirements of joints.
5. Sawcut control joints to one-quarter of slab depth, immediately after slab has achieved initial set and not longer than 8 hours. "Soff-Cut" method is preferred.
6. Alternate control and construction joint products and procedures will be considered in accordance with substitution provision specified in Division 01.

E. Notify Architect not less than 48 hours prior to commencement of placement operations.

F. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

G. Ensure reinforcement, inserts, and waterstops are not disturbed during concrete placement.

H. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.

I. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 SLAB JOINTING

A. Locate joints as indicated on the approved joint layout shop drawings.

B. Anchor joint fillers and devices to prevent movement during concrete placement.

C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.

1. Install where indicated and required on Structural Drawings, to separate slab from other building members, including columns, walls, equipment foundations, footings, stairs, manholes, sumps, and drains.

D. Load Transfer Construction and Contraction Joints: Install load transfer devices as indicated; saw cut joint at surface as indicated for contraction joints.

E. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab.

F. Construction Joints: Where not otherwise indicated, use metal combination screed and key form, with removable top section for joint sealant.

G. Repair underslab vapor retarder damaged during placement of concrete reinforcing. Repair with vapor retarder material; lap over damaged areas minimum 6 inches and seal watertight.

H. Separate slabs on grade from vertical surfaces with joint filler.

I. Place joint filler in floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.

J. Install joint devices in accordance with manufacturer's instructions.

K. Install construction joint devices in coordination with floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.

L. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

M. Place concrete continuously between predetermined expansion, control, and construction joints.

N. Do not interrupt successive placement; do not permit cold joints to occur.

O. Hot Weather Placement: Comply with recommendations of ACI 305R when ambient temperature before, during, or after concrete placement is expected to exceed 90 deg F or when combinations of high air temperature, low relative humidity, and wind speed are such that the rate of evaporation from freshly poured concrete would otherwise exceed 0.2 lbs./SF/Hr..

1. Use evaporation reducer.
2. Do not add water to approved concrete mixes under any conditions.
3. Provide mixing water at lowest feasible temperature, and provide adequate protection of poured concrete to reduce rate of evaporation.
4. Use fog nozzle to cool formwork and reinforcing steel immediately prior to placing concrete.

P. Cold-Weather Placement: Comply with provisions of ACI 306R when air temperature has fallen to or is expected to fall below 40 deg F. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. Uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.

Q. Protection: Ensure that reinforcement, embedded products, joint fillers and joint devices are not disturbed during concrete placement.

3.06 JOINTS

A. Construction Joints: Locate and install construction joints so they do not impair strength or appearance of the structure, as acceptable to Architect.

1. Locate construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as indicated otherwise. Do not continue reinforcement through sides of strip placements.
   a. Dowel Joints: As indicated on Drawings.
2. Hydro wash joint to 1/4 inch aggregate exposure, followed by wet process sandblast or second hydrowash.
3. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.

B. Isolation Joints in Slabs-on-Grade: Construct isolation joints in slabs-on-grade at points of contact between slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, or as indicated.

1. Structural slab contact at foundation walls and grade beams shall be doweled as detailed.

C. Contraction (Control) Joints in Slabs-on-Grade: Construct contraction joints in slabs-on-grade to form panels of patterns as shown.

3.07 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. An independent testing agency, as specified in Section 01 45 00, will inspect finished slabs for compliance with specified tolerances.

B. Maximum Variation of Surface Flatness:

1. Exposed Concrete Floors: 1/4 inch in 10 feet, non-cumulative.
2. Under Seamless Resilient Flooring: 1/4 inch in 10 feet.
3. Under Carpeting: 1/4 inch in 10 feet.
4. For the following applications, depressions in slab floors between high spots shall be a maximum 1/8 inch in 10 ft., using a metal straight edge placed at any location on slab, and measured within 72 hours of pour.
    a. Slabs receiving thin-set ceramic tile as specified in Section 09 30 00 - Tiling.
    b. Additional floor finishes may require similar tolerances that are not noted here. Refer to individual sections for their requirements.
5. Curbs:
    a. Top of Curb: 1/4 inch in 10 ft, non-cumulative.
    b. Side of Curb: 1/8 inch in 10 ft, non-cumulative, vertical and horizontal.

C. Correct the slab surface if tolerances are less than specified.

D. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.08 CONCRETE FINISHING

A. Repair surface defects, immediately after removing formwork.

1. Remove honeycombed areas and other defective concrete down to sound concrete, cutting perpendicular to surface or slightly undercutting without damaging reinforcement. Dampen patch location and area immediately surrounding it prior to applying bonding compound or patching mortar.
2. Before bonding compound has dried, apply patching mixture matching original concrete in materials and mix except for omission of coarse aggregate, and using a blend of white and normal portland cement as necessary to achieve color match. Consolidate thoroughly and strike off slightly higher than surrounding surface.

B. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:

1. Other Surfaces to Be Left Exposed: Trowel as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

C. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at 1:100 nominal.

3.09 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

1. Normal concrete: Not less than seven days.

C. Formed Surfaces: Cure by moist curing with forms in place for full curing period.

D. Surfaces Not in Contact with Forms:

1. Slabs and Floors To Receive Adhesive-Applied Flooring: Curing compounds and other surface coatings are usually considered unacceptable by flooring and adhesive manufacturers. If such materials must be used, either obtain the approval of the flooring and adhesive manufacturers prior to use or remove the surface coating after curing to flooring manufacturer's satisfaction.

2. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water-fog spray or saturated burlap.

a. Spraying: Spray water over floor slab areas and maintain wet.

b. Saturated Burlap: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place.

3. Final Curing: Begin after initial curing but before surface is dry.

a. Moisture-Retaining Sheet: Lap strips not less than 3 inches and seal with waterproof tape or adhesive; secure at edges.

b. Curing Compound: Apply in two coats at right angles, using application rate recommended by manufacturer.

3.10 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures for passage of Work specified in other Sections, after such Work is in place. Mix, place, and cure concrete as specified to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete Work. Us non-shrink grout where required or indicated.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with diagrams or templates of manufacturer furnishing machines and equipment.

3.11 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 45 00 - Quality Control.

B. Provide free access to concrete operations at project site and cooperate with appointed firm.

C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.

D. Field Certifications: For all concrete, provide signed copy of batch plant's certificate stating quantity of each material, amount of water, admixtures, departure time and date accompanying each load of materials or concrete.

E. Field Tests of Concrete: Perform tests in accordance with applicable California Building Code requirements, ACI 301 and requirements of authorities having jurisdiction.

F. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.

G. Compressive Strength Tests: ASTM C39/C39M. For each test, mold and cure four concrete test cylinders. Obtain test samples for every 2,000 sq ft - 50 cu yd or less of slab and structural concrete of each class of concrete placed (CBC requirement).

   1. Test one cylinder at 7 days and two at 28 days after placement.
   2. Maintain fourth cylinder to be tested at 56 days only if 28-day test fails to meet strength requirement.
   3. Take one additional test cylinder during cold weather concreting and cure it at job site under same conditions as concrete it represents. Test cold weather cylinder at 28 days.

H. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.

I. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.

J. Slab Testing: Cooperate with manufacturer of specified moisture vapor reduction admixture (MVRA) to allow access for sampling and testing concrete for compliance with warranty requirements.

3.12 SPECIAL INSPECTIONS FOR CONCRETE CONSTRUCTION (CHAPTER 17A AND 19A)

A. Inspection:

   1. Job Site Inspection: CBC 1705A.3, 1705A.3.5 (Conc. Preplacement), 1705A.3.6 (Placing Record), and 1910A.
   2. Batch Plant or Weighmaster Inspection: CBC 1705A.3.3.

B. Reinforcing Steel, Including: Verify compliance with approved contract documents and ACI 318, Sections 20.2, 25.2 through 25.7, and 26.6.

   1. Reinforcing Bars: CBC 1901A.6; 1910A.2.
   2. Tests:
      a. Tests shall be performed before the delivery of steel to Project site. Steel not meeting specifications shall not be shipped to the Project.
      b. Testing procedure shall conform to ASTM A615/A615M or .

c. Sample at the place of distribution, before shipment:
    1) Make one tensile test and one bending test from samples out of 10 tons, or fraction thereof, of each size and kind of reinforcing steel, where taken from bundles as delivered from the mill and properly identified as to heat number.
    2) Mill analysis shall accompany report.
    3) Where identification number cannot be ascertained, or where random samples are taken, make one series of tests from each 2-1/2 tons, or fraction thereof, of each size and kind of reinforcing steel.
    4) Tests on unidentified reinforcing steel will be paid by the District and backcharged to the Contractor.
    5) Samples shall include not fewer than 2 pieces, each 18 inches long, of each size and kind of reinforcing steel.
d. District's Inspector will inspect all reinforcement for concrete work for size, dimensions, locations and proper placement.

C. Reinforcing Bar Welding: Verify compliance with AWS D1.4/D1.4M and ACI 318, 26.6.4; continuous.
    1. Verify weldability of reinforcing bars other than those complying with ASTM A706/A706M; periodic.
    2. Inspect single-pass fillet welds, maximum 5/16 inch; periodic.
    3. Inspect all other welds; continuous.
    4. Reinforcing Bar Welding Inspection: CBC 1705A.3.1; Table 1705A.3, Item 2; 1903A.8.

D. Anchors Post-Installed in Hardened Concrete: Verify compliance with ACI 318.
    1. Comply with CBC Section 1910A.5; Table 1705A.3, items 4a & 4b, ASCE 7, Section 13.4.
    2. Adhesive Anchors: Verify horizontally or upwardly-inclined orientation installations resisting sustained tension loads - Section 17.8.2.4; continuous.
    3. Other Mechanical and Adhesive Anchors: Verify as per Chapter 17.8.2; periodic.

E. Anchors Installed in Hardened Concrete: Verify compliance with ACI 318; periodic.

F. Design Mix: Verify plastic concrete complies with the design mix in approved contract documents and with CBC Chapter 19A, ACI 318, Sections 26.4.3, 26.4.4; periodic.
    1. Portland Cement Tests: CBC 1705A.3.2, 1910A.1.
    2. Concrete Aggregates: CBC 1705A.3.2, 1903A.5.
    3. Batch Plant Inspection: CBC 1705A.3.3.
    4. Waiver of Continuous Batch Plant Inspection and Tests: CBC 1705A.3.3.1.
    5. Admixtures: CBC 1910A.1.
    6. Proportions of Concrete: CBC 1904A (Durability) and 1905A (Modifications to ACI 318).

G. Concrete Sampling Concurrent with Strength Test Sampling: Each time fresh concrete is sampled for strength tests, verify compliance with ASTM C172/C172M, ASTM C31/C31M and ACI 318, Chapter 26.5, 26.12, and record the following, continuous:
    1. Slump.
    2. Air content.

3. Temperature of concrete.
4. Strength Tests of Concrete: CBC 1905A.1.15; Table 1705A.3 Item 6; ACI 318-14 Sec. 26.12.

H. Concrete Placement: Verify application techniques comply with approved Contract Documents and ACI 318, Chapter 26.5; continuous.

I. Specified Curing Temperature and Techniques: Verify compliance with ACI 318, Chapter 26.5.3-26.5.5; continuous.

J. Concrete Strength in Situ: Verify concrete strength complies with approved Contract Documents, CBC Table 1705A.3, 1905A.1.15, and modified ACI 318, Chapter 26.12.2,1(a).

K. Formwork Shape, Location and Dimensions: Verify compliance with approved Contract Documents and ACI 318, Chapter 26.11.1.2(b); continuous.

L. Welding of Reinforcing Bars: Conduct special inspections and verify Special Inspector's qualifications in accordance with requirements of AWS D1.4/D1.4M.

M. District Inspector (IOR) will do the following:
1. Inspect placing of reinforcing steel and concrete at Project.
2. Obtain weighmaster's certificate and identify mix before accepting each load.
3. Keep daily record of concrete placement, identifying each truck load, time of receipt, and location of concrete in structure.
4. Keep record until completion of Project and make available for inspection by DSA Field Engineer or representative.
5. See also subparagraph on Waiver of Continuous Batch Plant Inspection above.
6. During progress of work, take an additional number of test cylinders as directed by Architect. Conform to CBC 1905A.1.15 (modified ACI 318). Test cylinders need not be made for concrete used in exterior flatwork.
    a. ACI 318 Section 26.12.2.1 shall be replaced and the Contractor shall comply with the following:
        1) Samples for strength test of each class of concrete placed each day shall not be taken less than once for each 50 cubic yards (38.3m3) of concrete, or not less than once for each 2,000 square feet (186 m2) of surface area of for slabs or walls.
        2) Additional samples for seven day compressive strength tests shall be taken for each class of concrete at the beginning of the concrete work or whenever the mix or aggregate is changed.
7. One set of cylinders shall consist of 4 samples all taken from same batch, one to be tested at age of 7 days and two at 28 days.
8. Make and store cylinders according to ASTM C31/C31M.
9. Deliver cylinders to laboratory or store cylinders in a suitable protected environment for pick up by laboratory personnel.
10. Make slump test of wet concrete according to test for slump of portland cement concrete, ASTM C143/C143M, at least at the same frequency that the cylinders are taken.

3.13 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.

B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.

C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

   1. Obtain repair details from Architect (Structural Engineer) and approved by DSA before proceeding.

D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

3.14 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

B. Protect concrete from marring and damage due to weather and construction activities.

   1. In particular, protect concrete floor slabs from oil, paint and other products that might penetrate and degrade concrete surface.

END OF SECTION

SECTION 03 35 11 CONCRETE
FLOOR FINISHES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface treatments for concrete floors and slabs.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Finishing of concrete surface to tolerance; floating, troweling, and similar operations; curing.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with concrete floor placement and concrete floor curing.

B. Pre-Concrete Placement Meeting:

1. Prior to the start of concrete placement Contractor shall conduct a meeting to review the required methods and procedures to achieve the required finish. Contractor shall send a meeting agenda to all attendees 20 days prior to the scheduled date of the meeting

2. The Contractor shall require responsible representatives of every party concerned with the concreting work to attend the meeting, including but not limited to the following: Contractor's superintendent, ready-mix company, testing lab, topping and coating applicator, and Construction Manager.

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittals, for submittal procedures.

B. Product Data: Manufacturer's published data on each finishing product, including information on compatibility of different products and limitations.

C. Maintenance Data: Provide data on maintenance and renewal of applied finishes.

D. Certification: Submit manufacturer's certificate that all materials supplied conform to applicable Federal regulations and to applicable State and Local air pollution emission ordinances and regulations.

1.05 MOCK-UP

A. For coatings, construct mock-up area under conditions similar to those that will exist during application, with coatings applied.

B. Mock-Up Size: 6 feet square. Four sample of each finish.

1. Demonstrate typical joints, surface finish, texture, color, and standard of workmanship.

C. Locate where directed.

D. Acceptable mock-up may remain as part of the work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's sealed packaging, including application instructions.

1.07 FIELD CONDITIONS

A. Maintain light level equivalent to a minimum 200 W light source at 8 feet above the floor surface over each 20 foot square area of floor being finished.

B. Do not finish floors until interior heating system is operational.

C. Maintain ambient temperature of 50 degrees F minimum.

1.08 WARRANTY

A. See Section 01 78 23 - Operation and Maintenance Data for additional warranty requirements.

B. Correct defective work within a two-year period commencing on the Date of Substantial Completion.

C. Finish Warranty: Provide five-year manufacturer warranty against excessive degradation of finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

A. Requirements for Physically Disabled: Provide flooring meeting slip-resistant requirements of California Code of Regulations (CCR), Title 24, Part 2, Chapter 11B and 2010 ADA Standards, latest amendment.

1. Flooring demonstrating a coefficient of friction meeting the intent of slip resistance; CBC 11B-302 Floor or Ground Surfaces, 11B-403 Walking Surfaces, and ADA Standards.

2. Flooring surface shall be stable, firm, and slip resistant. CBC Section 11B-302.1 General.

3. Flooring surface demonstrating a dynamic coefficient of friction of at least 0.42 wet per DCOF AcuTest ANSI A137.1 Section 9.6 and ANSI/NFSI B101.3 (using a BOT-3000 testing unit) will be accepted as meeting the intent of slip resistance; CBC 11B-302 Floor or Ground Surfaces and ADA Standards.

a. Ramp surface: Provide DCOF value of 0.46 wet.

2.02 CONCRETE FLOOR FINISH APPLICATIONS

A. Unless otherwise indicated, all concrete floors are to be finished using high gloss sealer.

B. Liquid Densifier and Hardener:

1. Use at following locations: concrete floors on grade, per finish schedule.

C. High Gloss Clear Sealer:

1. Use at following locations: Concrete floors with sealer.

D. Slip Resistant Coating: High gloss clear sealer with plastic aggregate.

1. Use at following locations: Utility rooms.

2.03 DENSIFIERS AND HARDENERS

A. Liquid Densifier/Hardener: Penetrating chemical compound that reacts with concrete, filling

the pores and dustproofing; for application to concrete after set.

1. Composition: Sodium silicate.
2. Products:
    a. Ameripolish, Inc; 3D HS Hybrid Silicate Densifier: www.ameripolish.com/#sle.
    b. Curecrete Distribution. Inc.; Ashford Formula: www.ashfordformula.com.
    c. Dayton Superior Corporation; Densifier J13: www.daytonsuperior.com/#sle.
    d. Euclid Chemical Company; ULTRASIL LI+: www.euclidchemical.com/#sle.
    e. L&M Construction Chemicals, Inc, a subsidiary of Laticrete International, Inc; SEAL HARD: www.lmcc.com/#sle.
    f. L&M Construction Chemicals, Inc, a subsidiary of Laticrete International, Inc; LiON HARD: www.lmcc.com/#sle.
    g. Nox-Crete Inc; Duro-Nox: www.nox-crete.com/#sle.
    h. PROSOCO, Inc; Consolideck LS/CS: www.prosoco.com/consolideck/#sle.
    i. SpecChem, LLC; Cure Hard: www.specchemllc.com/#sle.
    j. Euclid Chemical Corporation; Eucosil: www.euclidchemical.com.
    k. Paul M. Wolff Co.; SHUR-HARD: www.paulwolffco.com.
    l. W. R. Meadows, Inc; Liqui-Hard: www.wrmeadows.com/#sle.
    m. US Mix Products Co.; US SPEC Industraseal: www.euclidchemical.com.

2.04 COATINGS

A. High Gloss Clear Coating: Transparent, non-yellowing, water- or solvent-based coating.
    1. Composition: Acrylic polymer-based.
    2. Nonvolatile Content: 15 percent, minimum, when measured by volume.
    3. Products:
        a. Basis of Design Product: X-Link E (WL) as manufactured by Ameripolish, Inc, or approved equal.
        b. Ameripolish, Inc; X-Link E (WL): www.ameripolish.com/#sle.
        c. Butterfield Color; Clear Guard H2O Water-Based Wet Look: www.butterfieldcolor.com.
        d. Dayton Superior Corporation; PENTRA-HARD® GUARD: www.daytonsuperior.com/#sle.
        e. Euclid Chemical Company: ULTRAGUARD: www.euclidchemical.com/#sle.
        f. L&M Construction Chemicals, Inc, a subsidiary of Laticrete International, Inc: www.lmcc.com/#sle.
        g. PROSOCO, Inc; LSGuard: www.prosoco.com/consolideck/#sle.
        h. L.M. Scofield Company; SCOFIELD® Selectseal Plus™: www.scofield.com.
        i. The QUIKRETE Companies: www.quikrete.com/#sle.
        j. SpecChem, LLC; Aqua Shine: www.specchemllc.com/#sle.
        k. W. R. Meadows, Inc; Decra-Seal W/B: www.wrmeadows.com/#sle.
B. Low Gloss Clear Coating: Transparent, non-yellowing, water-based coating.
    1. Composition: Acrylic polymer-based.

C. Penetrating Sealer: Transparent, non-yellowing, water-based coating.
    1. Products:
        a. Ameripolish, Inc; 3D SP Concrete Sealer: www.ameripolish.com/#sle.
        b. Ameron International Performance Coatings, Division of PPG Marine and Protective Coatings; Product - Amercoat 335 (USDA approved for incidental food contact.) : www.ppgpmc.com.
        c. Arizona Polymer Flooring; Product - Epoxy 100 : www.apfepoxy.com.
        d. L&M Construction Chemicals, Inc, a subsidiary of Laticrete International, Inc; L&M Permaguard SPS: www.lmcc.com/#sle.
        e. Rustoleum Corporation; Product - Water Based Epoxy 6010 System : www.rustoleum.com. Also available through Vista Paint, www.vistapaint.com.
        f. Tnemec; Enviro-Pox Series 287 Base Coat / Everthane Series 248 Top-Coat : www.tnemec.com.
            1) System: 287/248 EverThane – Low Sheen* Clea+r, UV Stable, WB Epoxy/MC Urethane.
            2) Surface Preparation: Light Shot Blast or Mechanically Abrade (CSP 2-3).
            3) Primer: Series 287 Enviro-Pox. DFT 2.0 to 4.0 Mils.
            4) Intermediate Coat: Series 287 Enviro-Pox. DFT 2.0 to 4.0 Mils.
            5) Finish Coat: Series 248 EverThane*. DFT 2.0 to 3.0 Mils.
            6) Total DFT: 6.0 to 11.0 Mils.

D. Plastic Aggregate: Finely ground polymer for addition to coatings for slip resistance.
    1. Products:
        a. Dayton Superior Corporation: www.daytonsuperior.com/#sle.
        b. Euclid Chemical Company; EUCO GRIP: www.euclidchemical.com/#sle.
        c. SpecChem, LLC; Surface Grip: www.specchemllc.com/#sle.
        d. W. R. Meadows, Inc; Sure-Step: www.wrmeadows.com/#sle.

2.05 JOINT FILLER

A. Two component, semi-rigid, epoxy joint filler with minimum compressive strength at 72 hours of 3000 psi per ASTM D695, minimum elongation of 55% per ASTM D638, and minimum Shore A Hardness of 100 per ASTM D2240.

B. Color(s): As selected by Architect from manufacturer's standard range.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that floor surfaces are acceptable to receive the work of this section.
    1. Concrete substrate shall be structurally sound.

B. Concrete shall be minimum 28 days old.

C. Verify that flaws in concrete have been patched and joints filled with methods and materials suitable for further finishes.

3.02 PREPARATION

A. Blow clean using unoiled air or vacuum clean.

B. Surface profile shall be CSP 2-5 per ICRI 310.2R.

3.03 GENERAL

A. Apply materials in accordance with manufacturer's instructions.

3.04 JOINT FILLER APPLICATION

A. All joint facings shall possess an open surface texture. Run a saw blade or grinder down each side of the joint to expose fresh concrete.

B. Do not use backer rod, sand, or other fill material. Joint filler shall be full depth. A very thin sand layer is acceptable to help prevent the joint filler from flowing into the substrate.

C. Blow joints clean using un-oiled air.

D. Prepare joint filler per manufacturer’s recommendations.

E. Fill to 2/3 of the full depth of the joint.

F. Allow the joint filler to settle and then within 1 hour complete the filling and slightly overfill the joint.

G. Within 24 hours cut flush with a razor knife or grind flush.

3.05 COATING APPLICATION

A. Verify that surface is free of previous coatings, sealers, curing compounds, water repellents, laitance, efflorescence, fats, oils, grease, wax, soluble salts, residues from cleaning agents, and other impediments to adhesion.

B. Verify that water vapor emission from concrete and relative humidity in concrete are within limits established by coating manufacturer.

C. Protect adjacent non-coated areas from drips, overflow, and overspray; immediately remove excess material.

D. Apply coatings in accordance with manufacturer's instructions, matching approved mock-ups for color, special effects, sealing and workmanship.

E. Broadcast system:

1. Apply first layer of coating with non-slip aggregate as recommended by manufacturer.
2. Apply topcoat as recommended by manufacturer.

3.06 SURFACE DENSIFIER/SEALER APPLICATION

A. New Concrete: Apply cure-seal-hardener to new concrete as soon as the concrete is firm enough to work on after troweling; with colored concrete, wait a minimum of 30 days before application.

1. Spray on at rate of 200 sq.ft./gal.
2. Keep surface wet with cure-seal-hardener for a minimum soak-in period of 30 minutes without allowing it to dry out or become slippery.
    a. In hot weather, slipperiness may appear before the 30 minute time period has elapsed.
    b. If that occurs, apply additional cure-seal-hardener as needed to keep the entire

surface in a non-slippery state for the first 15 minutes.

c. For the remaining 15 minutes, mist the surface as needed with water to keep the material in a non-slippery state.

d. In hot weather conditions, follow manufacturer's special application procedures.

3. When the treated surface becomes slippery after this period, lightly mist with water until slipperiness disappears.

4. Wait for surface to become slippery again, and then flush entire surface with water to remove all cure-seal-hardener residue.

5. Squeegee surface completely dry, flushing any remaining slippery areas until no residue remains.

6. Wet vacuum or scrubbing machines can be used in accordance with manufacturer's instructions to remove residue.

3.07 PROTECTION

A. Prevent trades from walking and driving through uncured Joint Filler.

END OF SECTION

SECTION 05 05 19
POST-INSTALLED CONCRETE ANCHORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for materials and equipment for post-installed mechanical and adhesive anchors in concrete.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Placement of anchors in concrete.

B. Section 05 50 00 - Metal Fabrications.

C. Divisions 26 - Electrical: Mounting of equipment and components.

D. Other miscellaneous sections, where indicated.

1.03 REFERENCE STANDARDS

A. ASTM A193/A193M - Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications; 2019.

B. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2018.

C. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2015.

D. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2018.

E. ASTM E488/E488M - Standard Test Methods for Strength of Anchors in Concrete Elements; 2018.

F. ASTM F594 - Standard Specification for Stainless Steel Nuts; 2009 (Reapproved 2015).

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittals, for submittal procedures.

B. Product Data: If requested, manufacturer's product literature and installation instructions for each type of anchor indicated.

C. Samples: If requested, representative length and diameters of each type of anchor shown on the drawings.

D. ICC ES Reports: If requested, ICC Evaluation Service report indicating conformance with ICC-ES Acceptance Criteria.

E. Field quality-control test and inspection reports.

1.05 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency qualified according to ASTM E329 and Division 01 for testing indicated.

B. Installer Training: Prior to beginning the work, manufacturer or manufacturer's representative shall provide on-site training for all contractor's personnel who will be installing anchors.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to project site in manufacturer's or distributor's original packaging undamaged, and with printed installation instructions.

B. Store and handle all materials in accordance with manufacturer's recommendations.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Provide products as indicated on the approved Structural Drawings.

B. Substitutions: Substitutions of products from manufacturer's not listed are not permitted.

1. Substitution of structural anchors requires structural calculations and DSA approval.

2.02 MATERIALS

A. Interior Use: For use in conditioned environments free from potential moisture, provide zinc plated carbon steel anchors.

B. Exterior Use:

1. In exposed or potentially wet environments, and for attachment of exterior cladding materials, provide stainless steel anchors.

2. Stainless steel nuts and washers shall be of matching alloy group of equal or greater strength than the rod.

3. Avoid installing stainless steel anchors in contact with galvanically dissimilar metals.

C. Deformed Reinforcing Bars: Deformed steel rebar conforming to ASTM A615/A615M Grade 60. Permissible sizes as described in each adhesive products ICC report.

2.03 MECHANICAL ANCHORS

A. Expansion, screw or undercut anchors having current ICC approval for use in concrete, with a published ICC Evaluation Service report.

1. Type and size as indicated on drawings.

B. Basis of Design Approved Products conforming to this specification are acceptable for anchoring to concrete are as indicated on Drawings:

C. Basis of Design Approved Products conforming to this specification are acceptable for anchoring to grouted masonry are as indicated on Drawings:

2.04 ADHESIVE ANCHORS

A. Cartridge Injection Adhesive Anchors: Threaded carbon steel rod, inserts, or reinforcing dowels complete with required nuts, washers, adhesive system and manufacturer's installation instructions.

1. Type and size as indicated on drawings.

2. Current ICC approval for use in concrete with a published ICC Evaluation Service report required.

B. Interior Use: Unless otherwise indicated on the Drawings, provide:

1. Carbon steel threaded rods conforming to specification as indicated on structural drawings. Where no specification and grade are indicated, provide: ASTM A193/A193M Type B7 with zinc plating in accordance with ASTM B633, Type III Fe/Zn 5 (SC1).

C. Exterior Use: As indicated on the Drawings, provide stainless steel anchors.

1. Stainless steel anchors shall be AISI Type 304 and Type 316 stainless steel provided with stainless steel nuts and washers of matching alloy group and minimum proof stress equal to or greater than the specified minimum full-size tensile strength of the externally threaded fastener.

2. All nuts shall conform to ASTM F594, unless otherwise specified.

D. Basis of Design Approved Products conforming to this specification are acceptable for anchoring to concrete are as indicated on Drawings:

E. Basis of Design Approved Products conforming to this specification are acceptable for anchoring to grouted masonry are as indicated on Drawings:

2.05 CONCRETE AND MASONRY SCREW ANCHORS

A. Anchors shall be manufactured from carbon steel which is then heat-treated.

1. Anchors shall be zinc-plated in accordance with ASTM B633, Class SC1, Type III.

2. Current ICC approval for use in concrete with a published ICC Evaluation Service report required.

3. Provide anchors with a diameter and anchor length marking on the head.

B. Basis of Design Approved Products conforming to this specification are acceptable for anchoring to concrete are as indicated on Drawings:

2.06 POWER-DRIVEN/POWDER ACTUATED FASTENERS

A. Use only if approved by Architect, generally not permitted where not specifically indicated or in load-bearing installations; as indicated on Drawings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Conditions

1. Base Material Strength: Unless otherwise specified, do not drill holes in concrete until concrete has achieved full design strength.

a. Adhesive anchors shall be installed in concrete having a minimum concrete compressive strength equal to or greater than the specified minimum 28-day compressive strength or a minimum age of 21 days at time of anchor installation. Whichever are more restrictive.

2. Temperature of concrete surface and ambient air temperature must meet manufacturer’s requirements prior to use of adhesive anchor products.

3. Embedded Items:
    a. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors.
    b. Exercise care in coring or drilling to avoid damaging existing reinforcing or embedded items.
    c. Take precautions as necessary to avoid damaging anything embedded in the concrete including electrical/telecommunications conduit, gas pipes, and plumbing pipes.
    d. Notify the Architect if reinforcing steel or other embedded items are encountered during drilling.
4. Beginning of installation indicates acceptance of existing conditions.

3.02 INSTALLATION

A. Installation shall comply with all manufacturer's instructions and current ICC ESR report.

B. Post-Installed Anchors in Hardened Concrete.
    1. Drilled-in anchors and/or powder driven pins in existing non-prestressed reinforced concrete: use care and caution to avoid cutting or damaging the existing reinforcing bars.
    2. Maintain a minimum clearance of one inch between the reinforcement and the drilled-in anchor and/or pin.

C. Manufacturer shall provide on-site training for all personnel who will be installing post-installed adhesive anchors at the beginning of the work. Installation of anchors must be performed by a certified installer.

D. Where manufacturer recommends use of special tools for installation of anchors, such tools shall be used, unless otherwise permitted specifically by the Engineer.

E. Drill holes with rotary impact hammer drills using carbide-tipped bits. Bits must be of type required and permitted by ICC ESR report.
    1. Drill holes with rotary impact hammer drills using carbide-tipped bits or core drills using diamond core bits.
    2. Drill bits shall be of diameters as specified by the anchor manufacturer.
    3. Unless otherwise shown on the Drawings, all holes shall be drilled perpendicular to the concrete surface.
    4. Where anchors are to be installed in cored holes, use core bits with matched tolerances as specified by the manufacturer.
    5. Cored holes may only be used if acceptable to the Engineer and in compliance with ICC ESR report.

F. Holes shall be cleared of debris after holes are drilled per manufacturer's instructions.
    1. For adhesive installations, at a minimum, holes shall be blown out with oil-free compressed air and shall be brushed with a wire or nylon brush.
    2. Holes shall than be blown out one additional time with oil-free compressed air.
    3. Additional hole cleaning requirements may be required by manufacturer and ICC ESR Report.

G. During adhesive curing time period, the temperature of the substrate shall be kept above the minimum substrate temperature as defined by the manufacturer. Contractor shall determine the appropriate means and methods to ensure that the temperature is kept above the required minimum temperature required before adhesive installation is begun.

3.03 FIELD QUALITY CONTROL

A. Inspection: Special inspection of post-installed anchors shall be provided as required by the ICC-ES report for that anchor and not less than the requirements of the Structural Drawings and the following (whichever is the most restrictive):

1. Continuously observe the installation of all anchors, or as specified in the ICC report.
    a. Minimum anchor embedments, proof loads and torques shall be as shown on the Drawings.
    b. Post-Installed Anchor Load Testing: CBC Section 1910A.5.
        1) As indicated on Structural Drawings, minimum 10 % of drilled-in sill plate bolting anchor applications shall be proof loaded by the independent testing laboratory.
        2) 100 % of each type and size of drilled-in anchor shall be proof loaded by the independent testing laboratory.
        3) Adhesive anchors and capsule anchors shall not be torque tested unless otherwise directed by the Architect.
        4) Tension testing should be performed in accordance with ASTM E488/E488M.
        5) Torque shall be applied with a calibrated torque wrench.
        6) Proof loads shall be applied with a calibrated hydraulic ram, as required and indicated on the Structural Drawings. Comply with CBC 1910A.5.
        7) If any of the tested anchors fail to achieve the specified torque or proof load within the limits as defined on the Drawings, all anchors of the same diameter and type as the failed anchor shall be tested, unless otherwise instructed by the Architect.
    c. Verify anchor type, anchor dimensions, hole dimensions, anchor spacing, edge distances, anchor embedment and adherence to the manufacturer's published installation instructions.
    d. For adhesive anchors also verify hole cleaning technique, adhesive expiration date and proper mixing and dispensing.
2. Subsequent inspection of installation will be required when there is a change of personnel doing the installation. Change is defined as any one or more persons drilling or preparing holes, or installing anchors.
3. Visually inspect 100% of all installed anchors.

B. Reporting:

1. Daily reports shall reference the applicable ICC-ES report number, indicate that all specified criteria were complied with and provide itemized verification of all inspected items.
2. Special Inspector shall immediately report any deviations from the requirements to the Architect.

C. Defective Work:

1. Installations that are not accepted by the Special Inspector shall be considered defective.
2. Provide additional testing and inspection to determine acceptability of defective work, as directed by the Architect at Contractor's expense.

3.04 REPAIR OF DEFECTIVE WORK

A. Remove and replace misplaced, defective or malfunctioning anchors at Contractor's expense. Replacement of anchors requires signed structural detail, unless otherwise noted.

B. Fill empty anchor holes and patch failed anchor locations with high-strength, non-shrink non-metallic grout.

END OF SECTION

SECTION 05 50 00
METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated steel items.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.

B. Section 05 05 19 - Post-Installed Concrete Anchors: Placement of metal anchors in concrete.

C. Section 09 91 13 - Exterior Painting: Paint finish.

1.03 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

1. Use 2014 as indicated in 2019 CBC Ch. 35 Referenced Standards.

B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2018.

C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

D. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2014, with Editorial Revision (2017).

E. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2018.

F. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2018.

1. Use 2015 as indicated in 2019 CBC Ch. 35 Referenced Standards.

G. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2018a.

H. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2015.

I. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength; 2018.

J. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2012.

K. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2015, with Errata (2016).

1. Use 2015 as indicated in 2019 CBC Ch. 35 Referenced Standards.

L. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel;

2018.

M. SSPC-PA 1 - Shop, Field, and Maintenance Painting of Steel; 2016.

N. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 1999 (Ed. 2004).

O. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); 2002 (Ed. 2004).

P. SSPC-SP 3 - Power Tool Cleaning; 2018.

Q. SSPC-SP 5 - White Metal Blast Cleaning; 2007.

R. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

S. SSPC-SP 10 - Near-White Blast Cleaning; 2007.

T. SSPC-SP 2 - Hand Tool Cleaning; 2018.

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittals, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.

C. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.

D. Fabricator's Qualification Statement: Provide documentation showing steel fabricator is accredited under IAS AC172.

1.05 QUALITY ASSURANCE

A. Regulatory Requirements: Conform to applicable requirements of California Building Code (CBC), Title 24, Part 2, as amended and adopted by authorities having jurisdiction.

1. Comply with Title 24, Part 9, California Fire Code Chapter 35 "Welding and Other Hot Work."

B. Fabricator Qualifications: A qualified steel fabricator that is accredited by IAS AC172.

C. Welder's Qualifications:

1. Welding shall be performed by certified welders qualified in accordance with procedures specified in applicable referenced AWS standard, using materials, procedures and equipment of the type required for the Work.

2. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone re-certification.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

A. Steel Sections: ASTM A36/A36M, for channels, angles and plates.

B. Steel Tubing (HSS): ASTM A500/A500M, Grade B cold-formed structural tubing.

C. Standard Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.

D. Slotted Channel Framing: ASTM A653/A653M, Grade 33.

E. Slotted Channel Fittings: ASTM A1011/A1011M.

F. Mechanical Fasteners: Same material as or compatible with materials being fastened; type consistent with design and specified quality level.

G. Bolts, Nuts, and Washers: ASTM A307, Grade A, plain.

H. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, plain.

I. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

J. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

1. Comply with SSPC-PA 1. Coordinate with requirements specified in Section 09 91 13 - Exterior Painting.

a. Coordinate primer with finish paint and coating, as applicable, to provide sound foundation for field-applied topcoats despite prolonged exposure during construction.

K. Galvanize all exterior steel members to comply with ASTM A123/A123M. Provide minimum 1.7 oz/sq ft galvanized coating.

L. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

A. Ferrous Metal Surfaces, General:

1. For metal fabrications exposed to view upon completion of the Work: Provide ferrous metals materials selected for their surface flatness, smoothness, and freedom from surface blemishes.

2. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, rolled trade names, roughness, and, for steel sheet, variations in flatness exceeding those permitted by reference standards for stretcher-leveled sheet.

B. Hot-dip galvanize fabricated ferrous items, indicated as remaining unpainted, after fabrication. Field connections shall be bolted or screwed where possible. Avoid field cutting and welding which damage galvanized coating.

C. Fit and shop assemble items in largest practical sections, for delivery to site.

D. Fabricate items with joints tightly fitted and secured.

E. Gas cutting of non-structural steel items may be acceptable where stress is not transmitted through flame-cut surfaces.

1. Make cuts clean and to contour.

2. Deduct 1/8 inch from effective width of members cut by torch.

F. Continuously seal joined members by intermittent welds and plastic filler.

G. Joints Exposed to Weather or Water: Fabricate to keep water out, or provide adequate drainage of water that penetrates.

H. Steel Tubing and Piping Fabrication: Unless otherwise indicated, close ends with plate stock so no exposed ends of tubing and piping. Grind all edges.

I. Connections, General:

1. Component parts of built-up members shall be well-pinned with closely-fitted contact.
2. Conceal connections where possible.
3. Otherwise, make countersinks for concealment after fabrication, except where noted.

J. Welding: Conform to AWS D1.1/D1.1M recommendations.

1. Do not field weld galvanized components to remain unfinished.
2. Provide continuous welds at welded corners and seams.
3. Grind exposed welds smooth and flush with base material.
4. Re-weld to fill holes. Putties and fillers are not acceptable.

K. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

L. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

1. Bolted and Screwed Connections:
   a. Provide holes and connections for work specified in other Sections.
   b. Use bolts for field connections only.
   c. Provide washers under heads and nuts bearing on wood.
   d. Draw all nuts tight and nick threads of permanent connections.
   e. Use beveled washers where bearing is on sloped surfaces.
   f. Where screws must be used for permanent connections in ferrous metal, use flat head type, countersunk, with screw slots filled and finished smooth and flush.

M. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.03 FABRICATED ITEMS

A. Rough Hardware

1. Provide bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels, and other miscellaneous steel and iron shapes as indicated on Drawings.

B. Other Products and Fabrications

1. Other Products and Fabrications: Provide all materials not specifically described but required for a complete and proper installation, as selected by the Contractor, subject to review and acceptance by Construction Manager and Architect.

C. Joist Hangers: Strap anchors, fabricated with sheet steel, 18 gage, 0.0478 inch minimum base metal thickness; galvanized finish.

D. Ledge Angles, Shelf Angles, Channels, and Plates Not Attached to Structural Framing: For support of metal decking; galvanized finish.

E. Slotted Channel Framing: Fabricate channels and fittings from structural steel complying with the referenced standards; electro-galvanized per ASTM B633, Type III, SC 1 finish.

2.04 FINISHES - STEEL

A. Mechanical Finishes: Complete finishing prior to fabrication wherever possible.

1. After fabrication, finish all joints, bends, abrasions, and other surface blemishes to match finish.

2. Protect finish on exposed surfaces by using temporary protective covering.

B. Prime paint steel items.

1. Exceptions: Galvanize items to be embedded in concrete and items to be embedded in masonry.

2. Exceptions: Do not prime surfaces in direct contact with concrete, where field welding is required, and items to be covered with sprayed fireproofing.

C. Prepare surfaces to be primed in accordance with SSPC-SP2.

1. Exterior fabrications: Clean in accordance with SSPC-SP 5, SSPC-SP 6, 8, or SSPC-SP 10.

2. Interior fabrications: Clean in accordance with SSPC-SP 2, SSPC-SP 3, SSPC-SP 5, SSPC-SP 6, 8, or SSPC-SP 10.

D. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

E. Prime Painting: One coat.

F. Galvanizing of Structural Steel Members: Galvanize all exterior steel members after fabrication to ASTM A123/A123M requirements. Provide minimum 1.7 oz/sq ft galvanized coating.

G. Galvanizing of Non-structural Items: Galvanize all exterior steel membersafter fabrication to ASTM A123/A123M requirements.

2.05 FABRICATION TOLERANCES

A. Squareness: 1/8 inch maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch.

C. Maximum Misalignment of Adjacent Members: 1/16 inch.

D. Maximum Bow: 1/8 inch in 48 inches.

E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

F. Punch, drill and reaming in manner to leave clean, true lines and surfaces.

1. Oversize hole 1/16 inch by punching, when material thickness is equal to or less than bolt diameter plus 1/8 inch.

2. Sub-punch 1/16 inch smaller than bolt and drill or ream to oversize by 1/16 inch, when material thickness is thicker than bolt diameter plus 1/8 inch.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

B. Field Inspection of Fabricated Products: Prior to installation, inspect products for damage and verify markings and dimensions against reviewed submittals.

C. Environmental Conditions: Do not install products intended for interior locations when spaces are uncovered and unprotected from inclement weather.

D. Coordination: Coordinate metal fabrications Work with Work specified in other Sections so that related Work shall be accurately and properly joined.

3.02 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete.

C. Make provision for erection loads with temporary bracing. Keep work in alignment.

D. Obtain Architect's review prior to site cutting or making adjustments not indicated on Drawings and reviewed shop drawings.

3.03 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Field weld components as indicated on drawings.

D. Perform field welding in accordance with AWS D1.1/D1.1M.

E. Obtain approval prior to site cutting or making adjustments not scheduled.

F. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.

1. Touch up galvanized steel with cold galvanizing compound.

3.04 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch.

C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

SECTION 08 71 00
DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Hardware for aluminum and hollow metal doors.

B. Electrically operated and controlled hardware.

C. Lock cylinders for doors that hardware is specified in other sections.

D. Thresholds.

E. Weatherstripping and gasketing.

F. Replacement hardware for existing doors.

1.02 RELATED REQUIREMENTS

A. Section 32 31 13 – Chain Link Fences and Gates.

1.03 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. BHMA (CPD) - Certified Products Directory; Current Edition.

C. BHMA A156.1 - American National Standard for Butts and Hinges; 2016.

D. BHMA A156.3 - American National Standard for Exit Devices; 2014.

E. BHMA A156.4 - American National Standard for Door Controls - Closers; 2013.

F. BHMA A156.5 - American National Standard for Cylinders and Input Devices for Locks; 2014.

G. BHMA A156.6 - American National Standard for Architectural Door Trim; 2015.

H. BHMA A156.7 - American National Standard for Template Hinge Dimensions; 2016.

I. BHMA A156.13 - American National Standard for Mortise Locks & Latches Series 1000; 2017.

J. BHMA A156.16 - American National Standard for Auxiliary Hardware; 2018.

K. BHMA A156.17 - American National Standard for Self Closing Hinges & Pivots; 2014.

L. BHMA A156.20 - American National Standard for Strap and Tee Hinges, and Hasps; 2017.

M. BHMA A156.21 - American National Standard for Thresholds; 2014.

N. BHMA A156.22 - American National Standard for Door Gasketing and Edge Seal Systems Sponsor; 2017.

O. BHMA A156.25 - American National Standard for Electrified Locking Devices; 2018.

P. BHMA A156.26 - American National Standard for Continuous Hinges; 2017.

Q. BHMA A156.28 - American National Standard for Recommended Practices for Mechanical Keying Systems; 2018.

R. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames; 2016.

S. DHI (H&S) - Sequence and Format for the Hardware Schedule; 1996.

T. DHI (KSN) - Keying Systems and Nomenclature; 1989.

U. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; 2004.

V. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

W. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2019.

X. UL (DIR) - Online Certifications Directory; Current Edition.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.

B. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

C. Preinstallation Meeting: Convene a preinstallation meeting one week prior to commencing work of this section; attendance is required by affected installers and the following:

1. Architect.
2. Installer's Architectural Hardware Consultant (AHC).
3. Hardware Installer.
4. Owner's Security Consultant.

D. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.

E. Keying Requirements Meeting:

1. Schedule meeting at project site prior to Contractor occupancy.
2. Attendance Required:
    a. Contractor.
    b. District and relevant staff.
    c. Architect.
    d. Installer's Architectural Hardware Consultant (AHC).
    e. Hardware Installer.
3. Agenda:
    a. Establish keying requirements.
    b. Verify locksets and locking hardware are functionally correct for project requirements.
    c. Verify that keying and programming complies with project requirements.

d. Establish keying submittal schedule and update requirements.

4. Incorporate "Keying Requirements Meeting" decisions into keying submittal upon review of door hardware keying system including, but not limited to, the following:
   a. Access control requirements.
   b. Key control system requirements.
   c. Schematic diagram of preliminary key system.
5. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, District, participants, and those affected by decisions made.
   a. Furnish District's written approval of the system; do not order keys or cylinders without written confirmation of actual requirements from the District.
6. Deliver established keying requirements to manufacturers.

1.05 SUBMITTALS

A. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.

B. Shop Drawings - Door Hardware Schedule: Submit detailed listing that includes each item of hardware to be installed on each door. Use door numbering scheme as included in Contract Documents.
   1. Prepared by or under supervision of Architectural Hardware Consultant (AHC).
   2. Comply with DHI (H&S) using door numbers and hardware set numbers as indicated in construction documents.
      a. Submit in vertical format, refer to Section 08 06 71.
   3. List groups and suffixes in proper sequence.
   4. Provide complete description for each door listed.
   5. Provide manufacturer's and product names, and catalog numbers; include functions, types, styles, sizes and finishes of each item.
   6. Include account of abbreviations and symbols used in schedule.

C. Shop Drawings - Electrified Door Hardware: Submit diagrams for power, signal, and control wiring for electrified door hardware that include details of interface with building safety and security systems. Provide elevations and diagrams for each electrified door opening as follows:
   1. Prepared by or under supervision of Architectural Hardware Consultant (AHC) and Electrified Hardware Consultant (EHC).
   2. Elevations: Submit front and back elevations of each door opening showing electrified devices with connections installed and an operations narrative describing how opening operates from either side at any given time.
   3. Diagrams: Submit point-to-point wiring diagram that shows each device in door opening system with related colored wire connections to each device.

D. Samples for Verification:
   1. Submit minimum size of 2 by 4 inch for sheet samples, and minimum length of 4 inch for other products.

2. Submit one (1) sample of hinge, latchset, lockset, and closer illustrating style, color, and finish.
3. Return full-size samples to be incorporated into this Work.
4. Submit product description with samples.

E. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

F. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
1. Submit manufacturer's parts lists and templates.
2. Bitting List: List of combinations as furnished.

G. Keying Schedule:
1. Submit three (3) copies of Keying Schedule in compliance with requirements established during Keying Requirements Meeting unless otherwise indicated.

H. Installer's Qualification Statement.

I. Supplier's Qualification Statement.

J. District Responsibilities for submittal review:
1. Complete keying schedule.
2. Complete keying legend.
3. Provide original letter of authorization allowing hardware supplier to purchase keying hardware and to have the bitting list sent to District.
4. Provide District the locksmith's name, address, phone number and email.
5. Identify how doors are to be keyed.
6. For existing systems, provide the registry number.

K. Manufacturers' certificates that fire-rated hardware meets or exceeds specified requirements.

L. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in District's name and registered with manufacturer.

M. Project Record Documents: Record actual locations of concealed equipment, services, and conduit.

N. Maintenance Materials and Tools: Furnish the following for District's use in maintenance of project.
1. Lock Cylinders: Ten for each master keyed group.
2. Temporary Cores: Return to and receipt by Contractor.
3. Tools: Two sets of each special wrench or tool applicable for each different or special hardware component, whether supplied by hardware component manufacturer or not.

1.06 QUALITY ASSURANCE

A. Standards for Fire-Rated Doors: Maintain one copy of each referenced standard on site, for use by Architect and Contractor.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.

C. Installer Qualifications: Company specializing in performing work of the type specified for commercial door hardware with at least three years of documented experience.

D. Supplier Qualifications: Company with certified Architectural Hardware Consultant (AHC) and Electrified Hardware Consultant (EHC) to assist in work of this section.

1.07 REGULATORY REQUIREMENTS

A. Comply with State Fire Marshal Standard 12-10-3 Exits, Section 12-10-302.

1. The cross-bar shall extend across not less than one-half the width of the door/gate.
2. The ends of the cross-bar shall be curved, guarded or otherwise designed to prevent catching on the clothing of persons during egress.

B. Conform to applicable requirements of the CBC Chapter 11B and ADA Standards regarding accessibility requirements for door and entrance hardware including gates.

1. Doors/doorways as part of an accessible route shall comply with CBC Sections 11B-404.
2. Doors shall meet California Building Code Sections 11B-206.5, 11b-404.1 and 1010.1.
3. The clear opening width for a door shall be 32 inches minimum. CBC Section 11B-404.2.3
   a. For a swinging door it shall be measured between the face of the door and the stop, with the door open 90 degrees.
   b. There shall be no projections into it below 34 inches and 4 inches maximum projections into it between 34 inches and 80 inches above the finish floor or ground.
   c. Door closers and stops shall be permitted to be 78 inches minimum above the finish floor or ground.
   d. Exception: Doors not requiring full passage through the opening, that is, to spaces less than 24 inches in depth, may have the clear opening width reduced to 20 inches. Example: shallow closets.
4. Handles, pulls, latches, locks, and other operable parts on accessible doors shall comply with CBC Section 11B-309.4 and shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist.
   a. Operable parts of such hardware shall be 34 inches minimum and 44 inches maximum above finish floor or ground.
   b. Where sliding doors are in the fully open position, operating hardware shall be exposed and usable form both side. CBC Section 11B-404.2.7
5. The force for pushing or pulling open a door shall be as follows: CBC Section 11B-404.2.9.
   a. Interior Hinged Doors, sliding or folding doors, and exterior hinged doors: 5 lbs maximum.
   b. Required Fire Doors: the maximum opening force allowable by the DSA authority, not to exceed 15 lbs..
   c. These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position.

d. The force required to activate any operable parts, such as retracting latch bolts or disengaging other devices, shall be 5 lbs. maximum to comply with CBC Section 11B-309.4.

6. Door closing speed shall be as follows: CBC Section 11B-404.2.8
   a. Closer shall be adjusted so that the required time to move a door from an open position of 90 degrees to a position of 12 degrees from the latch is 5 seconds minimum.
   b. Spring hinges shall be adjusted so that the required time to move a door from an open position of 70 degrees to the closed position is 1.5 seconds minimum.
7. Thresholds shall comply with CBC Section 11B-404.2.5.
8. Floor stops shall not be located in the path of travel and 4 inches maximum from walls.
9. Pair of doors: Limit swing of one leaf to 90 degrees so that a clear floor space is provided beyond the arc of the swing for the wall-mounted tactile sign. CBC Section 11B-703.4.2.1

C. Door and door hardware encroachment: when door is swung fully-open into means-of-egress path, the door, including the hardware, may not encroach or project more than 7 inches into the required exit width. California Building Code 1005.7.1.

D. SB 211 - DSA Bulletin 11-05
   1. Provide all latching devices that are lockable (including but not limited to door locks and panic/exit devices) that comply with CBC 1010.1.11:
      a. All new construction projects to include locks that allow the doors to be locked from the inside.
      b. The requirement applies to classrooms and any other room with an occupancy of 5 or more persons, but does not include doors that are locked from the outside at all times or student restrooms.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Package hardware items individually; label and identify each package with door opening code to match door hardware schedule.

1.09 PROJECT CONDITIONS AND COORDINATION:

A. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical the same operation and quality as type specified, subject to Architect's approval.

B. Coordination:
   1. Coordinate hardware with other work.
   2. Provide hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated, as necessary for proper installation and function, regardless of omissions or conflicts in the information on the Contract Documents.
   3. Furnish related trades with the following information:
      a. Location of embedded and attached items to concrete.
      b. Location of wall-mounted hardware, including wall stops.
      c. Location of finish floor materials and floor-mounted hardware.

d. Locations for conduit and raceways as needed for electrical, electronic and electro-pneumatic hardware items.
    1) Fire/life-safety system interfacing.
    2) Point-to-point wiring diagrams plus riser diagrams to related trades.
e. Coordinate: flush top rails of doors at outswinging exteriors, and throughout where adhesive-mounted seals occur.
f. Manufacturers' templates to door and frame fabricators.

C. Check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation.

1.10 WARRANTY

A. Warranty against defects in material and workmanship for period indicated, from Date of Substantial Completion.

1. Closers: Five years, minimum.
    a. Mechanical thirty year year for door closers.
    b. Electrical two year year for door closers.
2. Exit Devices: Three years, minimum.
3. Locksets and Cylinders: Three years, minimum.
    a. Seven years for extra heavy-duty cylindrical lock.
4. Other Hardware: Two years, minimum.

PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.

B. Provide individual items of single type, of same model, and by same manufacturer.

C. Provide door hardware products that comply with the following requirements:

1. Applicable provisions of federal, state, and local codes.
2. Comply with SB 211 (DSA Bulletin 11-05); CBC section 1010.1.11.
3. Accessibility: ADA Standards, CBC Chapter 11B.
4. Listed and certified compliant with specified standards by BHMA (CPD).
5. Auxiliary Hardware: BHMA A156.16.
6. Straps and Tee Hinges: BHMA A156.20.
7. Hardware Preparation for Steel Doors and Steel Frames: BHMA A156.115.
8. Products Requiring Electrical Connection: Listed and classified by UL (DIR) as suitable for the purpose specified.

D. Electrically Operated and/or Controlled Hardware: Provide necessary power supplies, power transfer hinges, relays, and interfaces as required for proper operation; provide wiring between hardware and control components and to building power connection in compliance with NFPA 70.

1. Refer to Section 28 10 00 for additional access control system requirements.

E. Lock Function: Provide lock and latch function numbers and descriptions of manufacturer's series. Refer to Section 08 06 71 for listing of hardware sets.

1. Exit Doors: Openable at all times from the inside without the use of a key or any special knowledge or effort.

F. Fasteners:

1. Provide fasteners of proper type, size, quantity, and finish that comply with commercially recognized standards for proposed applications.
   a. Aluminum fasteners are not permitted.
   b. Provide phillips flat-head screws with heads finished to match door surface hardware unless otherwise indicated.
2. Provide machine screws for attachment to reinforced hollow metal and aluminum frames.
   a. Self-drilling (Tek) type screws are not permitted.
3. Provide stainless steel machine screws and lead expansion shields for concrete and masonry substrates.
4. Coordinate With Doors: Ensure provision of proper blocking to support wood screws at wood doors and machine screws at metal doors/frames to mounting panic hardware and door closers.
5. No through-bolts are allowed on any door type.
6. Fire-Rated Applications: Comply with NFPA 80.
   a. Provide wood or machine screws for hinges mortised to doors or frames, strike plates to frames, and closers to doors and frames.
   b. Provide steel through bolts for attachment of surface mounted closers, hinges, or exit devices to door panels unless proper door blocking is provided.
7. Concealed Fasteners: Do not use through or sex bolt type fasteners on door panel sides indicated as concealed fastener locations, unless otherwise indicated.

2.02 HINGES

A. Hinges: Comply with BHMA A156.1, Grade 1.

1. Self Closing Hinges: Comply with BHMA A156.17.
2. Butt Hinges: Comply with BHMA A156.1 and BHMA A156.7 for templated hinges.
   a. Provide hinge width required to clear surrounding trim.
   b. Drawings typically depict doors at 90 degrees, doors will actually swing to maximum allowable.
      1) Use wide-throw conventional or continuous hinges as needed up to 8 inches in width to allow door to stand parallel to wall for true 180-degree opening.
      2) Advise Architect if 8 inch width is insufficient.
   c. Conform to manufacturer’s published hinge selection standard for door dimensions, weight and frequency, and to hinge selection as scheduled.

1) Where manufacturer's standard exceeds the scheduled product, furnish the heavier of the two choices, notify Architect of deviation from scheduled hardware.

d. Conventional Hinges: Steel or stainless steel pins and concealed bearings. Hinge open widths minimum, but of sufficient throw to permit maximum door swing.

3. Continuous Hinges: Comply with BHMA A156.26.
4. Provide hinges on every swinging door.
5. Provide five-knuckle full mortise butt hinges unless otherwise indicated.
6. Provide ball-bearing hinges at each door with closer.
7. Provide non-removable pins on exterior outswinging doors.
   a. Out-swinging exterior doors: Non-ferrous with non-removable (NRP) pins and security studs.
   b. Non-ferrous material exteriors and at doors subject to corrosive atmospheric conditions.
8. Provide non-removable pins on interior outswinging doors at locations as indicated in Door Hardware Schedule.
9. Provide power transfer hinges where electrified hardware is mounted in door leaf.
10. Provide following quantity of butt hinges for each door:
    a. Doors up to 60 inches High: Two hinges.
    b. Doors From 60 inches High up to 90 inches High: Three hinges.
    c. Doors 90 inches High up to 120 inches High: Four hinges.

2.03 EXIT DEVICES

A. Exit Devices: Comply with BHMA A156.3, Grade 1.

1. Lever design to match lockset trim.
2. Provide cylinder with cylinder dogging or locking trim.
3. Provide exit devices properly sized for door width and height.
4. Provide strike as recommended by manufacturer for application indicated.
5. Releasable in normal operation with 5-lb. maximum operating force per California State CBC Chapter 11B-309.4.
6. Comply with SB 211 (DSA Bulletin 11-05); CBC section 1010.1.11.
7. Readily openable from egress side with one hand and without tight grasping, tight pinching, or twisting of the wrist to operate.
8. Comply with CBC Section 1010.1.9 and State Fire Marshal Standard 12-10-3 Exits, Section 12-10-302.
9. Trim to meet BHMA A156.3 Trim Security Test.
10. Provide UL (DIR) listed exit device assemblies for fire-rated doors and panic device assemblies for non-fire-rated doors.
11. For electrical options, provide quick connect plug-in pre-wired connectors.

2.04 LOCK CYLINDERS

A. Lock Cylinders: Provide key access on outside of each lock, unless otherwise indicated.

1. Provide standard, electronic, conventional, and full size interchangeable core (FSIC) type cylinders, Grade 1, with six-pin core in compliance with BHMA A156.5 at locations indicated.
2. Provide cylinders from same manufacturer as locking device.
3. Provide cams and/or tailpieces as required for locking devices.
4. Furnish keyed at factory of lock manufacturer where permanent records are maintained.
5. Locks and cylinders by the same manufacturer.
6. Within specific Door Sections, when provisions for lock cylinder are being referenced to this Section, provide specified lock cylinder and keyed to building keying system, unless otherwise indicated.

2.05 MORTISE LOCKS

A. Comply with SB 211 (DSA Bulletin 11-05); CBC section 1010.1.11.

B. Mortise Locks: Complying with BHMA A156.13, Grade 1.

1. Latchbolt Throw: 3/4 inch, minimum.
2. Deadbolt Throw: 1 inch, minimum.
3. Backset: 2-3/4 inch unless otherwise indicated.
4. Strikes: Provide manufacturer's standard strike for each latchset or lockset with strike box and curved lip extending to protect frame in compliance with indicated requirements.
    a. Flat-Lip Strikes: Provide for locks with three piece antifriction latchbolts as recommended by manufacturer.
    b. Extra-Long-Lip Strikes: Provide for locks used on frames with applied wood casing trim.
    c. Aluminum-Frame Strike Box: Provide strike box fabricated for use with aluminum framing by framing manufacturer.
    d. Rabbet Front and Strike: Provide on locksets for use with rabbeted meeting rails.
    e. Finish: To match lock or latch.

2.06 DOOR PULLS AND PUSH PLATES

A. Door Pulls and Push Plates: Comply with BHMA A156.6.

1. Pull Type: Straight, unless otherwise indicated.
2. Push Plate Type: Flat, with square corners, unless otherwise indicated.
    a. Edges: Beveled, unless otherwise indicated.
3. Material: Aluminum, unless otherwise indicated.
4. Provide door pulls and push plates on doors without a lockset, latchset, exit device, or auxiliary lock unless otherwise indicated.
5. On solid doors, provide matching door pull and push plate on opposite faces.

6. On glazed storefront doors, provide matching door pulls/push plates on both faces unless otherwise indicated.

2.07 CLOSERS

A. Closers: Comply with BHMA A156.4, Grade 1.

1. Type: Surface mounted to door.
2. Provide door closer on each exterior door.
3. Provide door closer on each fire-rated and smoke-rated door.
   a. Spring hinges are not an acceptable self-closing device, unless otherwise indicated.
4. Where an overlapping astragal is included on pairs of swinging doors, provide coordinator to ensure door leaves close in proper order.
5. At corridor entry doors, mount closer on room side of door.
6. At outswinging exterior doors, mount closer on interior side of door.

2.08 HYDRAULIC GATE CLOSER AND HINGE

A. Basis of Design Product: Mammoth 180 with Dino hinge as manufactured by Loconix, or approved equal.

B. Self Closing Hinges: Comply with BHMA A156.17.

C. Description:

1. 100% mechanical (no electronic components).
2. Closing Speed: Adjusting a valve with an Allen key.
3. Closing Force: Adjustable to maximum 5 lbs operating force. Comply with ADA Standards and CBC Ch. 11B.
4. Allow for a 180 degrees opening angle of the gate.
   a. When opened 180 degrees, the gate closer should self-close over the 180 degrees.
5. Include corresponding bottom hinge.
6. Dampening Mechanism: Hydraulic .
7. The gate closer should have double rubber sealings to avoid oil leakage at all times.
8. Color: Black or silver color, as selected by Architect.

D. Performance

1. The gate closer shall be specifically made for outdoor use (IP69).
2. Gates up to 330 lbs and gate width up to 5 feet.
3. The opening pressure of the gate closer shall be between 3 and 5 lbs. maximum over the full 180 degrees.
4. Guarantee the hydraulic dampening to work properly under all temperature circumstances without any summer or winter adjustments, measured at a 90° opening. The viscosity of the oil shall have no impact on the performance of the gate closer.
   a. The closing time shall not be below 10 seconds at 70 degrees Celsius (summer).
   b. The closing time shall not be longer than 30 seconds at -30 degrees Celsius (winter).

5. Tested for 500,000 movements.
6. Maintenance free (no greasing nor oil refill).
7. Manufacturer Warranty: 3 years.

2.09 KICK PLATES

A. Kick Plates: Provide along bottom edge of push side of every door with closer, except aluminum storefront and glass entry doors, unless otherwise indicated.
   1. Size: 10 inch high by 2 inch less door width (LDW) on push side of door.

2.10 MOP PLATES

A. Mop Plates: Provide along bottom edge of push side of doors to provide protection from cleaning liquids and equipment damage to door surface.
   1. Size: 4 inch high by 1-1/2 inch less door width (LDW) on pull side and 2 inch LDW on push side of door.

2.11 FLOOR STOPS

A. Floor Stops: Comply with BHMA A156.16, Grade 1 and Resilient Material Retention Test as described in this standard.
   1. Provide floor stops when wall surface is not available; be cautious not to create a tripping hazard.
   2. Type: Manual hold-open, with pencil floor stop.
   3. Material: Aluminum housing with rubber insert.

2.12 WALL STOPS

A. Wall Stops: Comply with BHMA A156.16, Grade 1 and Resilient Material Retention Test as described in this standard.
   1. Provide wall stops to prevent damage to wall surface upon opening door.
   2. Type: Bumper, concave, wall stop.
   3. Material: Aluminum housing with rubber insert.

2.13 THRESHOLDS

A. Thresholds: Comply with BHMA A156.21.
   1. Provide threshold at interior doors for transition between two different floor types, and over building expansion joints, unless otherwise indicated.
   2. Provide threshold at each exterior door, unless otherwise indicated.
   3. Type: Flat surface.
   4. Material: Aluminum.
   5. Threshold Surface: Fluted horizontal grooves across full width.
   6. Field cut threshold to profile of frame and width of door sill for tight fit.
   7. Provide non-corroding fasteners at exterior locations.

2.14 WEATHERSTRIPPING AND GASKETING

A. Weatherstripping and Gasketing: Comply with BHMA A156.22.

1. Head and Jamb Type: Adjustable.
2. Door Sweep Type: Encased in retainer.
3. Material: Aluminum, with brush weatherstripping.
4. Provide weatherstripping on each exterior door at head, jambs, and meeting stiles of door pairs, unless otherwise indicated; .
5. Provide door bottom sweep on each exterior door, unless otherwise indicated.
6. Provide sound-rated gasketing and automatic door bottom on doors indicated as "Sound-Rated", "Acoustical", or with "Sound Transmission Class (STC) rating"; fabricate as continuous gasketing, do not cut or notch gasketing material.

2.15 SILENCERS

A. Silencers: Provide at equal locations on door frame to mute sound of door's impact upon closing.

1. Single Door: Provide three on strike jamb of frame.
2. Pair of Doors: Provide two on head of frame, one for each door at latch side.
3. Material: Rubber, gray color.

2.16 WIRELESS ACCESS MANAGEMENT SYSTEMS

A. Wireless Access Management Systems: Comply with guidelines of BHMA A156.25, and including necessary hardware for fully functional system.

1. Reader Formats: Provide magnetic stripe, proximity, dual validation, or key Fob to activate access system functionality.
2. Door Locking Hardware: Provide applicable cylindrical locksets, panic hardware, or mortise locksets in compliance with project access control requirements.

2.17 KEY CONTROL SYSTEMS

A. Key Control Systems: Comply with guidelines of BHMA A156.28.

1. Provide keying information in compliance with DHI (KSN) standards.
2. Keying: Grand master keyed.
3. Include construction keying and control keying with removable core cylinders.
    a. Provide temporary keyed-alike cores.
    b. Remove at substantial completion and install permanent cylinders/cores in District’s presence.
        1) Demonstrate that construction key no longer operates.
4. Key to existing keying system.
    a. Factory registered master key system.
    b. Schlage Restricted keyway, interchangeable core.
    c. Contact District Locksmith with for keying requirements.

d. Key blanks available only from factory-direct sources, not available from after-market key blank manufacturers.
e. For estimate use factory GMK charge.
f. Furnish District's written approval of the system.

5. Supply keys in following quantities:
   a. 4 each Master keys.
   b. 1 each Grand Master keys.
   c. 6 each Construction Master keys.
   d. 15 each Construction keys.
   e. 2 each Construction Control keys.
   f. 2 each Control keys if new system.
   g. 2 each Extra Cylinder cores.
   h. 2 each Change keys for each keyed core.
6. Key Management System: For each keyed lock on project, provide one set of consecutively numbered duplicate key tags with hanging hole and snap catch.
7. Security Key Tags: For each keyed lock on project, provide one set of matching key tags for permanent attachment to one key of each set.
8. Provide key collection envelopes, receipt cards, and index cards in quantity suitable to manage number of keys.
9. Deliver keys with identifying tags to District by security shipment direct from hardware supplier.
10. Bitting List: Use secured shipment direct from point of origination to District upon completion.
11. Permanent Keys and Cores: Stamped with applicable key marking for identification. Do not include actual key cuts within visual key control marks or codes. Stamp permanent keys "Do Not Duplicate."

2.18 KEY CABINET

A. Key Cabinet: Sheet steel construction, piano hinged door with key lock; BHMA A156.28.
   1. Mounting: Wall-mounted.
   2. Capacity: Actual quantity of keys, plus 25 percent additional capacity.
   3. Size: 14-1/2 inches wide by 18 inches high by 5 inches deep.
   4. Size key hooks to hold 6 keys each.
   5. Finish: Baked enamel, manufacturer's standard color.
   6. Key cabinet lock to building keying system.

2.19 FIRE DEPARTMENT LOCK BOX

A. Manufacturers:
   1. Knox Company; Knox-Box Rapid Entry System; Model 3227: www.knoxbox.com.

B. Fire Department Lock Box: at Buildings or Site Walls

1. Heavy-duty, recessed, solid stainless-steel box with hinged door and interior gasket seal; single drill resistant lock with dust covers and tamper alarm.
2. Capacity: Holds 10 keys.
3. Finish: Manufacturer's standard dark bronze.
4. Mounted to posts at manual gates (for driveways/roads) and as indicated on Drawings:
    a. Key lock boxes shall be located at driver's side of gate entrance in a visible location as directed by Fire Department.
        1) Box shall be welded secure to metal posts. Box shall be 4 to 4-1/2 feet from top of box to finished grade.
    b. Obtain approval from Fire Department of mounting location/position and operating standards before installation.
    c. Products:
        1) Knox Company; Model 3208 or 3166, as applicable.
        2) Knox Decal 1001 shall be placed on gate.

C. Provide Knox Fire Department alert decals on all exterior doors of the facility and on all interior doors that keys have been furnished for within the lock box.
1. If the building/facility is protected with a fire alarm system or burglar alarm system, the lock boxes shall be “tamper” monitoring.
2. The tamper monitoring must include the following:
    a. All central stations shall be UL listed.
    b. For combination Fire/Burglar Alarm Panels, the Knox Box monitoring shall be through the fire side of the panel.
    c. Central stations upon receiving a Knox Box tamper alarm signal shall:
        1) Notify and respond to local Police Department (Knox Box tamper).
        2) Notify and respond to the local Fire Department (Knox Box tamper).

2.20 FINISHES

A. Finishes: Identified on Drawings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that doors and frames are ready to receive this work; labeled, fire-rated doors and frames are properly installed, and dimensions are as indicated on shop drawings.

B. Verify that electric power is available to power operated devices and of correct characteristics.

3.02 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.
1. Locate hardware per SDI-100 and applicable building, fire, life-safety, accessibility, and security codes.

2. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation. Remove and reinstall or replace work deemed defective by Architect.
    a. Gaskets:
        1) Install jamb-applied gaskets before closers, overhead stops, rim strikes, etc; fasten hardware over and through these seals.
        2) Install sweeps across bottoms of doors before astragals, cope sweeps around bottom pivots, trim astragals to tops of sweeps.
    b. Use manufacturers' fasteners furnished with hardware items, or submit Request for Substitution with Architect.
    c. Replace fasteners damaged by power-driven tools.
3. Core concrete for exterior door stop anchors. Set anchors in approved non-shrink grout.
4. Lubricate and adjust existing hardware scheduled to remain. Carefully remove and give to District items not scheduled for reuse.

B. Use templates provided by hardware item manufacturer.

C. Do not install surface mounted items until application of finishes to substrate are fully completed.

D. Door Hardware Mounting Heights: Distance from finished floor to center line of hardware item. As indicated in following list; unless noted otherwise in Door Hardware Schedule or on drawings.
1. Comply with California Building Code, Section 1010.1.9.2, 11B-309.4 and 11B-404.2.7.
    a. Refer also to CBC requirements noted in Part 1 of this section.
2. For Steel Doors and Frames: Install in compliance with DHI (LOCS) recommendations.
3. For Steel Doors and Frames: Refer to Section 08 11 13.
4. For Aluminum-Framed Storefront Doors and Frames: Refer to Section 08 43 13.
5. Mounting heights in compliance with ADA Standards and CBC Chapter 11B:
    a. Locksets: 34 to 44 inches.
    b. Push/Pulls: 34 to 44 inches.
    c. Dead Locks: 44 inches.
    d. Exit Devices: 36 (clear) to 44 inches.
    e. Where new hardware is to be installed near existing doors/hardware scheduled to remain, match locations of existing hardware when compliant with codes.

E. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.
1. Refer to Section 07 92 00 for additional requirements.

F. Locate floor stops no more that 4 inches (maximum outside dimension) from walls and not within paths of travel. See Article "Hinges" in Part 2 regarding hinge widths, door should be well clear of point of wall reveal. Point of door contact no closer to the hinge edge than half the door width. Where situation is questionable or difficult, contact Architect for direction.

G. Locate overhead stops for minimum 90 degrees at rest and for maximum allowable degree of swing.

3.03 FIELD QUALITY CONTROL

A. Perform field inspection and testing under provisions of Section 01 45 00 - Quality Control.

B. Provide an Architectural Hardware Consultant (AHC) to inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.

3.04 ADJUSTING

A. Adjust hardware for smooth operation.

1. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.
    a. Hardware damaged by improper installation or adjustment methods: repair or replace to District's satisfaction.
    b. Adjust doors to fully latch with no more than 1 pound of pressure.
    c. Adjust delayed-action closers on fire-rated doors to fully close from fully-opened position in no more than 10 seconds.
    d. Adjust door closers per "Commissioning" article below.

B. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

C. Final inspection: Installer to provide letter to District that upon completion installer has visited the Project and has accomplished the following:

1. Has re-adjusted hardware.
2. Has evaluated maintenance procedures and recommend changes or additions, and instructed District's personnel.
3. Has identified items that have deteriorated or failed.
4. Has submitted written report identifying problems.

3.05 COMMISSIONING:

A. Conduct these tests prior to request for certificate of substantial completion:

1. With installer, access control contractor and electrical contractor present, test electrical, electronic and electro-pneumatic hardware systems for satisfactory operation.
2. With installer and electrical contractor present, test hardware interfaced with fire/life-safety system for proper operation and release.
3. With installer present, test door hardware operation for compliance with push and pull force requirements per ADA and CBC.

3.06 CLEANING

A. Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.

B. Clean adjacent surfaces soiled by hardware installation.

C. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

3.07 PROTECTION

A. Do not permit adjacent work to damage hardware or finish.

3.08 CLOSEOUT

A. Return of temporary cores for return/receipt by Contractor.

B. Final inspection: Installer to provide letter to District that upon completion installer has visited the Project and has accomplished the following:

1. Has re-adjusted hardware.
2. Has evaluated maintenance procedures and recommend changes or additions, and instructed District's personnel.
3. Has identified items that have deteriorated or failed.
4. Has submitted written report identifying problems.

3.09 SCHEDULE OF FINISH HARDWARE

A. See door schedule in drawings for hardware set assignments.

B. No hardware shall be ordered until Finish Hardware has been reviewed and approved by Architect's hardware consultant.

C. Provide Factory order numbers for all products supplied on this project as part of close out documents for Owner's warranty records.

END OF SECTION

SECTION 09 91 13
EXTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints.

C. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:

1. Exposed surfaces of steel lintels and ledge angles.
2. Mechanical and Electrical:
    a. On the roof and outdoors, paint equipment exposed to weather or to view, including factory-finished materials.

D. Do Not Paint or Finish the Following Items:

1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
2. Items indicated to receive other finishes.
3. Items indicated to remain unfinished.
4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
5. Non-metallic roofing and flashing.
6. Stainless steel, anodized aluminum, bronze, terne-coated stainless steel, zinc, and lead.
7. Floors, unless specifically indicated.
8. Brick, Architectural concrete, and Cast stone.
9. Glass.
10. Concrete masonry units in utility, mechanical, and electrical spaces.
11. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

A. Section 05 50 00 - Metal Fabrications: Shop-primed items.

1.03 DEFINITIONS

A. Comply with ASTM D16 for interpretation of terms used in this section.

1.04 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2016.

C. ASTM D4258 - Standard Practice for Surface Cleaning Concrete for Coating; 2005 (Reapproved 2017).

D. CARB (SCM) - Suggested Control Measure for Architectural Coatings; California Air Resources Board; 2007.

E. SCAQMD 1113 - Architectural Coatings; 1977 (Amended 2016).

F. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).

G. SSPC-SP 2 - Hand Tool Cleaning; 2018.

H. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

I. SSPC-SP 13 - Surface Preparation of Concrete; 1997 (Reaffirmed 2003).

1.05 SUBMITTALS

A. See Section 01 33 00 - Submittals, for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:

1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
2. MPI product number (e.g. MPI #47).
3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
4. Manufacturer's installation instructions.
5. If proposal of substitutions is allowed under submittal procedures, explanation of substitutions proposed.

C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.

1. Where sheen is specified, submit samples in only that sheen.
2. Where sheen is not specified, discuss sheen options with Architect before preparing samples, to eliminate sheens not required.

D. Samples: Submit two painted samples, illustrating selected colors and textures for each color and system selected with specified coats cascaded. Submit on tempered hardboard, 8 by 10 inch in size.

E. Certification: By manufacturer that paints and finishes comply with VOC limits specified.

F. Manufacturer's Instructions: Indicate special surface preparation procedures.

G. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.

H. Maintenance Materials: Furnish the following for District's use in maintenance of project.

1. See Section 01 66 00 - Product Requirements, for additional provisions.
2. Extra Paint and Finish Materials: 1 gallon of each color; from the same product run, store where directed.

3. Label each container with color in addition to the manufacturer's label.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum three years documented experience and approved by manufacturer.

1.07 MOCK-UP

A. See Section 01 45 00 - Quality Control, for general requirements for mock-up.

B. Provide panel, 12 feet high by 8 feet wide, illustrating paint color, texture, and finish.

C. Provide door and frame assembly illustrating paint color, texture, and finish.

D. Locate where directed by Architect.

E. Mock-up may remain as part of the work.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.09 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the paint product manufacturer's temperature ranges.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply exterior paint and finishes during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Minimum Application Temperatures for Latex Paints: 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide paints and finishes from the same manufacturer to the greatest extent possible.

1. If a single manufacturer cannot provide specified products, minor exceptions will be permitted provided approval by Architect is obtained using the specified procedures for substitutions.

2. Substitution of other products by the same manufacturer is preferred over substitution

of products by a different manufacturer.

B. Paints:

1. Behr Process Corporation: www.behr.com/#sle.
    a. Local representative Jonathan Juarez 213.312.7516.
2. Dunn-Edwards Corporation: www.dunnedwards.com,
    a. Local representative Wanda Barragan 909.261.1289.
3. PPG Paints: www.ppgpaints.com/#sle.
4. Sherwin-Williams Company: www.sherwin-williams.com/#sle.
    a. Local representative Rocky Berlanga 657.269.0922.
5. Vista Paint Corporation: www.vistapaint.com/#sle.
    a. Local representative Mark Brower 323.397.9000.

C. Primer Sealers: Same manufacturer as top coats.

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready-mixed, unless required to be a field-catalyzed paint.

1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
4. Supply each paint material in quantity required to complete entire project's work from a single production run.
5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is described explicitly in manufacturer's product instructions.

B. Volatile Organic Compound (VOC) Content:

1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
    a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
    b. SCAQMD 1113 Rule.
    c. CARB (SCM).
    d. Architectural coatings VOC limits of California.
2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

C. Flammability: Comply with applicable code for surface burning characteristics.

D. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected

later by Architect from the manufacturer's full line.

E. Colors: As indicated on drawings.

1. Extend colors to surface edges; colors may change at any edge as directed by Architect.

2.03 PAINT SYSTEMS - EXTERIOR

A. Exterior Surfaces to be Painted, Unless Otherwise Indicated: Including concrete masonry units and primed metal.

1. One or two coats to cover and one coat primer.
2. Top Coat(s): Exterior Latex.
3. Top Coat Sheen:
   a. Flat: MPI gloss level 1; use this sheen at all locations.
   b. Semi-Gloss: MPI gloss level 5; use this sheen at trim.
4. Primer: As recommended by top coat manufacturer for specific substrate.

B. Masonry/Concrete and CMU Opaque, Latex, 3 Coat:

1. One coat of latex primer sealer.
2. Low-Sheen-Elastomeric: Two coats of latex-acrylic.
3. Premium Flat: Two coats of latex-acrylic enamel.

C. Exterior Plaster, Opaque, 100% Acrylic Latex, 3 Coat:

1. One coat of latex primer sealer.
2. Flat: Two coats of latex.

D. Ferrous Metals, Unprimed, Latex, 3 Coat:

1. One coat of latex primer.

E. Ferrous Metals, Primed, Latex, 2 Coat:

1. Touch-up with rust-inhibitive primer recommended by top coat manufacturer.

F. Ferrous Metals, Unprimed, High-Performance, 3 Coat:

1. Pre-Treatment: As recommended by manufacturer
2. One coat galvanize primer.
3. Gloss: Two coats of alkyd enamel.

2.04 PRIMERS

A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.

1. Alkali Resistant Water Based Primer.
2. Interior/Exterior Latex Block Filler.
3. Anti-Corrosive Alkyd Primer for Metal.
4. Interior/Exterior Quick Dry Alkyd Primer for Metal.
5. Alkyd Primer for Galvanized Metal.
6. Water Based Primer for Galvanized Metal.

7. Rust-Inhibitive Water Based Primer.
8. Interior/Exterior Quick Dry Primer for Aluminum.
9. Stain Blocking Primer.

2.05 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin application of paints and finishes until substrates have been properly prepared.

B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.

D. Test shop-applied primer for compatibility with subsequent cover materials.

E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:

1. Exterior Plaster and Stucco: 12 percent.
2. Masonry, Concrete, and Concrete Masonry Units: 12 percent.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or repair existing paints or finishes that exhibit surface defects.

D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.

E. Seal surfaces that might cause bleed through or staining of topcoat.

F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

G. Concrete:

1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
2. Clean surfaces with pressurized water. Use pressure range of 1,500 to 4,000 psi at 6 to 12 inches. Allow to dry.
3. Clean concrete according to ASTM D4258. Allow to dry.

4. Prepare surface as recommended by top coat manufacturer and according to SSPC-SP 13.

H. Masonry:

1. Remove efflorescence and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.

2. Prepare surface as recommended by top coat manufacturer.

3. Clean surfaces with pressurized water. Use pressure range of 600 to 1,500 psi at 6 to 12 inches. Allow to dry.

I. Exterior Plaster: Fill hairline cracks, small holes, and imperfections with exterior patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.

J. Galvanized Surfaces:

1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.

2. Prepare surface according to SSPC-SP 2.

K. Ferrous Metal:

1. Solvent clean according to SSPC-SP 1.

2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.

3. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Apply products in accordance with manufacturer's written instructions.

C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.

D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

E. Apply each coat to uniform appearance.

F. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply additional coats until complete hide is achieved.

G. Sand metal surfaces lightly between coats to achieve required finish.

H. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

I. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FIELD QUALITY CONTROL

A. See Section 01 45 00 - Quality Control, for general requirements for field inspection.

3.05 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.06 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

SECTION 26 01 00

BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.01 SCOPE

A. This section supplements all sections of this division and shall apply to all phases of work hereinafter specified, shown on the drawings, or required to provide a complete installation of electrical systems for the Project. The work required under this division is not limited to the electrical specifications and drawings. Refer to all bid documents including Civil, Architectural, Structural, and Mechanical documents which may designate Work to be accomplished. The intent of the Specifications is to provide a complete and operable electrical system, which shall include all documents that are a part of the entire Project Contract.

1. Work included: Furnish all labor, material, tools, equipment, facilities, transportation, skilled supervision necessary for, and incidental to, performing operations in connection with furnishing, delivery, and installation of the work in this division complete as shown or noted on the Drawings and specified herein.

B. Related Work Specified Elsewhere:

1. Refer to all sections in the general contract conditions, Contract Requirements and Division 1, General Requirements.

C. Work Installed but Furnished by Others:

1. The electrical work includes the installation or connection of certain materials and equipment furnished by others. Verify installation details. Foundations for apparatus and equipment will be furnished by others unless otherwise noted or detailed.

1.02 GENERAL REQUIREMENTS

A. Guarantee See General Conditions:

1. Except as may be specified under other Sections in the specification, guarantee equipment furnished under the specifications for a period of one year, except for equipment required to have a longer guarantee period, from date of final completion. Guarantee all work against defective workmanship, material, and improper installation. Upon notification of failure, correct deficiency immediately and without additional cost to the Owner.

2. Standard warranty of manufacturer shall apply for replacement of parts after expiration of the above period. Manufacturer shall furnish replacement parts to the Owner or his service agency as approved. Furnish to the Owner, through the Architect, printed manufacturer's warranties complete with material included and expiration dates, upon completion of project. Conform to Division 01.

B. Equipment Safety: All electrical materials and equipment shall be new and shall be listed by Underwriter's Laboratories and bear their label, or listed and certified by a nationally recognized testing authority where UL does not have an approval. Custom made equipment must have complete test data submitted by the manufacturer attesting to its safety.

C. Codes and Regulations:

1. Design, manufacturer, testing and method of installation of all apparatus and materials furnished under the requirements of these specifications shall conform to the latest publications or standard rules of the following:
    a. Institute of Electrical and Electronic Engineers - IEEE
    b. National Electrical Manufacturers' Association - NEMA
    c. Underwriters' Laboratories, Inc. - UL
    d. National Fire Protection Association - NFPA
    e. American Society for Testing and Materials - ASTM
    f. American National Standards Institute - ANSI
    g. California Electrical Code – CEC, Title 24, Part 3
    h. California Code of Regulations, Title 8, Subchapter 5
    i. California Building Code-CBC, Title 24 Parts 1 &2
    j. State & Municipal Codes in Force in the Specific Project Area
    k. Occupational Safety & Health Administration – OSHA
    l. California State Fire Marshal
    m. California Fire Code- CFC, Title 24 Part 9
    n. National Electrical Testing Association - NETA
2. The term "Code", when used within the specifications, shall refer to the Publications, Standards, ordinances and codes, listed above. In the case where the codes have different levels of requirements the most stringent rules shall apply.

D. Requirements of Regulatory Agencies:
1. Codes, Permits, and Fees: Where the Contract Documents exceed minimum requirements, the Contract Documents take precedence. Where code conflicts occur, the most stringent shall apply. The most stringent condition shall be as interpreted by the Engineer.
    a. Comply with all requirements for permits, licenses, fees and Code. Permits, licenses, fees, inspections and arrangements required for the Contractor at his expense shall obtain the Work, unless otherwise specified.
    b. Comply with the requirements of the applicable utility companies serving the Project. Make all arrangements with the utility companies for proper coordination of the Work.

E. Shop Drawings:
1. See Division 01 for additional requirements.
2. Time Schedules for Submission and Ordering: The Contractor shall prepare, review and coordinate his schedule of submissions carefully, determining the necessary lead time for preparing, submitting, checking, ordering and delivery of materials and equipment for timely arrival. The Contractor shall be responsible for conformance with the overall construction schedule.

3. Submittals will be checked for general compliance with specifications only. The Contractor shall be responsible for deviations from the drawings or specifications and for errors or omissions of any sort in submittals.
4. Submit a complete list of materials and equipment proposed for the job, including manufacturers names and catalog numbers.
5. Shop drawings shall be submitted in completed groups of materials (i.e., lighting fixtures or switchgear). The Contractor shall add and sign the following paragraph on equipment and materials submitted for review. "It is hereby certified that the (equipment) (material) shown and marked in this submittal is that proposed to be incorporated into the project; is in compliance with the Contract Drawings and specifications and can be installed in the allocated spaces". Failure to add the above written statement for compliance will result in return of submittals without review.
    a. Bind catalog cuts, plate numbers, descriptive bulletins and drawings, 11" x 17" (275 mm x 435 mm) or smaller, in sets with covers neatly showing titles.
    b. The Contractor shall verify dimensions of equipment and be satisfied as to Code compliance for fit prior to submitting shop drawings for approval.
    c. Where current limiting devices are specified, submit technical data to substantiate adequate protection of equipment cascaded downstream. Submittals shall not be reviewed unless supporting calculations and data are submitted therewith.
    d. Include complete catalog information such as construction, ratings, insulation systems, as applicable.
    e. For any material specified to meet UL or trade standards, furnish the manufacturers or vendor's certification that the material furnished for the work does in fact equal or exceed such specifications.
    f. Reference listings to the specifications' Sections and Article to which each is applicable.
    g. Equipment Floor Plans: After approval of material is secured prepare a floor plan of each electrical and mechanical equipment space, room or yard, drawn to scale at 1/2 inch equals 1 foot and submit for approval in the same manner as for shop drawings. The layout drawings shall be exact scale.
6. Contractor shall prepare coordinated drawings when required by Division 01 or where noted otherwise.

F. Interpretations: The Contractor through the Architect must make Requests for interpretations of drawings and specifications. Any such requests made by equipment manufacturers or suppliers will be referred to the Contractor.

G. Standard of Quality
    1. The contract Drawings and Specifications establish the “MINIMUM STANDARD OF QUALITY” each product and/or system must meet to be considered acceptable. Products of other manufactures will be considered if the product and/or system meet or exceed the “MINIMUM STANDARD OF QUALITY” established by this Contract Document.

H. Submit comprehensive material list, shop drawings and complete technical data for the following equipment and materials:

1. General Requirements:
    a. Panelboards.
    b. Switchboards.
    c. Conduits
    d. Conductors, include all selected insulation types.
    e. Fuses
    f. Disconnect switches and Starters.
    g. Pullboxes, manholes and handholes.
    h. Control devices, standard and special receptacles, switches, outlets and finish device plates.
    i. Cabinets for signal and telephone system, special terminals and cabinets. Include all cabinet dimensions.
    j. Dry Type Voltage Transformers.

I. Record Drawings: Refer to Division 01, Contract Closeout.

J. Work Responsibilities:

1. The drawings indicate diagrammatically the desired locations or arrangement of conduit runs, outlets, junction boxes and equipment and are to be followed. Execute the work so as to secure the best possible installation in the available space and to overcome local difficulties due to space limitations. The Contractor is responsible for the correct placing of his work. Where conflicts occur in plans and/or specifications, the most stringent application shall apply and shall be part of the base bid.
2. Locations shown on architectural plan or on wall elevations shall take precedence over electrical plan locations, but where a major conflict is evident, notify the Architect.
3. In the event minor changes in the indicated locations or arrangement are necessary due to developed conditions in the building construction or rearrangement of furnishings or equipment or due to interference with other trades, such changes shall be made without extra cost.
4. Verify dimensions and the correct location of Owner-Furnished equipment before proceeding with the roughing-in of connections.
5. All scaled and figured dimensions are approximate of typical equipment of the class indicated. Before proceeding with work carefully check and verify dimensions and sizes with the drawings to see that the furnished equipment will fit into the spaces provided without violation of applicable Codes.
6. Should any changes to the work indicated on the drawings or described in the specifications be necessary in order to comply with the above requirements, notify the Architect.
7. Contractor shall be responsible for coordination of coordinated drawings when required by the Architect.

8. Replace or repair, without additional compensation any work which does not comply with or which is installed in violation of any of these requirements.

K. Installation General: For special requirements, refer to specific equipment under these requirements.

1. Unless otherwise specified elsewhere in the specifications, do all excavating necessary for the proper installation of the electrical work.
2. Locations of Openings: Locate chases, shafts and openings required for the installation of the electrical work during framing of the structure. Do any additional cutting and patching required. Cutting or drilling in any structural member is prohibited without approval of the Architect. Furnish all access panels to make all boxes, connections and devices accessible as required by CEC.
3. Location of Sleeves: Where conduits pass through concrete walls, suspended slabs or metal deck floors, install sleeves of adequate size to permit installation of conduit. Sleeves shall be installed prior to pouring of concrete and shall have ends flush with the wall or extend 2 inches above floor surfaces. Verify locations.
4. Type of Sleeves: Refer to Section 260500.
5. Wherever conduit extends through roof, install flashings in accordance with drawings and details.
6. Contractor shall be responsible for cutting and patching which may be required for the proper installation of the electrical work.
7. Protect work, materials and equipment cause whatever and provide adequate and proper storage facilities during the progress of the work. Storage outdoors shall be weather protected and shall include space heaters to prevent condensation. Provide for the safety and good condition of all work until final acceptance of the work. Replace all damaged or defective work, materials and equipment before requesting final acceptance.
8. Conduit and Equipment to be Installed: Clean thoroughly to remove plaster, spattered paint, cement and dirt on both exterior and interior. All underground conduits shall be mandrelled prior to pulling wire.
9. Conduit and Equipment to be Painted: Clean conduit exposed to view in completed structure by removing plaster and dirt. Remove grease, oil and similar material from conduit and equipment by wiping with clean rags and suitable solvents in preparation for paint.
10. Items with Factory Finish: Remove cement, plaster, grease and oil, and leave surfaces, including cracks and corners, clean and polished. Touch up scratched or bare spots to match finish.
11. Site Cleaning: Remove from site all packing cartons, scrap materials and other rubbish on a weekly basis. Vacuum out all cabinets, switchgear and panels and junction boxes prior to pulling any conductors.
12. Electrical equipment and materials exposed to public and in finished areas shall be finish-painted after installation in accordance with the Painting Section. All exposed screw-type fasteners, exterior, or interior in restrooms, shall be vandal-resistant spanner type; include tool.

L. Excavation, Cutting and Patching:

1. Excavating, trenching and backfilling required for the work of this Division in accordance with the applicable requirements of Division 31. Excavating and backfilling connected with electrical work, repaving cuts and providing and maintaining protective measures for the electrical work excavation required by the governing authorities having jurisdiction shall be performed as a part of the work of this Division.

2. Verify openings indicated on the drawings. Provide all cutting, patching and reinforcement of the construction of the building as required to install electrical work.

M. Tests

1. Equipment and systems for which the National Electrical Testing Association (NETA) has an approved or recommended procedure, shall be tested in accordance with that procedure. Test values shall equal values recommended by NETA. Copies of test reports shall be submitted as required under shop drawing submittals.

2. Resistance to ground tests shall be accomplished by a qualified independent testing firm to measure resistance to ground at grounding electrodes. Make tests before slabs or affected areas are poured in order that corrective measures, if required, may be taken. Submit a report showing the results of these measurements. If the resistances exceed values specified elsewhere or NETA test procedure recommendations, perform corrective measures required to reduce resistance to acceptable values.

3. Prior to energizing any motor, measure the service voltage for phase balance and report if unbalance exceeds 1% from mean.

4. Measure the three-phase voltage at no load and at maximum load conditions and submit to the engineer a report showing the results of these measurements.

5. Upon completion of the work and adjustment of all equipment, conduct an operating test. Conduct the test in the presence of an authorized representative of the Architect. Demonstrate system and equipment to operate in accordance with requirements of the Contract Documents and to be free from electrical and mechanical defects. Provide systems free from short circuits and grounds and show an insulation resistance between phase conductors and ground not less than the requirements of the governing electric code. Test circuits for proper neutral connection.

6. Complete tests prior to final inspection of project, including corrective work based on the results of the tests.

7. Perform special tests on systems and equipment as specified herein using personnel qualified to perform such tests.

N. Protection: Protect finish parts of the materials and equipment against damage during the progress of the work and until final completion and acceptance. Cover materials and equipment in storage and during construction in such a manner that no finished surfaces will be damaged or marred. Keep moving parts clean, dry and lubricated.

O. Cleaning Up:

1. Upon completion of the work and at various time during the progress of the work, remove from the building all surplus materials, rubbish and debris resulting from the work of this Division.

2. Thoroughly clean switchgear including busses, apparatus, exposed conduit, metal work including the exterior and interior, and accessories for the work of this Division, of cement, plaster and other deleterious materials; remove grease and oil spots with cleaning solvent; carefully wipe surfaces and scrape cracks and corners clean.
3. Thoroughly polish chromium or plated work. Remove dirt and stains from lighting fixtures.
4. Leave the entire installation in a clean condition.

P. Completion:

1. The work will not be reviewed for final acceptance until operating and maintenance data, manufacturer's literature, panel directories and nameplates specified herein have been approved and properly posted or installed and final cleaning of equipment and premises has been completed.
2. When the installation is complete and adjustments have been made, operate the system for a period of one week, during which time demonstrate that systems are completed and operating in conformance with the specifications.

Q. Operating and Maintenance Data: Submit complete and at one time, prior to acceptance of the installation, 4 copies of manufacturer's instructions for operation and maintenance of electrical equipment, including replacement parts lists. As specified in Division 01

R. Inspection and Acceptance Procedures: The Architect will submit observation reports periodically during the construction phase detailing Contract deficiencies. The Contractor is responsible for making corrections immediately. Notice of Completion of the project will not be made until all items have been corrected.

S. Final Completion of Electrical Systems:

1. Prior to Final Completion of operating electrical systems, the Contractor shall:
    a. Provide materials of the type and quality specified and as necessary for proper operation, tested and ready for use.
    b. Deliver to the Architect, the Record Documents per 1.3 of this section.
    c. Furnish the required Operating and Maintenance Data/Manuals.
    d. Clean up of the project pertaining to this Division of the work.
    e. After installation has been completed and adjustments made, operate the system for a period of one week, during which time, demonstrate to the Architect that systems are complete and operating in conformance with Contract Documents.
    f. Conduct tests required and as specified in this Division and submit test reports and corrective actions taken.
    g. Submission of warranties and guarantees.
2. Final Completion of Work Shall be Contingent On:
    a. Contractor replacing defective materials and workmanship.
    b. Upon completion of work and adjustments made, Contractor shall conduct an operating test for each system for approval at such time as Architect directs. Conduct test in presence of authorized representative of Architect and demonstrate

that systems and equipment do operate in accordance with requirements of the Contract Documents and are free from electrical and mechanical defects.

c. Contractor shall provide the necessary training programs and instructions to the Owner's representative. Number of hours shall be a minimum of four (4) hours for each system or days as required under separate Sections of these Specifications. Complete operation and maintenance manuals shall be provided at least two (2) weeks prior to training.

d. Submit copies of manufacturer's instructions and maintenance of electrical equipment including replacement parts lists. Each set shall include one set of shop drawings of equipment installed.

T. Submittals for Change Orders: When changes are made during the construction phase, deletions and additions shall be presented in a manner that will indicate the cost of each item of material and corresponding labor. Markup shall be then added in accordance with the requirements of the General Conditions as modified by the Supplementary Conditions.

U. The Contractor at a time convenient to the Owner shall provide instruction to the Owner's operating personnel in the proper operation and maintenance of all equipment and systems. The instructors shall have received factory training and shall be thoroughly familiar with the equipment installed. The operating personnel shall receive the number of days instruction as indicated in other sections.

1.03 PROJECT RECORD DOCUMENTS

A. Record Drawings: CAD: Use a computer aided drafting (CAD) system in the preparation of record drawings for this Project. Acceptable CAD systems shall be capable of producing files in AutoCAD Version 2010 compatible DWG or DXF format. Owner's consultant will furnish CAD backgrounds for use by the Contractor after construction is 85% complete except where prohibited by Contract.

B. At all times when the work is in progress, maintain at the workplace, fabrication shop or Project Site as applies, a complete separate, clean, undamaged set of the latest stamped, actioned submittals. As work progresses, maintain records of "as installed" conditions on this set in suitable ink or chemical fluid. Update the set daily. After successful completion of Project Site testing specified herein, and after completion of Punch List corrections, copy all records of "as installed" conditions on to originals.

C. Quantity:

1. Review sets: As for Shop and Field Drawings.
2. Record set: Three (3) blackline.

D. Format: Record Drawings:

1. Pencil, permanent ink or permanent photographic process.
   a. Front face only of Mylar at least 3.0 mils thick.
   b. Appliqué film or lettering prohibited.
   c. Suitable for microfilming. Lettering 1/8" (.8 mm) high minimum.
2. Disk copy of Record Drawings - 1 copy of each drawing file in format noted above, CD-ROM.

E. Content: All drawings required under "Field and Shop Drawings". Show "as installed" condition. Where room designations according to Project permanent signage differ from construction designations in the Contract Documents, show both designations.

F. Warranty Certificates: Comply with Division 01.

PART 2: PRODUCTS

Not Used

PART 3: EXECUTION

Not Used

END OF SECTION

SECTION 26 01 60
CABINETS AND ENCLOSURES

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Hinged cover enclosures.

B. Cabinets.

C. Terminal blocks and accessories.

1.02 REFERENCES

A. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

B. ANSI/NEMA ICS 1 - Industrial Control and Systems.

C. ANSI/NEMA ICS 4 - Terminal Blocks for Industrial Control Equipment and Systems.

D. ANSI/NEMA ICS 6 - Enclosures for Industrial Control Equipment and Systems.

1.03 SUBMITTALS

A. Submit product data under provisions of Division 01.

B. Shop Drawings for Equipment Panels: Include wiring schematic diagram, wiring diagram, outline drawing and construction diagram as described in ANSI/NEMA ICS 1.

PART 2 - PRODUCTS

2.01 HINGED COVER ENCLOSURES

A. Construction: NEMA 250; Type 1, 3R, steel.

B. Finish: Manufacturer's standard enamel finish.

C. Covers: Continuous hinge, held closed by flush latch operable by key.

D. Panel for Mounting Terminal Blocks or Electrical Components: 14 gage steel, white enamel finish.

2.02 CABINETS

A. Cabinet Boxes: Galvanized steel with removable endwalls. Provide 3/4 inch thick plywood backboard painted matte white, for mounting terminal blocks.

B. Cabinet Fronts: Steel, flush surface type with concealed trim clamps, screw cover front, concealed hinge and flush lock keyed to match branch circuit panelboard; finish as approved by Architect.

2.03 TERMINAL BLOCKS AND ACCESSORIES

A. Terminal Blocks: ANSI/NEMA ICS 4; UL listed.

B. Power Terminals: Unit construction type, closed-back type, with tubular pressure screw connectors, rated 600 volts.

C. Signal and Control Terminals: Modular construction type, channel mounted; tubular pressure screw connectors, rated 300 volts.

2.04 FABRICATION

A. Shop assemble enclosures and cabinets housing terminal blocks or electrical components in accordance with ANSI/NEMA ICS 6.

B. Provide conduit hubs knockouts on enclosures.

C. Provide protective pocket inside front cover with schematic diagram, connection diagram, and layout drawing of control wiring and components within enclosure.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install cabinets and enclosures plumb; anchor securely to wall and structural supports at each corner, minimum.

B. Provide accessory feet for free-standing equipment enclosures.

C. Install trim plumb.

D. Provide nameplate per Section 26 05 32.

E. Ground and bond per Section 26 05 26.

END OF SECTION

SECTION 26 05 00

COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Electrical equipment coordination and installation.
2. Sleeves for raceways and cables.
3. Sleeve seals.
4. Grout.
5. Common electrical installation requirements.

1.02 DEFINITIONS

A. EPDM: Ethylene-propylene-diene terpolymer rubber.

B. NBR: Acrylonitrile-butadiene rubber.

1.03 SUBMITTALS

A. Product Data: For sleeve seals.

1.04 COORDINATION

A. Coordinate arrangement, mounting, and support of electrical equipment:

1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
3. To allow right of way for piping and conduit installed at required slope.
4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.

B. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

C. Coordinate location of access panels and doors for electrical items that are behind finished surfaces or otherwise concealed. Access doors and panels are specified in Division 08 Section "Access Doors and Frames."

D. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

PART 2: PRODUCTS

2.01 SLEEVES FOR RACEWAYS AND CABLES

A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

C. Sleeves for Rectangular Openings: Galvanized sheet steel.

1. Minimum Metal Thickness:

a. For sleeve cross-section rectangle perimeter less than 50 inches and no side more than 16 inches, thickness shall be 0.052 inch.

b. For sleeve cross-section rectangle perimeter equal to, or more than, 50 inches and 1 or more sides equal to, or more than, 16 inches, thickness shall be 0.138 inch.

2.02 SLEEVE SEALS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Advance Products & Systems, Inc.

b. Calpico, Inc.

c. Metraflex Co.

d. Pipeline Seal and Insulator, Inc.

2. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.

3. Pressure Plates: Carbon steel. Include two for each sealing element.

4. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.03 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

PART 3 - EXECUTION

3.01 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1.

B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.

C. Headroom Maintenance: If mounting heights or other location criteria is not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.

D. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.

E. Right of Way: Give to piping systems installed at a required slope.

3.02 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

E. Cut sleeves to length for mounting flush with both surfaces of walls.

F. Extend sleeves installed in floors 2 inches above finished floor level.

G. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable, unless indicated otherwise.

H. Seal space outside of sleeves with grout for penetrations of concrete and masonry

1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.

I. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Division 07 Section "Joint Sealants."

J. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials. Comply with requirements in Division 07 Section "Penetration Firestopping."

K. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

L. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

M. Underground, Exterior-Wall Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing mechanical sleeve seals.

3.03 SLEEVE-SEAL INSTALLATION

A. Install to seal exterior wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.04 FIRESTOPPING

A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 07 Section "Penetration Firestopping."

END OF SECTION

SECTION 26 05 19

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Building wire and cable.

B. Wiring connectors and connections.

1.02 REFERENCES

A. ANSI/NFPA 70 – California Electrical Code.

B. C.E.C. – California Electrical Code.

C. InterNational Electrical Testing Association.

D. OSHA, Definition B, 29 CFR 1910.7.

1.03 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years documented experience.

1.04 REGULATORY REQUIREMENTS

A. Conform to requirements of C.E.C.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.05 PROJECT CONDITIONS

A. Verify that field measurements are as shown on Drawings.

B. Wire and cable routing shown on Drawings is approximate unless dimensioned. Route wire and cable as required meeting Project Conditions.

C. Where wire and cable routing is not shown, and destination only is indicated, determine exact routing and lengths required.

1.06 COORDINATION

A. Determine required separation between cable and other work.

B. Determine cable routing to avoid interference with other work.

PART 2 - PRODUCTS

2.01 BUILDING WIRE AND CABLE

A. Description: Single conductor insulated wire, new, manufactured not more than 6 months prior to installation, with size, type of insulation, voltage rating and manufacturer's name permanently marked on outer covering at regular intervals.

B. Conductor: Copper.

C. Insulation Voltage Rating: 600 volts.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that interior of building has been protected from weather.

B. Verify that mechanical work likely to damage wire and cable has been completed.

3.02 PREPARATION

A. Completely and thoroughly swab raceway before installing wire.

3.03 WIRING METHOD

A. Type THHN/THWN insulation for dry interior locations, in raceway.

B. Type THWN for exterior or wet locations, in raceway.

3.04 INSTALLATION

A. Provide conductors continuous from outlet to outlet and splice only at outlet or junction boxes.

B. Circuit all feeders and branch circuits as shown on the drawings. Suggested deviation from the plans must be provided by the Architect.

C. Install products in accordance with manufacturers instructions.

D. Use solid conductor for feeders and branch circuits 10 AWG and smaller.

E. Use stranded conductors for control circuits.

F. Use conductor not smaller than 12 AWG for power and lighting circuits.

G. Use conductor not smaller than 16 AWG for control circuits.

H. Low voltage control wiring shall be No. 18 AWG minimum, insulated cable for each conductor. Voltage rating of cable shall be suitable for either Class I or Class II, remote control or signal circuit, as determined by the code and the actual installation.

I. Use 10 AWG conductors for 20 ampere, 120 volt branch circuits longer than 75 feet (450-m).

J. Use 10 AWG conductors for 20 ampere, 277 volt branch circuits longer than 200 feet (600-m).

K. Install all conductors in a single raceway at one time, insuring that conductors do not cross one another while being pulled into raceway. Leave sufficient cable at all fittings or boxes and prevent conductor kinks. Keep all conductors within the allowable tension and exceeding the minimum-bending radius.

L. Use suitable wire pulling lubricant for building wire 4 AWG and larger. Lubricants for wire pulling shall conform to UL requirements for the insulation and raceway material.

M. Provide conductor supports as required by Code and recommended by the cable manufacturer. Where required, provide cable supports in vertical conduits similar to OZ Gedney Type CMT and provide the lower end of conduit with OZ Gedney Type KVF ventilators.

N. No splicing or joints will be permitted in either feeder or branch circuits except at outlet or accessible junction boxes.

O. Neatly train and lace wiring inside boxes, equipment, and panelboards.

P. Clean conductor surfaces before installing lugs and connectors.

Q. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise. Keep splices in underground junction boxes, handholes, and manholes to an absolute minimum. Where splices are necessary, use resin pressure splices and resin splicing kits manufactured by the 3M Company to totally encapsulate the splice. Arrange the splicing kit to minimize the effects of moisture.

R. Use split bolt connectors for copper conductor splices and taps, 6 AWG and larger. Tape uninsulated conductors and connector with electrical tape to 150 percent of insulation rating of conductor.

S. Use solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.

T. Use insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.

U. Provide all power and control conductors, that terminate on equipment or terminal strips, with solderless lugs or tork and flanged tongue terminals. Provide T & B "Sta-kon" tongue terminal. This type conductor termination is not required when the equipment is provided with solderless connectors.

3.05 INTERFACE WITH OTHER PRODUCTS

A. Identify wire and cable under provisions of Division 26.

B. Identify each conductor with its circuit number or other designation indicated on Drawings.

C. Conductor Identification: All branch circuit conductors (No. 10 AWG and smaller) throughout the project shall be provided with color-coded insulation as follows:

208Y/120V	Phase	480Y/277
Black	A	Brown
Red	B	Orange
Blue	C	Yellow
White	Neutral	Gray
Green	Ground	Green

D. Conductors No. 8 and larger shall be black with bands of colored nonaging, plastic tape to color code the conductors, utilizing the same scheme as for branch circuits. The bands shall occur within each enclosure where a tap, splice or termination is made.

E. Color code all control wire insulation and label each termination.

3.06 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections and prepare test reports.

B. Perform tests and inspections and prepare test reports.

C. Tests and Inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.

2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in cables and conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner.
    a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
    b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
    c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

D. Test Reports: Prepare a written report to record the following:
1. Test procedures used.
2. Test results that comply with requirements.
3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

E. Remove and replace malfunctioning units and retest as specified above.

END OF SECTION

SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes methods and materials for grounding systems and equipment.

1.03 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Other Informational Submittals: Plans showing dimensioned as-built locations of grounding features specified in Part 3 "Field Quality Control" Article, including the following:

1. Test wells.
2. Ground rods.
3. Ground rings.
4. Grounding arrangements and connections for separately derived systems.
5. Grounding for sensitive electronic equipment.

C. Qualification Data: For testing agency and testing agency's field supervisor.

D. Field quality-control test reports.

E. Operation and Maintenance Data: For grounding to include the following in emergency, operation, and maintenance manuals:

1. Instructions for periodic testing and inspection of grounding features at grounding connections for separately derived systems based on NETA MTS and CEC Article 250.
    a. Tests shall be to determine if ground resistance or impedance values remain within specified maximums, and instructions shall recommend corrective action if they do not.
    b. Include recommended testing intervals.

1.04 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the International Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

1. Testing Agency's Field Supervisor: Person currently certified by the International Electrical Testing Association to supervise on-site testing specified in Part 3.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. Comply with UL 467 for grounding and bonding materials and equipment.

D. Comply with the California Electrical Code (CEC).

PART 2 - PRODUCTS

2.01 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch (6 mm) in diameter.
5. Bonding Conductor: No. 4 AWG, stranded conductor.
6. Bonding Jumper: Copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.

2.02 CONNECTORS

A. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, bolted pressure-type, with at least two bolts.

1. Pipe Connectors: Clamp type, sized for pipe.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.03 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel; 3/4 inch by10 feet (19 mm by 3 m) in diameter.

B. Chemical-Enhanced Grounding Electrodes: Copper tube, straight or L-shaped, charged with nonhazardous electrolytic chemical salts.

1. Termination: Factory-attached No. 4/0 AWG bare conductor at least 48 inches (1200 mm) long.
2. Backfill Material: Electrode manufacturer's recommended material.

PART 3 - EXECUTION

3.01 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger, unless otherwise indicated.

B. Underground Grounding Conductors: Install bare copper conductor, No. 4/0 AWG minimum.

1. Bury at least 24 inches (600 mm) below grade.

2. Duct-Bank Grounding Conductor: Bury 12 inches (300 mm) above duct bank when indicated as part of duct-bank installation.

C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.

D. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.

1. Install bus on insulated spacers 1 inch (25 mm), minimum, from wall 6 inches (150 mm) above finished floor, unless otherwise indicated.

2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, down to specified height above floor, and connect to horizontal bus.

E. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.

2. Underground Connections: Welded connectors, except at test wells and as otherwise indicated.

3. Connections to Ground Rods at Test Wells: Bolted connectors.

4. Connections to Structural Steel: Welded connectors.

3.02 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

A. Comply with IEEE C2 grounding requirements and CEC Article 250.

B. Grounding Manholes and Handholes: Install a driven ground rod through manhole or handhole floor, close to wall, and set rod depth so 4 inches (100 mm) will extend above finished floor. If necessary, install ground rod before manhole is placed and provide No. 1/0 AWG bare, tinned-copper conductor from ground rod into manhole through a waterproof sleeve in manhole wall. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive insulating tape or heat-shrunk insulating sleeve from 2 inches (50 mm) above to 6 inches (150 mm) below concrete. Seal floor opening with waterproof, nonshrink grout.

C. Grounding Connections to Manhole Components: Bond exposed-metal parts such as inserts, cable racks, pulling irons, ladders, and cable shields within each manhole or handhole, to ground rod or grounding conductor. Make connections with No. 4 AWG minimum, stranded, hard-drawn copper bonding conductor. Train conductors level or plumb around corners and fasten to manhole walls. Connect to cable armor and cable shields as recommended by manufacturer of splicing and termination kits.

D. Pad-Mounted Transformers and Switches: Install two ground rods and ground ring around the pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Install tinned-copper conductor not less than No. 2 AWG for ground ring and for taps to equipment grounding terminals. Bury ground ring not less than 6 inches (150 mm) from the foundation.

3.03 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits sized per C.E.C. Table 250-122.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by CEC:
   1. Feeders and branch circuits.
   2. Lighting circuits.
   3. Receptacle circuits.
   4. Single-phase motor and appliance branch circuits.
   5. Three-phase motor and appliance branch circuits.
   6. Flexible raceway runs.
   7. Armored and metal-clad cable runs.
   8. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.
   9. Computer and Rack-Mounted Electronic Equipment Circuits: Install insulated equipment grounding conductor in branch-circuit runs from equipment-area power panels and power-distribution units.

C. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

D. Water Heater: Install a separate insulated equipment grounding conductor to each electric water heater. Bond conductor to heater units, piping, connected equipment, and components.

E. Isolated Grounding Receptacle Circuits: Install an insulated equipment grounding conductor connected to the receptacle grounding terminal. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.

F. Isolated Equipment Enclosure Circuits: For designated equipment supplied by a branch circuit or feeder, isolate equipment enclosure from supply circuit raceway with a nonmetallic raceway fitting listed for the purpose. Install fitting where raceway enters enclosure, and install a separate insulated equipment grounding conductor. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.

G. Signal and Communication Equipment: For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in ¾" (19mm) raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.

1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-2-by-12-inch (6-by-50-by-300-mm) grounding bus.

2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

H. Metal Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.04 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Common Ground Bonding with Lightning Protection System: Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system. Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor, and install in conduit.

C. Ground Rods: Drive rods until tops are 2 inches (50 mm) below finished floor or final grade, unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating, if any.

2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

D. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Division 26 Section "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches (300 mm) deep, with cover.

1. Test Wells: Install at least one test well for each service, unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.

E. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance, except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.

2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install so vibration is not transmitted to rigidly mounted equipment.

3. Use exothermic-welded connectors for outdoor locations, but if a disconnect-type connection is required, use a bolted clamp.

F. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes, using a bolted clamp connector or by bolting a lug-type connector to a pipe flange, using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.

2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.

3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

G. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install bonding jumper to bond across flexible duct connections to achieve continuity.

H. Grounding for Steel Building Structure: Install a driven ground rod at base of each corner column and at intermediate exterior columns at distances not more than 60 feet (18 m) apart.

I. Ground Ring: Install a grounding conductor, electrically connected to each building structure ground rod and to each steel column and where indicated on the drawings.

1. Install tinned-copper conductor not less than No. 4/0 AWG for ground ring and for taps to building steel.

2. Bury ground ring (where indicated) not less than 24 inches (600 mm) from building foundation.

J. UFER Ground (Concrete-Encased Grounding Electrode): Fabricate according to CEC, using a minimum of 40 feet (12 meters) of bare copper conductor not smaller than No. 4/0 AWG.

1. If concrete foundation is less than 20 feet (6 m) long, coil excess conductor within base of foundation.

2. Bond grounding conductor to reinforcing steel in at least four locations and to anchor bolts. Extend grounding conductor below grade and connect to building grounding grid or to grounding electrode external to concrete.

3.05 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Testing Agency: Engage a qualified testing and inspecting agency to perform the following field tests and inspections and prepare test reports:

C. Perform the following tests and inspections and prepare test reports:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.

2. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, at ground test

wells, and at individual ground rods. Make tests at ground rods before any conductors are connected.

a. Measure ground resistance not less than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.

b. Perform tests by fall-of-potential method according to IEEE 81.

3. Prepare dimensioned drawings locating each test well, ground rod and ground rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

D. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity 500 kVA and Less: 10 ohms.
2. Power and Lighting Equipment or System with Capacity 500 to 1000 kVA: 5 ohms.
3. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 3 ohms.
4. Power Distribution Units or Panelboards Serving Electronic Equipment: 3 ohms.
5. Substations and Pad-Mounted Equipment: 5 ohms.
6. Manhole Grounds: 10 ohms.

E. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION

SECTION 26 05 29

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes the following:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

B. Related Sections include the following:

1. Division 26 Section "Vibration And Seismic Controls For Electrical Systems" for products and installation requirements necessary for compliance with seismic criteria.

1.03 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. IMC: Intermediate metal conduit.

C. RMC: Rigid metal conduit.

1.04 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design supports for multiple raceways, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.

C. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

D. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.05 SUBMITTALS

A. Product Data: For the following:

1. Steel slotted support systems.
2. Nonmetallic slotted support systems.

B. Shop Drawings: Show fabrication and installation details and include calculations for the following:

1. Trapeze hangers. Include Product Data for components.
2. Steel slotted channel systems. Include Product Data for components.

3. Nonmetallic slotted channel systems. Include Product Data for components.
4. Equipment supports.

C. Welding certificates.

1.06 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Comply with California Electrical Code (CEC).

1.07 COORDINATION

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

B. Coordinate installation of roof curbs, equipment supports, and roof penetrations. These items are specified in Division 07 Section "Roof Accessories."

PART 2 - PRODUCTS

2.01 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Allied Tube & Conduit.
    b. Cooper B-Line, Inc.; a division of Cooper Industries.
    c. ERICO International Corporation.
    d. GS Metals Corp.
    e. Thomas & Betts Corporation.
    f. Unistrut; Tyco International, Ltd.
    g. Wesanco, Inc.
3. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
4. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
5. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
6. Channel Dimensions: Selected for applicable load criteria.

B. Nonmetallic Slotted Support Systems: Structural-grade, factory-formed, glass-fiber-resin channels and angles with 9/16-inch- (14-mm-) diameter holes at a maximum of 8 inches (200 mm) o.c., in at least 1 surface.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Allied Tube & Conduit.
    b. Cooper B-Line, Inc.; a division of Cooper Industries.
    c. Fabco Plastics Wholesale Limited.
    d. Seasafe, Inc.
3. Fittings and Accessories: Products of channel and angle manufacturer and designed for use with those items.
4. Fitting and Accessory Materials: Same as channels and angles, except metal items may be stainless steel.
5. Rated Strength: Selected to suit applicable load criteria.

C. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

D. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

E. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

F. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

G. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
    a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    b. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
        1) Hilti Inc.
        2) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
        3) MKT Fastening, LLC.
        4) Simpson Strong-Tie Co., Inc.; Masterset Fastening Systems Unit.

2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated or stainless steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
    a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    b. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
        1) Cooper B-Line, Inc.; a division of Cooper Industries.
        2) Empire Tool and Manufacturing Co., Inc.
        3) Hilti Inc.
        4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
        5) MKT Fastening, LLC.
3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

2.02 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Division 05 Section "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.01 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by CEC. Minimum rod size shall be 1/4 inch (6 mm) in diameter.

C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1.Secure raceways and cables to these supports with two-bolt conduit clamps.

D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch (38-mm) and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.02 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in CEC.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (90 kg).

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches (100 mm) thick.
6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts or Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
7. To Light Steel: Sheet metal screws.
8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.03 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Division 05 Section "Metal Fabrications" for site-fabricated metal supports.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.04 CONCRETE BASES

A. Construct concrete bases of dimensions indicated but not less than 4 inches (100 mm) larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

B. Use 3000-psi (20.7-MPa), 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Division 03 Section "Cast-in-Place Concrete or Cast-in-Place Concrete (Limited Applications)" as applicable.

C. Anchor equipment to concrete base.

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

2. Install anchor bolts to elevations required for proper attachment to supported equipment.

3. Install anchor bolts according to anchor-bolt manufacturers written instructions.

3.05 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).

B. Touchup: Comply with requirements in Division 09 for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.

C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION

SECTION 26 05 32

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Nameplates.

B. Wire and cable markers.

1.02 SUBMITTALS

A. Submit shop drawings under provisions of Division 01.

B. Include schedule for nameplates and tape labels.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Nameplates: Engraved three-layer laminated plastic, white letters on a black background.

B. Wire and Cable Markers: Cloth markers, split sleeve or tubing type.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Degrease and clean surfaces to receive nameplates.

B. Install nameplates and tape labels parallel to equipment lines.

C. Secure nameplates to equipment fronts using screws, or rivets. Secure nameplate to inside face of recessed panelboard doors in finished locations.

D. Embossed tape will not be permitted for any application.

3.02 WIRE IDENTIFICATION

A. Provide wire markers on each conductor in panelboard gutters, pull boxes, outlet and junction boxes, and at load connection. Identify with panel and branch circuit or feeder number for power and lighting circuits, and with control wire number as indicated on schematic and interconnection diagrams equipment manufacturer's shop drawings for control wiring.

3.03 NAMEPLATE ENGRAVING

A. Provide nameplates to identify all circuits in the service distribution and power distribution panelboards; branch circuit panelboards; separately mounted starting switches; disconnecting switches; motor control push-button stations; selector switches; terminal cabinets; telephone cabinets, etc. Clearly identify on the nameplate the equipment such as "Air Handling Unit AH-1" and "Hot Water Cir. Pump P-1" in lieu of abbreviated plan references such as "AH-1" or "P-1".

B. Provide nameplates of minimum letter height as scheduled below.

C. Panelboards and Switchboards: 1/4 inch; identify equipment designation, voltage rating, and source.

D. Individual Circuit Breakers In Panelboards and Switchboards: 1/8 inch; identify circuit and load served, including location.

E. Individual Circuit Breakers, Enclosed Switches and Motor Starters: 1/8 inch; identify voltage rating, ampere rating and load served including location.

F. HVAC and Plumbing Control Equipment: 1/8 inch; identify equipment designation and equipment served including location.

G. Communication Terminal Cabinets: 1/4 inch; identify cabinet designation and type of system.

3.04 DEVICE IDENTIFICATION

A. All receptacles, switches and any electrical device shall be clearly labeled with panel ID and circuit number on clear background and black lettering tape.

B. Junction boxes shall be labeled with panel ID and circuit number which are present in j-box.

C. Mark covers of junction boxes with non-erasable marker indicating panel and circuit number or system contained in box.

END OF SECTION

SECTION 26 05 33

RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

B. Related Sections include the following:

1. Division 26 Section "Underground Ducts and Raceways for Electrical Systems" for exterior ductbanks, manholes, and underground utility construction.

1.02 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. ENT: Electrical nonmetallic tubing.

C. EPDM: Ethylene-propylene-diene terpolymer rubber.

D. FMC: Flexible metal conduit.

E. IMC: Intermediate metal conduit.

F. LFMC: Liquidtight flexible metal conduit.

G. LFNC: Liquidtight flexible nonmetallic conduit.

H. NBR: Acrylonitrile-butadiene rubber.

I. RNC: Rigid nonmetallic conduit.

1.03 SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Shop Drawings: For the following raceway components. Include plans, elevations, sections, details, and attachments to other work.

1. Custom enclosures and cabinets.
2. For handholes and boxes for underground wiring, including the following:
    a. Duct entry provisions, including locations and duct sizes.
    b. Frame and cover design.
    c. Grounding details.
    d. Dimensioned locations of cable rack inserts, and pulling-in and lifting irons.
    e. Joint details.

C. Samples for Initial Selection: For wireways and surface raceways with factory-applied texture and color finishes.

1. Size: 12” (300mm).

D. Samples for Verification: For each type of exposed finish required for wireways and surface raceway, prepared on Samples of size indicated below.

1. Size: 12” (300mm).

E. Coordination Drawings: Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:

1. Structural members in the paths of conduit groups with common supports.
2. HVAC and plumbing items and architectural features in the paths of conduit groups with common supports.

F. Manufacturer Seismic Qualification Certification: Submit certification that enclosures and cabinets and their mounting provisions, including those for internal components, will withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems." Include the following:

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
   a. The term "withstand" means "the cabinet or enclosure will remain in place without separation of any parts when subjected to the seismic forces specified and the unit will retain its enclosure characteristics, including its interior accessibility, after the seismic event.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

G. Qualification Data: For professional engineer and testing agency.

H. Source quality-control test reports.

1.04 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

PART 2 - PRODUCTS

2.01 METAL CONDUIT AND TUBING

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. AFC Cable Systems, Inc.
2. Alflex Inc.
3. Allied Tube & Conduit; a Tyco International Ltd. Co.
4. Anamet Electrical, Inc.; Anaconda Metal Hose.

5. Electri-Flex Co.
6. Manhattan/CDT/Cole-Flex.
7. Maverick Tube Corporation.
8. O-Z Gedney; a unit of General Signal.
9. Wheatland Tube Company.

C. Rigid Steel Conduit: ANSI C80.1.

D. Aluminum Rigid Conduit: ANSI C80.5.

E. IMC: ANSI C80.6.

F. PVC-Coated Steel Conduit: PVC-coated rigid steel conduit.

1. Comply with NEMA RN 1.
2. Coating Thickness: 0.040 inch (1 mm), minimum.

G. EMT: ANSI C80.3.

H. FMC: Zinc-coated steel.

I. LFMC: Flexible steel conduit with PVC jacket.

J. Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.

1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886.
2. Fittings for EMT: Steel, raintight compression with integral insulated throat.
3. Coating for Fittings for PVC-Coated Conduit: Minimum thickness, 0.040 inch (1 mm), with overlapping sleeves protecting threaded joints.

K. Joint Compound for Rigid Steel Conduit or IMC: Listed for use in cable connector assemblies, and compounded for use to lubricate and protect threaded raceway joints from corrosion and enhance their conductivity.

2.02 NONMETALLIC CONDUIT AND TUBING

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. AFC Cable Systems, Inc.
2. Anamet Electrical, Inc.; Anaconda Metal Hose.
3. Arnco Corporation.
4. CANTEX Inc.
5. CertainTeed Corp.; Pipe & Plastics Group.
6. Condux International, Inc.
7. ElecSYS, Inc.

8. Electri-Flex Co.
9. Lamson & Sessions; Carlon Electrical Products.
10. Manhattan/CDT/Cole-Flex.
11. RACO; a Hubbell Company.
12. Thomas & Betts Corporation.

C. ENT: NEMA TC 13.

D. RNC: NEMA TC 2, Type EPC-80-PVC, unless otherwise indicated.

E. LFNC: UL 1660.

F. Fittings for ENT and RNC: NEMA TC 3; match to conduit or tubing type and material.

G. Fittings for LFNC: UL 514B.

2.03 OPTICAL FIBER/COMMUNICATIONS CABLE RACEWAY AND FITTINGS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Arnco Corporation.
2. Endot Industries Inc.
3. IPEX Inc.
4. Lamson & Sessions; Carlon Electrical Products.

C. Description: Comply with UL 2024; flexible type, approved for riser installation.

2.04 METAL WIREWAYS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper B-Line, Inc.
2. Hoffman.
3. Square D; Schneider Electric.

C. Description: Sheet metal sized and shaped as indicated, NEMA 250, Type 1 or 3R, unless otherwise indicated on drawings or as required for specific installation.

D. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

E. Wireway Covers: Screw-cover type or Flanged-and-gasketed type for specific installation to maintain NEMA rating.

F. Finish: Manufacturer's standard enamel finish.

2.05 NONMETALLIC WIREWAYS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Hoffman.
2. Lamson & Sessions; Carlon Electrical Products.
3. Or approved equal.

C. Description: Fiberglass polyester, extruded and fabricated to size and shape indicated, with no holes or knockouts. Cover is gasketed with oil-resistant gasket material and fastened with captive screws treated for corrosion resistance. Connections are flanged, with stainless-steel screws and oil-resistant gaskets.

D. Description: PVC plastic, extruded and fabricated to size and shape indicated, with snap-on cover and mechanically coupled connections with plastic fasteners.

E. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

2.06 SURFACE RACEWAYS

A. Surface Metal Raceways: Galvanized steel with snap-on covers. Manufacturer's standard enamel finish in color selected by Architect in areas not exposed to public view or Prime coating, ready for field painting where exposed to public view.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Thomas & Betts Corporation.
    b. Walker Systems, Inc.; Wiremold Company (The).
    c. Wiremold Company (The); Electrical Sales Division.

B. Surface Nonmetallic Raceways: Not permitted on project.

2.07 BOXES, ENCLOSURES, AND CABINETS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
2. EGS/Appleton Electric.

3. Erickson Electrical Equipment Company.
4. Hoffman.
5. Hubbell Incorporated; Killark Electric Manufacturing Co. Division.
6. O-Z/Gedney; a unit of General Signal.
7. RACO; a Hubbell Company.
8. Robroy Industries, Inc.; Enclosure Division.
9. Scott Fetzer Co.; Adalet Division.
10. Spring City Electrical Manufacturing Company.
11. Thomas & Betts Corporation.
12. Walker Systems, Inc.; Wiremold Company (The).
13. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary.

C. Sheet Metal Outlet and Device Boxes: NEMA OS 1.

D. Cast-Metal Outlet and Device Boxes: NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.

E. Nonmetallic Outlet and Device Boxes: NEMA OS 2.

F. Metal Floor Boxes: Cast or sheet metal, semi-adjustable, rectangular.

G. Nonmetallic Floor Boxes: Not permitted on project.

H. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

I. Cast-Metal Access, Pull, and Junction Boxes: NEMA FB 1, cast aluminum with gasketed cover.

J. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous-hinge cover with flush latch, unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.

K. Cabinets:

1. NEMA 250, Type 1, galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.

2.08 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

A. Description: Comply with SCTE 77.

1. Color of Frame and Cover: Gray.
2. Configuration: Units shall be designed for flush burial and have integral closed bottom, unless otherwise indicated.
3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure.
4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.

5. Cover Legend: Molded lettering, as indicated for each service.
6. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
7. Handholes 12 inches wide by 24 inches long (300 mm wide by 600 mm long) and larger shall have inserts for cable racks and pulling-in irons installed before concrete is poured.

B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel or fiberglass or a combination of the two.
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
3. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
    a. Armorcast Products Company.
    b. Carson Industries LLC.
    c. CDR Systems Corporation.
    d. NewBasis.
    e. Brooks.

C. Fiberglass Handholes and Boxes with Polymer-Concrete Frame and Cover: Sheet-molded, fiberglass-reinforced, polyester-resin enclosure joined to polymer-concrete top ring or frame.
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
3. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings.

D. Fiberglass Handholes and Boxes: Molded of fiberglass-reinforced polyester resin, with covers of reinforced concrete.
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
3. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings.

2.09 SLEEVES FOR RACEWAYS

A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

C. Sleeves for Rectangular Openings: Galvanized sheet steel with minimum 0.052- or 0.138-inch (1.3- or 3.5-mm) thickness as indicated and of length to suit application.

D. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

2.10 SLEEVE SEALS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

C. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

1. Advance Products & Systems, Inc.
2. Calpico, Inc.
3. Metraflex Co.
4. Pipeline Seal and Insulator, Inc.

D. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and cable.

1. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
2. Pressure Plates: Carbon steel. Include two for each sealing element.
3. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.11 SOURCE QUALITY CONTROL FOR UNDERGROUND ENCLOSURES

A. Handhole and Pull-Box Prototype Test: Test prototypes of handholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.

1. Tests of materials shall be performed by a independent testing agency.
2. Strength tests of complete boxes and covers shall be by either an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
3. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012, and traceable to NIST standards.

PART 3 - EXECUTION

3.01 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:

1. Exposed Conduit: Rigid steel conduit or IMC.
2. Concealed Conduit, Aboveground: EMT.
3. Underground Conduit: RNC, Type EPC-Schedule 40-PVC, direct buried.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
6. Application of Handholes and Boxes for Underground Wiring:
    a. Handholes and Pull Boxes in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Nondeliberate Loading by Heavy Vehicles: Traffic rated steel.
    b. Handholes and Pull Boxes in Sidewalk and Similar Applications with a Safety Factor for Nondeliberate Loading by Vehicles: Traffic rated steel.
    c. Handholes and Pull Boxes Subject to Light-Duty Pedestrian Traffic Only: Traffic rated steel.

B. Comply with the following indoor applications, unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed, Not Subject to Severe Physical Damage: EMT.
3. Exposed and Subject to Physical Damage: IMC. Includes but not limited to, raceways in the following locations:
    a. Shop Areas.
    b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
    c. Mechanical rooms.
    d. Kitchen Areas.
4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
6. Damp or Wet Locations: IMC.
7. Raceways for Optical Fiber or Communications Cable in Spaces Used for Environmental Air: EMT unless otherwise noted on drawings.
8. Raceways for Optical Fiber or Communications Cable Risers in Vertical Shafts: EMT.
9. Raceways for Concealed General Purpose Distribution of Optical Fiber or Communications Cable: EMT.
10. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4, stainless steel in damp or wet locations.

C. Minimum Raceway Size: 1/2-inch (16-mm) trade size for above ground and 1 inch (32mm) trade size for below grade.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with that material. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer.

E. Install nonferrous conduit or tubing for circuits operating above 60 Hz. Where aluminum raceways are installed for such circuits and pass through concrete, install in nonmetallic sleeve.

F. Do not install aluminum conduits in contact with concrete.

3.02 INSTALLATION

A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.

B. Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Complete raceway installation before starting conductor installation.

D. Support raceways as specified in Division 26 Section "Hangers and Supports for Electrical Systems."

E. Arrange stub-ups so curved portions of bends are not visible above the finished slab.

F. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.

G. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.

H. Raceways Embedded in Slabs:

1. Not Allowed

2. Change from RNC, Type EPC-80-PVC to PVC coated rigid steel conduit, or IMC before rising above the floor through slab.

I. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

J. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors, including conductors smaller than No. 4 AWG.

K. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull wire. Provide permanent nameplate tags identifying location of other end of raceway.

L. Raceways for Optical Fiber and Communications Cable: Install raceways, metallic and nonmetallic, rigid and flexible, as follows:

1. 1-Inch (25-mm) Trade Size and Larger: Install raceways in maximum lengths of 75 feet (23 m).

2. Install with a maximum of two 90-degree bends or equivalent for each length of raceway unless Drawings show stricter requirements. Separate lengths with pull or junction boxes or terminations at distribution frames or cabinets where necessary to comply with these requirements.

M. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where otherwise required by CEC.

N. Expansion-Joint Fittings for RNC: Not permitted on project.

O. Flexible Conduit Connections: Use maximum of 72 inches (1830 mm) of flexible conduit for recessed and semi-recessed lighting fixtures, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

P. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall.

Q. Set metal floor boxes level and flush with finished floor surface.

R. Set metallic floor boxes level. Trim after installation to fit flush with finished floor surface.

S. Coordinate with Architectural drawings for tackable wallboards and install box rings so that no space exists between device and wall plate.

T. No non-metallic conduit is allowed above grade.

3.03 INSTALLATION OF UNDERGROUND CONDUIT

A.

1. Install top of duct bank minimum 24 inches (600mm) below finished grade. Adjust depth to avoid interference with gravity flow systems of any kind. Maintain minimum 12 inches (300mm) clearance between duct bank and any gravity flow system.
2. Duct lines shall have a continuous slope downward toward manholes and away from buildings with a pitch of not less than 4 inches (100mm) in 100 feet (300m). Changes in direction of runs exceeding a total of 10 degrees, either vertical or horizontal, shall be accomplished by long sweep bends having a minimum radius of curvature of 25 feet (50m), except that manufactured bends may be used at ends of short runs of 100 feet (300mm) or less, and then only at or close to the end of run.
3. Terminate conduit in end bell at manhole and pullbox entries.
4. Use suitable separators and chairs installed not greater than 4 feet (25m) on centers. Band conduit together with suitable banding devices. Securely anchor conduit to prevent movement during concrete or slurry placement.
5. Provide minimum 3 inches (75mm) concrete 2 sack slurry cover at bottom, top, and sides of duct bank. Refer to Division 3 section for additional information.
6. Provide two No. 4 steel reinforcing bars in top of bank under paved driving areas.

7. Encase non-metallic primary and secondary feeders, telephone, fire alarm communications and data conduit installed underground 2 inches (50-mm) or larger in a concrete or slurry duct bank unless noted otherwise in the Contract Documents. Space the external surfaces of conduit within a bank a minimum of 3 inches (75-mm) apart except that sound, telephone, data and intercommunication circuits contained within non-metallic conduit shall have a minimum separation of 12 inches (300-mm) from any light or power circuits that parallel them within a bank. Use appropriate manufactured plastic spacers to insure the minimum required concrete or slurry coverage. All concrete or slurry duct conduit banks shall contain a warning tape 12 inches (300-mm) above ductbank.

8. Numbers and sizes of ducts shall be as indicated. Depending on the contour of the finished grade, the high-point may be at a terminal, a manhole, a handhole, or between manholes or handholes. Manufactured steel 90-degree duct bends shall be used only for pole or equipment risers, unless specifically indicated as acceptable. The minimum manufactured bend radius shall be 18 inches (450-mm) for ducts of less than 3-inch (75-mm) diameter, and 36 inches (900-mm) for ducts 3 inches (75mm) in diameter 48 inches (1.2-m) for ducts or greater in diameter unless noted otherwise in the Contract Documents. Long sweep bends having a minimum radius of 25 feet (75-m) shall be used for a change of direction of more than 5 degrees, horizontally or vertically. Both curved and straight sections shall be used to form long sweep bends as required, but the maximum curve used shall be 30 degrees and manufactured bends shall be used. Ducts shall be provided with end bells whenever duct lines terminate in manholes, pullboxes or handholes. Duct line markers shall be provided at the ends of long duct line stubouts or for other ducts whose locations are indeterminate because of duct curvature or terminations at completely below-grade structures. In lieu of markers, a 5-mil brightly colored plastic tape not less than 3 inches (75-mm)in width and suitably inscribed at not more than 10 feet on centers with a continuous metallic backing and a corrosion resistant 1-mil metallic foil core to permit easy location of the duct line, shall be placed approximately 12 inches (300mm) below finished grade levels of such lines.

9. Ducts shall be kept clean of concrete or slurry, dirt or foreign substances during construction. Field cuts requiring tapers shall be made with proper tools and match factory tapers. After a duct line is completed, a standard flexible mandrel shall be used for cleaning followed by a brush with stiff bristles. Mandrels shall be at least 12 inches (300-mm) long and have diameters 1/4 inch (6.2-mm) less than the inside diameter of the duct being cleaned. Pneumatic rodding may be used to draw in lead wires. A coupling recommended by the duct manufacturer shall be used whenever an existing duct is connected to a duct of different material or shape. Ducts shall be stored to avoid warping and deterioration with ends sufficiently plugged to prevent entry of any water or solid substances. Ducts shall be thoroughly cleaned before being laid. Plastic ducts shall be stored on a flat surface and protected from the direct rays of the sun.

3.04 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.

B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch (12.5-mm) sieve to No. 4 (4.75-mm) sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch (25 mm) above finished grade in unpaved areas.

D. Install handholes and boxes with bottom depth as required to meet elevation of incoming conduits.

E. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables, but short enough to preserve adequate working clearances in the enclosure.

F. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.05 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 7 Section "Penetration Firestopping."

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Rectangular Sleeve Minimum Metal Thickness:

1. For sleeve cross-section rectangle perimeter less than 50 inches (1270 mm) and no side greater than 16 inches (400 mm), thickness shall be 0.052 inch (1.3 mm).

2. For sleeve cross-section rectangle perimeter equal to, or greater than, 50 inches (1270 mm) and 1 or more sides equal to, or greater than, 16 inches (400 mm), thickness shall be 0.138 inch (3.5 mm).

E. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

F. Cut sleeves to length for mounting flush with both surfaces of walls.

G. Extend sleeves installed in floors 2 inches (50 mm) above finished floor level.

H. Size pipe sleeves to provide 1/4-inch (6.4-mm) annular clear space between sleeve and raceway unless sleeve seal is to be installed or unless seismic criteria require different clearance.

I. Seal space outside of sleeves with grout for penetrations of concrete and masonry and with approved joint compound for gypsum board assemblies.

J. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway, using joint sealant appropriate for size, depth, and location of joint. Refer to Division 07 Section "Joint Sealants" for materials and installation.

K. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway penetrations. Install sleeves and seal with firestop materials. Comply with Division 07 Section "Penetration Firestopping."

L. Roof-Penetration Sleeves: Seal penetration of individual raceways with flexible, boot-type flashing units applied in coordination with roofing work.

M. Aboveground, Exterior-Wall Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.

N. Underground, Exterior-Wall Penetrations: Install cast-iron "wall pipes" for sleeves. Size sleeves to allow for 1-inch (25-mm) annular clear space between raceway and sleeve for installing mechanical sleeve seals.

3.06 SLEEVE-SEAL INSTALLATION

A. Install to seal underground, exterior wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for raceway material and size. Position raceway in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.07 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 7 Section "Penetration Firestopping."

3.08 PROTECTION

A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION

SECTION 26 05 48
VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following:

1. Spring isolators.
2. Restrained spring isolators.
3. Channel support systems.
4. Restraint cables.
5. Hanger rod stiffeners.
6. Anchorage bushings and washers.

B. Related Sections include the following:

1. Division 26 Section "Hangers And Supports For Electrical Systems" for commonly used electrical supports and installation requirements.

1.02 DEFINITIONS

A. The IBC: International Building Code.

B. ICC-ES: ICC-Evaluation Service.

C. OSHPD: Office of Statewide Health Planning and Development for the State of California.

D. CEC: California Electrical Code.

E. CBC: California Building Code.

1.03 PERFORMANCE REQUIREMENTS

A. Seismic-Restraint Loading:

1. Electrical equipment shall be seismically anchored to conform to C.C.R. Title 24, 2016 CBC Section 1632A and Table 16A-O, Anchorage details not shown on the approved plans or otherwise approved by DSA are subject to field approval by the Architect and/or Structural Engineer of record and field approval by DSA. All conduits shall be supported and braced in accordance with SMACNA Guidelines, the CEC and as approved by DSA.

1.04 SUBMITTALS

A. Product Data: For the following:

1. Include rated load, rated deflection, and overload capacity for each vibration isolation device.
2. Illustrate and indicate style, material, strength, fastening provision, and finish for each type and size of seismic-restraint component used.

B. Coordination Drawings: Show coordination of seismic bracing for electrical components with other systems and equipment in the vicinity, including other supports and seismic restraints.

C. Welding certificates.

D. Qualification Data: For Testing Agency.

E. Field quality-control test reports.

1.05 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

B. Comply with seismic-restraint requirements in the CBC unless requirements in this Section are more stringent.

C. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

D. Seismic-restraint devices shall have horizontal and vertical load testing and analysis and shall bear anchorage preapproval OPA number from OSHPD, preapproval by ICC-ES, or preapproval by another agency acceptable to authorities having jurisdiction, showing maximum seismic-restraint ratings. Ratings based on independent testing are preferred to ratings based on calculations. If preapproved ratings are not available, submittals based on independent testing are preferred. Calculations (including combining shear and tensile loads) to support seismic-restraint designs must be signed and sealed by a qualified professional engineer.

E. Comply with CEC.

PART 2 - PRODUCTS

2.01 VIBRATION ISOLATORS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

C. Basis-of-Design Product: Subject to compliance with requirements, provide a comparable product by one of the following:

1. Ace Mountings Co., Inc.
2. Amber/Booth Company, Inc.
3. California Dynamics Corporation.
4. Isolation Technology, Inc.
5. Kinetics Noise Control.
6. Mason Industries.
7. Vibration Eliminator Co., Inc.
8. Vibration Isolation.
9. Vibration Mountings & Controls, Inc.

D. Pads : Arrange in single or multiple layers of sufficient stiffness for uniform loading over pad area, molded with a nonslip pattern and galvanized-steel baseplates, and factory cut to sizes that match requirements of supported equipment. Refer to drawing details for locations.

1. Resilient Material: Oil- and water-resistant neoprene.

2.02 SEISMIC-RESTRAINT DEVICES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

C. Basis-of-Design Product: Subject to compliance with requirements, provide a comparable product by one of the following:

1. Amber/Booth Company, Inc.
2. California Dynamics Corporation.
3. Cooper B-Line, Inc.; a division of Cooper Industries.
4. Hilti Inc.
5. Loos & Co.; Seismic Earthquake Division.
6. Mason Industries.
7. TOLCO Incorporated; a brand of NIBCO INC.
8. Unistrut; Tyco International, Ltd.

D. General Requirements for Restraint Components: Rated strengths, features, and application requirements shall be as defined in reports by an agency acceptable to DSA.

1. Structural Safety Factor: Allowable strength in tension, shear, and pullout force of components shall be at least 4 times the maximum seismic forces to which they will be subjected.

E. Channel Support System: MFMA-3, shop- or field-fabricated support assembly made of slotted steel channels with accessories for attachment to braced component at one end and to building structure at the other end and other matching components and with corrosion-resistant coating; and rated in tension, compression, and torsion forces.

F. Restraint Cables: ASTM A 603 galvanized steel cables in concealed spaces and ASTM A 492 stainless-steel cables in areas exposed to view in public spaces. Both shall have end connections made of steel assemblies with thimbles, brackets, swivels, and bolts designed for restraining cable service; and with a minimum of two clamping bolts for cable engagement.

G. Hanger Rod Stiffener: Reinforcing steel angle clamped to hanger rod. Do not weld stiffeners to rods.

H. Bushings for Floor-Mounted Equipment Anchor: Neoprene bushings designed for rigid equipment mountings, and matched to type and size of anchors and studs.

I. Bushing Assemblies for Wall-Mounted Equipment Anchorage: Assemblies of neoprene elements and steel sleeves designed for rigid equipment mountings, and matched to type and size of attachment devices.

J. Resilient Isolation Washers and Bushings: One-piece, molded, oil- and water-resistant neoprene, with a flat washer face.

K. Mechanical Anchor: Drilled-in and stud-wedge or female-wedge type in zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchors with strength required for anchor and as tested according to ASTM E 488. Minimum length of eight times diameter.

L. Adhesive Anchor: Drilled-in and capsule anchor system containing polyvinyl or urethane methacrylate-based resin and accelerator, or injected polymer or hybrid mortar adhesive. Provide anchor bolts and hardware with zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488.

2.03 FACTORY FINISHES

A. Finish: Manufacturer's standard prime-coat finish ready for field painting.

B. Finish: Manufacturer's standard paint applied to factory-assembled and -tested equipment before shipping.

1. Powder coating on springs and housings.
2. All hardware shall be galvanized. Hot-dip galvanize metal components for exterior use.
3. Baked enamel or powder coat for metal components on isolators for interior use.
4. Color-code or otherwise mark vibration isolation and seismic-control devices to indicate capacity range.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine areas and equipment to receive vibration isolation and seismic-control devices for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Examine roughing-in of reinforcement and cast-in-place anchors to verify actual locations before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 APPLICATIONS

A. Multiple Raceways or Cables: Secure raceways and cables to trapeze member with clamps approved for application by an agency acceptable to DSA.

B. Hanger Rod Stiffeners: Install hanger rod stiffeners where indicated or scheduled on Drawings to receive them and where required to prevent buckling of hanger rods due to seismic forces.

C. Strength of Support and Seismic-Restraint Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static and seismic loads within specified loading limits.

3.03 SEISMIC-RESTRAINT DEVICE INSTALLATION

A. Equipment and Hanger Restraints:

1. Install restrained isolators on electrical equipment.
2. Install resilient, bolt-isolation washers on equipment anchor bolts where clearance between anchor and adjacent surface exceeds 0.125 inch (3.2 mm).
3. Install seismic-restraint devices using methods approved by DSA.

B. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media where equipment or equipment-mounting channels are attached to wall.

C. Attachment to Structure: If specific attachment is not indicated, anchor bracing to structure at flanges of beams, at upper truss chords of bar joists, or at concrete members.

D. Drilled-in Anchors:
1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling. Notify the structural engineer if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid prestressed tendons, electrical and telecommunications conduit, and gas lines.
2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
3. Wedge Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.
4. Adhesive Anchors: Clean holes to remove loose material and drilling dust prior to installation of adhesive. Place adhesive in holes proceeding from the bottom of the hole and progressing toward the surface in such a manner as to avoid introduction of air pockets in the adhesive.
5. Set anchors to manufacturer's recommended torque, using a torque wrench.
6. Install zinc-coated steel anchors for interior and stainless-steel anchors for exterior applications.

3.04 ACCOMMODATION OF DIFFERENTIAL SEISMIC MOTION

A. Install flexible connections in runs of raceways, cables, wireways, cable trays, and busways where they cross seismic joints, where adjacent sections or branches are supported by different structural elements, and where they terminate with connection to equipment that is anchored to a different structural element from the one supporting them as they approach equipment.

3.05 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections and prepare test reports.

B. Perform tests and inspections.

C. Tests and Inspections:
1. Provide evidence of recent calibration of test equipment by a testing agency acceptable to authorities having jurisdiction.

2. Schedule test with Owner, through Architect, before connecting anchorage device to restrained component (unless postconnection testing has been approved), and with at least seven days' advance notice.
3. Obtain Architect's approval before transmitting test loads to structure. Provide temporary load-spreading members.
4. Test at least four of each type and size of installed anchors and fasteners selected by Architect.
5. Test to 90 percent of rated proof load of device.
6. Measure isolator restraint clearance.
7. Measure isolator deflection.
8. Verify snubber minimum clearances.
9. If a device fails test, modify all installations of same type and retest until satisfactory results are achieved.

D. Remove and replace malfunctioning units and retest as specified above.

E. Prepare test and inspection reports.

3.06 ADJUSTING

A. Adjust isolators after isolated equipment is at operating weight.

B. Adjust limit stops on restrained spring isolators to mount equipment at normal operating height. After equipment installation is complete, adjust limit stops so they are out of contact during normal operation.

C. Adjust active height of spring isolators.

D. Adjust restraints to permit free movement of equipment within normal mode of operation.

END OF SECTION

SECTION 26 05 72

ACCEPTANCE TESTING

PART 1- GENERAL

1.01 It is the intent of these acceptance tests to assure that all Contractor supplied equipment is operational and within industry and manufacturer's tolerances and is installed in accordance with designed specifications.

A. The acceptance tests and inspections shall determine suitability for energization of switchgear and cables.

B. Items that shall be checked, inspected, and tested include, but are not limited to, the following:

1. Relays.
2. Power/Lighting panelboards.
3. 600V rated cable.
4. Lighting System

1.02 APPLICABLE CODES

A. All inspections and tests shall be in accordance with the following applicable codes and standards except as provided otherwise herein.

1. California Electrical Code - CEC 2016 Edition.
2. National Electrical Manufacturer's Association - NEMA.
3. American Society for Testing and Materials - ASTM.
4. Institute of Electrical and Electronic Engineers - IEEE.
5. National Electrical Testing Association - NETA.
6. American National Standards Institute - ANSI:
    a. C2, National Electrical Safety Code
    b. Z244-1, American National Standard for Personnel Protection
7. State Codes and Ordinances.
8. Insulated Cable Engineers Association - ICEA.
9. Association of Edison Illuminating Companies - AEIC.
10. Occupational Safety and Health Administration:
    a. Part 1910, Subpart S, 1910.308
    b. Part 1926, Subpart V, 1926.950 through 1926.960
11. National Fire Protection Association - NFPA:
    a. CEC, Electrical Equipment Maintenance
    b. CEC, Electrical Safety Requirements for Employee Workplaces
    c. ANSI/NFPA 70, California Electrical Code 2016 Edition
    d. ANSI/NFPA 78, Lightning Protection Code

e. ANSI/NFPA 101, Life Safety Code

f. 2016 Title 24 Energy Guidelines, Chapter 8

12. All inspections and tests shall utilize the following references:

a. Project Design Specification.

b. Project Design Drawings.

c. Manufacturer's instruction manuals applicable to each particular apparatus.

1.03 QUALIFICATIONS OF TESTING AGENCY

A. The testing firm shall be an independent testing organization, which can function as an unbiased testing authority, professionally independent of the manufacturers, suppliers, and installers of equipment or systems evaluated by the testing firm.

B. The testing firm shall be regularly engaged in the testing of electrical equipment devices, installations, and systems.

C. The testing firm and all the testing personnel shall have been engaged in such practices for a minimum of ten years.

D. The testing firm shall meet federal OSHA criteria for accreditation of testing laboratories, Title 29, Parts 1907, 1910, and 1936. Full membership in the National Electrical Testing Association constitutes proof of such criteria.

E. The lead, on site, technical person shall be currently certified by the National Electrical Testing Associate (NETA) in Electrical Power Distribution System Testing.

F. Testing firm shall utilize only full-time technicians who are regularly employed by the firm for testing services. Electrically unskilled employees are not permitted to perform testing or assistance of any kind. Electricians may assist, but may not perform testing and/or inspection services.

G. The testing firm shall submit proof of the above qualifications.

H. The testing firm shall be an independent organization as defined by OSHA Title 29, Part 1936 and the National Electrical Testing Association.

I. All instruments used by the testing firm to evaluate electrical performance shall meet NETA's Specifications for Test Instruments. (See Section 1.7 of this specification).

J. The terms used herewith such as Test Agency, Testing Laboratory, or Contractor Test Company, shall be construed to mean testing firm.

1.04 RESPONSIBILITIES

A. The Contractor shall notify the Owners Representative prior to commencement of any testing.

B. Any system, material or workmanship, which is found defective on the basis of acceptance tests, shall be reported.

C. The testing firm shall maintain a written record of all tests and upon completion of project, assemble and certify a final test report.

D. A stable source of 60 hertz power shall be provided for testing purposes by the Contractor. Owners Representative shall witness all tests and a minimum of 14 days notice shall be provided.

1.05 TEST EQUIPMENT

A. Test Instrument Calibration

1. The testing firm shall have a calibration program that assures that all applicable test instrumentation is maintained within rated accuracy.
2. The accuracy shall be directly traceable to the National Bureau of Standards.
3. Instruments shall be calibrated in accordance with the following frequency schedule:
   a. Field instruments: Analog - 6 months maximum
      Digital - 12 months maximum
   b. Laboratory Instruments – 2 months
   c. Leased specialty equipment - 12 months (where accuracy is guaranteed by lessor)
4. Dated calibration labels shall be visible on all test equipment.
5. Records must be kept up-to-date which show date and results of instruments calibrated or tested.
6. An up-to-date instrument calibration instruction and procedure will be maintained for each test instrument.
7. Calibrating standard shall be of higher accuracy than that of the instrument tested.

1.06 TEST REPORTS

A. The test report shall include the following:

1. Summary of project.
2. Description of equipment/device tested.
3. Description of test, including date, time, and duration of test.
4. Test results.
5. Conclusions and recommendations.
6. Appendix, including appropriate test forms.
7. Identification of test equipment used.
8. Signature of responsible test organization authority.
9. Signature of the person witnessing the tests.
10. Furnish five copies of the complete report to the Owners Representative no later than thirty (30) days after completion of project unless otherwise directed.

1.07 SAFETY AND PRECAUTIONS

A. Safety practices shall include, but are not limited to, the following requirements:

1. Occupational Safety and Health Act of 1970 - OSHA.
2. Accident Prevention Manual for Industrial Operations, National Safety Council, Chapter 4.
3. Applicable State safety operating procedures.
4. NETA Safety/Accident Prevention Program.
5. District’s safety practices.
6. National Fire Protection Association - NFPA 70E.

7. ANSI Z244.1 American National Standards for Personnel Protection.

B. All tests shall be performed with apparatus de-energized except where otherwise specifically required.

C. The testing firm shall have a designated safety representative on the project to supervise operations with respect to safety.

PART 2 – NOT USED

PART 3 - EQUIPMENT VERIFICATIONS, TESTS AND CALIBRATIONS

3.01 GENERAL

A. As part of the contract, the Contractor shall perform tests of installed work as herein specified and specified in other Sections of these Specifications.

B. The Contractor shall provide all materials, equipment, labor and technical supervision to perform such tests and inspections.

C. All tests shall be performed in compliance with the recommendations and requirements of the National Electrical Testing Association, Inc. (NETA), and applicable codes and standards.

D. Upon completion of the tests and inspections noted in these Specifications, a label shall be attached to all serviced devices. These labels shall indicate date serviced and the service company responsible.

C. The test and inspections shall determine suitability for continued reliable operation.

D. All tests shall be conducted in the presence of the Owners Representative. Provide a minimum of two weeks notice to the Owners Representative.

E. Furnish the necessary equipment and personnel to perform all required tests of all wiring and connections for continuity, short circuit, and improper grounds. Included, but not limited to, the following systems: substations, air interrupting switches, low voltage main and feeder circuit breakers, interlocking controls, panelboards, distribution transformers, branch circuits.

3.02 LOW VOLTAGE CIRCUIT BREAKERS

A. Visual and mechanical inspection:

1. Inspect for physical condition.
2. Inspect alignment and grounding.
3. Perform mechanical operator and contact alignment tests on the breaker and its operating mechanism in accordance with manufacturer's instructions.
4. Perform insulation resistance test on control wiring.
5. Clean mechanism, insulating surfaces and contacts.

B. Electrical tests:

1. Measure contact resistance.
2. Trip overcurrent protective device by operation of each protective device.
3. Perform an insulation resistance test phase-to-ground, phase-to-phase and across open contacts.

4. Perform insulation resistance test in accordance with Doble procedure.
5. Perform timing test with Travel Analyzer to insure proper contact overtravel and pressure.

3.03 CABLES, LOW VOLTAGE (600 VOLTS AND LESS)

A. Visual and mechanical inspections:
   1. Inspect cables for physical damage and proper connection.
   2. Torque test cable connection. Tighten connections in accordance with industry standards.
   3. Perform infrared scan of all connections under loaded conditions.

B. Electrical tests:
   1. Perform insulation resistance test of each cable with respect to ground and adjacent cables.

3.04 GROUNDING SYSTEMS

A. Visual and mechanical inspection:
   1. Inspect ground system connections for completeness and adequacy.

B. Electrical tests:
   1. Perform fall-of-the-potential test per IEEE No. 81, Section 9.03 to determine the ground resistance between the main grounding system and all major electrical equipment frames, system neutral and/or derived neutral points.

END OF SECTION

SECTION 26 22 01

DRY-TYPE TRANSFORMERS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following types of dry-type transformers rated 600 V and less, with capacities up to 1000 kVA:

1. Distribution transformers.

1.02 SUBMITTALS

A. Product Data: Include rated nameplate data, capacities, weights, dimensions, minimum clearances, installed devices and features, and performance for each type and size of transformer indicated.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1. Wiring Diagrams: Power, signal, and control wiring.

C. Manufacturer Seismic Qualification Certification: Submit certification that transformers, accessories, and components will withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems." Include the following:

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.

a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."

b. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.

3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

D. Qualification Data: For testing agency.

E. Source quality-control test reports.

F. Field quality-control test reports.

G. Operation and Maintenance Data: For transformers to include in emergency, operation, and maintenance manuals.

1.03 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical

Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

B. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7.

C. Source Limitations: Obtain each transformer type through one source from a single manufacturer.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

E. Comply with IEEE C57.12.91, "Test Code for Dry-Type Distribution and Power Transformers."

1.04 DELIVERY, STORAGE, AND HANDLING

A. Temporary Heating: Apply temporary heat according to manufacturer's written instructions within the enclosure of each ventilated-type unit, throughout periods during which equipment is not energized and when transformer is not in a space that is continuously under normal control of temperature and humidity.

1.05 COORDINATION

A. Coordinate size and location of concrete bases with actual transformer provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

B. Coordinate installation of wall-mounting and structure-hanging supports with actual transformer provided.

PART 2: PRODUCTS

2.01 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Products.
2. General Electric Company.
3. Square D; Schneider Electric.

2.02 GENERAL TRANSFORMER REQUIREMENTS

A. Description: Factory-assembled and -tested, air-cooled units for 60-Hz service.

B. Cores: Grain-oriented, non-aging silicon steel.

C. Coils: Continuous windings without splices except for taps.

1. Internal Coil Connections: Brazed or pressure type.

2. Coil Material: Copper.

2.03 TRANSFORMERS

A. Comply with NEMA ST 20/ANSI C89.2, and list and label as complying with UL 1561.

B. Provide transformers that are constructed to withstand seismic forces specified in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

C. Cores: One leg per phase.

D. Enclosure: Ventilated EMA 250, Type 2.

1. Core and coil shall be encapsulated within resin compound, sealing out moisture and air.

E. Enclosure: Ventilate NEMA 250.

1. Core and coil shall be encapsulated within resin compound, sealing out moisture and air.

F. Transformer Enclosure Finish: Comply with NEMA 250.

1. Finish Color: Standard Gray.

G. Taps for Transformers 25 kVA and Larger: Two 2.5 percent taps above and four 2.5 percent taps below normal full capacity.

H. Insulation Class: 220 degree C, UL-component-recognized insulation system with a maximum of 150 degree C rise above 40 degree C ambient temperature.

I. Energy Efficiency for Transformers Rated 15 kVA and Larger:

1. Complying with NEMA TP 1, Class 1 efficiency levels.

2. Tested according to NEMA TP 2.

J. K-Factor Rating: Transformers indicated to be K-factor rated shall comply with UL 1561 requirements for nonsinusoidal load current-handling capability to the degree defined by designated K-factor.

1. Unit shall not overheat when carrying full-load current with harmonic distortion corresponding to designated K-factor.

2. Indicate value of K-factor on transformer nameplate.

K. Electrostatic Shielding: Each winding shall have an independent, single, full-width copper electrostatic shield arranged to minimize interwinding capacitance.

1. Arrange coil leads and terminal strips to minimize capacitive coupling between input and output terminals.

2. Include special terminal for grounding the shield.

3. Shield Effectiveness:

a. Capacitance between Primary and Secondary Windings: Not to exceed 33 picofarads over a frequency range of 20 Hz to 1 MHz.

b. Common-Mode Noise Attenuation: Minimum of minus 120 dBA at 0.5 to 1.5 kHz; minimum of minus 65 dBA at 1.5 to 100 kHz.

c. Normal-Mode Noise Attenuation: Minimum of minus 52 dBA at 1.5 to 10 kHz.

L. Wall Brackets: Manufacturer's standard brackets.

M. Fungus Proofing: Permanent fungicidal treatment for coil and core.

N. Low-Sound-Level Requirements: Minimum of 3 dBA less than NEMA ST 20 standard sound levels when factory tested according to IEEE C57.12.91.

O. Low-Sound-Level Requirements: Maximum sound levels, when factory tested according to IEEE C57.12.91, as follows:

1. 9 kVA and Less: 35 dBA
2. 30 to 150 kVA: 45dBA
3. 151 to 300 kVA: 50 dBA
4. 301 to 500 kVA: 55 dBA

2.04 BUCK-BOOST TRANSFORMERS

A. Description: Self-cooled, two-winding dry type, rated for continuous duty and with wiring terminals suitable for connection as autotransformer. Transformers shall comply with NEMA ST 1 and shall be listed and labeled as complying with UL 506 or UL 1561.

B. Enclosure: Ventilated, NEMA 250, Type 2.

1. Finish Color: Standard Gray

2.05 IDENTIFICATION DEVICES

A. Nameplates: Engraved, laminated-plastic or metal nameplate for each distribution transformer, mounted with corrosion-resistant screws. Nameplates and label products are specified in Division 26 Section "Identification for Electrical Systems."

2.06 SOURCE QUALITY CONTROL

A. Test and inspect transformers according to IEEE C57.12.91.

B. Factory Sound-Level Tests: Conduct sound-level tests on equipment for this Project.

PART 3: EXECUTION

3.01 EXAMINATION

A. Examine conditions for compliance with enclosure- and ambient-temperature requirements for each transformer.

B. Verify that field measurements are as needed to maintain working clearances required by CEC and manufacturer's written instructions.

C. Examine walls, floors, roofs, and concrete bases for suitable mounting conditions where transformers will be installed.

D. Verify that ground connections are in place and requirements in Division 26 Section "Grounding and Bonding for Electrical Systems" have been met. Maximum ground resistance shall be 5 ohms at location of transformer.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Install wall-mounting transformers level and plumb with wall brackets fabricated by transformer manufacturer.

1. Brace wall-mounting transformers as specified in Division 26 Section "Vibration and Seismic Controls for Electrical Systems.

B. Construct concrete bases and anchor floor-mounting transformers according to manufacturer's written instructions, seismic codes applicable to Project, and requirements in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

3.03 CONNECTIONS

A. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

B. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

3.04 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections and prepare test reports.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.

C. Perform tests and inspections and prepare test reports.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

D. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

E. Remove and replace units that do not pass tests or inspections and retest as specified above.

F. Infrared Scanning: Two months after Substantial Completion, perform an infrared scan of transformer connections.

1. Use an infrared-scanning device designed to measure temperature or detect significant deviations from normal values. Provide documentation of device calibration.

2. Perform 2 follow-up infrared scans of transformers, one at 4 months and the other at 11 months after Substantial Completion.

3. Prepare a certified report identifying transformer checked and describing results of scanning. Include notation of deficiencies detected, remedial action taken, and scanning observations after remedial action.

G. Test Labeling: On completion of satisfactory testing of each unit, attach a dated and signed "Satisfactory Test" label to tested component.

3.05 ADJUSTING

A. Record transformer secondary voltage at each unit for at least 48 hours of typical occupancy period. Adjust transformer taps to provide optimum voltage conditions at secondary terminals. Optimum is defined as not exceeding nameplate voltage plus 10 percent and not

being lower than nameplate voltage minus 3 percent at maximum load conditions. Submit recording and tap settings as test results.

B. Output Settings Report: Prepare a written report recording output voltages and tap settings.

3.06 CLEANING

A. Vacuum dirt and debris; do not use compressed air to assist in cleaning.

END OF SECTION

SECTION 26 24 16

PANELBOARDS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following:

1. Distribution panelboards.
2. Lighting and appliance branch-circuit panelboards.
3. Load centers.
4. Transient voltage suppression panelboards.

1.02 DEFINITIONS

A. EMI: Electromagnetic interference.

B. GFCI: Ground-fault circuit interrupter.

C. RFI: Radio-frequency interference.

D. RMS: Root mean square.

E. SPDT: Single pole, double throw.

1.03 SUBMITTALS

A. Product Data: For each type of panelboard, overcurrent protective device, transient voltage suppression device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop Drawings: For each panelboard and related equipment.

1. Dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings. Include the following:
    a. Enclosure types and details for types other than NEMA 250, Type 1.
    b. Bus configuration, current, and voltage ratings.
    c. Short-circuit current rating of panelboards and overcurrent protective devices.
    d. UL listing for series rating of installed devices.
    e. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
2. Wiring Diagrams: Power, signal, and control wiring.

C. Manufacturer Seismic Qualification Certification: Submit certification that panelboards, overcurrent protective devices, accessories, and components will withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems" Include the following:

1. Basis of Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.

a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."

b. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.

3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

D. Qualification Data: For testing agency.

E. Field quality-control test reports including the following:

1. Test procedures used.

2. Test results that comply with requirements.

3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

F. Panelboard Schedules: For installation in panelboards. Submit final versions after load balancing.

G. Operation and Maintenance Data: For panelboards and components to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:

1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.

2. Time-current curves, including selectable ranges for each type of overcurrent protective device.

1.04 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the International Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

1. Testing Agency's Field Supervisor: Person currently certified by the International Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

B. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7.

C. Source Limitations: Obtain panelboards, overcurrent protective devices, components, and accessories through one source from a single manufacturer.

D. Product Options: Drawings indicate size, profiles, and dimensional requirements of panelboards and are based on the specific system indicated. Refer to Division 01 Section "Product Requirements."

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

F. Comply with NEMA PB 1.

G. Comply with CEC.

1.05 PROJECT CONDITIONS

A. Environmental Limitations: Rate equipment for continuous operation under the following conditions, unless otherwise indicated:

1. Ambient Temperature: Not exceeding 104 degree F (40 degree C).

2. Altitude: Not exceeding 6600 feet (2000 m).

B. Service Conditions: NEMA PB 1, usual service conditions, as follows:

1. Ambient temperatures within limits specified.

2. Altitude not exceeding 6600 feet (2000 m).

C. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:

1. Notify Architect and Owner no fewer than 14 days in advance of proposed interruption of electrical service.

2. Do not proceed with interruption of electrical service without Architects and Owners written permission.

1.06 COORDINATION

A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, and encumbrances to workspace clearance requirements.

B. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

1.07 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Keys: Six spares for each type of panelboard cabinet lock.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Panelboards, Overcurrent Protective Devices, Controllers, Contactors, and Accessories:
    a. Eaton Corporation; Cutler-Hammer Products.
    b. General Electric Co.; Electrical Distribution & Protection Div.
    c. Siemens Energy & Automation, Inc.
    d. Square D.
2. Transient Voltage Suppression Panelboards:
    a. Current Technology.
    b. Liebert Corporation.

2.02 MANUFACTURED UNITS

A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

B. Enclosures: Flush- and surface-mounted cabinets. NEMA PB 1, Type 1.
1. Rated for environmental conditions at installed location.
    a. Outdoor Locations: NEMA 250, Type 3R unless noted otherwise.
    b. Kitchen Areas: NEMA 250, Type 4X, stainless steel.
    c. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.
    d. Hazardous Areas Indicated on Drawings: NEMA 250, Type 7C.
2. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.
3. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.
4. Skirt for Surface-Mounted Panelboards: Same gage and finish as panelboard front with flanges for attachment to panelboard, wall, and ceiling or floor.
5. Gutter Extension and Barrier: Same gage and finish as panelboard enclosure; integral with enclosure body. Arrange to isolate individual panel sections.
6. Column-Type Panelboards: Narrow gutter extension, with cover, to overhead junction box equipped with ground and neutral terminal buses.
7. Finish: Manufacturer's standard enamel finish over corrosion-resistant treatment or primer coat.
8. Directory Card: With transparent protective cover, mounted in metal frame, inside panelboard door.
9. Identifying nameplate with full description as specified in Section 260532.

C. Phase and Ground Buses:
1. Material: Hard-drawn copper, 98 percent conductivity.
2. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment ground conductors; bonded to box.
3. Isolated Equipment Ground Bus: Adequate for branch-circuit equipment ground conductors; insulated from box.

4. Extra-Capacity Neutral Bus: Neutral bus rated 200 percent of phase bus and UL listed as suitable for nonlinear loads.
5. Split Bus: Vertical buses divided into individual vertical sections.

D. Conductor Connectors: Suitable for use with conductor material.
1. Main and Neutral Lugs: Compression type.
2. Ground Lugs and Bus Configured Terminators: Compression type.
3. Feed-Through Lugs: Compression type suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
4. Extra-Capacity Neutral Lugs: Rated 200 percent of phase lugs mounted on extra-capacity neutral bus.

E. Service Equipment Label: UL labeled for use as service equipment for panelboards with main service disconnect switches.

F. Future Devices: Mounting brackets, bus connections, and necessary appurtenances required for future installation of devices.

2.03 PANELBOARD SHORT-CIRCUIT RATING

A. UL label indicating connected rating with integral or remote upstream overcurrent protective devices. Include size and type of upstream device allowable, branch devices allowable, and UL connected short-circuit rating. Series rated panels and related circuit breakers are not acceptable.

B. Fully rated to interrupt symmetrical short-circuit current available at terminals.

2.04 DISTRIBUTION PANELBOARDS

A. Doors: Secured with vault-type latch with tumbler lock; keyed alike. Omit for fused-switch panelboards.

B. Main Overcurrent Protective Devices: Circuit Breaker.

C. Branch Overcurrent Protective Devices:
1. For Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on type circuit breakers.
2. For Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers.

2.05 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Branch Overcurrent Protective Devices: Bolt-on type circuit breakers, replaceable without disturbing adjacent units.

B. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

2.06 LOAD CENTERS

A. Overcurrent Protective Devices: Plug-in, full-module circuit breaker.

B. Conductor Connectors: Mechanical type for main, neutral, and ground lugs and buses.

2.07 TRANSIENT VOLTAGE SUPPRESSION PANELBOARDS

A. Doors: Secured with vault-type latch with tumbler lock; keyed alike.

B. Main Overcurrent Devices: Thermal-magnetic circuit breaker.

C. Branch Overcurrent Protective Devices: Bolt-on circuit breakers.

D. Bus: Copper phase and neutral buses; 200 percent capacity neutral bus and lugs.

E. Transient Voltage Suppression Device: IEEE C62.41, integrally mounted, plug-in-style, solid-state, parallel-connected, sine-wave tracking suppression and filtering modules.

1. Minimum Single-Impulse Current Ratings:

a. Line to Neutral: 100,000 A.

b. Line to Ground: 100,000 A.

c. Neutral to Ground: 50,000 A.

2. Protection modes shall be as follows:

a. Line to neutral.

b. Line to ground.

c. Neutral to ground.

3. EMI/RFI Noise Attenuation Using 50-ohm Insertion Loss Test: 55 dB at 100 kHz.

4. Maximum Category C Combination Wave Clamping Voltage: 600 V, line to neutral and line to ground on 120/208 V. and 1000 V, line to neutral and line to ground on 277/480 V. systems.

5. Maximum UL 1449 Clamping Levels: 400 V, line to neutral and line to ground on 120/208 V. and 800 V, line to neutral and line to ground on 277/480 V. systems.

6. Withstand Capabilities: 3000 Category C surges with less than 5 percent change in clamping voltage.

7. Accessories:

a. Form-C contacts, one normally open and one normally closed, for remote monitoring of system operation. Contacts to reverse position on failure of any surge diversion module.

b. Audible alarm activated on failure of any surge diversion module.

c. Six-digit transient-counter set to total transient surges that deviate from the sine-wave envelope by more than 125 V.

2.08 OVERCURRENT PROTECTIVE DEVICES

A. Molded-Case Circuit Breaker: UL 489, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.

2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.

3. Electronic trip-unit circuit breakers shall have RMS sensing; field-replaceable rating plug; and with the following field-adjustable settings:

a. Instantaneous trip.

b. Long- and short-time pickup levels.

c. Long- and short-time time adjustments.

d. Ground-fault pickup level, time delay, and I^2t response.

4. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through ratings less than NEMA FU 1, RK-5.

5. Integrally Fused Circuit Breakers: Thermal-magnetic trip element with integral limiter-style fuse listed for use with circuit breaker; trip activation on fuse opening or on opening of fuse compartment door.

6. GFCI Circuit Breakers: Single- and two-pole configurations with 5-mA trip sensitivity.

B. Molded-Case Circuit-Breaker Features and Accessories: Standard frame sizes, trip ratings, and number of poles.

1. Lugs: Compression style, suitable for number, size, trip ratings, and conductor materials.

2. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HACR for heating, air-conditioning, and refrigerating equipment.

3. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.

4. Communication Capability: Universal-mounted communication module with functions and features compatible with power monitoring and control system specified in Division 26 Section "Electrical Power Monitoring and Control."

5. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 55 percent of rated voltage.

6. Undervoltage Trip: Set to operate at 35 to 75 percent of rated voltage with field-adjustable 0.1- to 0.6-second time delay.

7. Auxiliary Contacts: Two SPDT switches with "a" and "b" contacts; "a" contacts mimic circuit-breaker contacts, "b" contacts operate in reverse of circuit-breaker contacts.

8. Key Interlock Kit: Externally mounted to prohibit circuit-breaker operation; key shall be removable only when circuit breaker is in off position.

9. Zone-Selective Interlocking: Integral with electronic trip unit; for interlocking ground-fault protection function.

10. Multipole units enclosed in a single housing or factory-assembled to operate as a single unit.

C. Fused Switch: NEMA KS 1, Type HD; clips to accommodate specified fuses; lockable handle.

D. Fuses are specified in Division 26 Section "Fuses."

2.09 CONTROLLERS

A. Motor Controllers: NEMA ICS 2, Class A, combination controller equipped for panelboard mounting and including the following accessories:

1. Individual control-power transformers.

2. Fuses for control-power transformers.

3. Bimetallic-element overload relay.

4. Indicating lights.

5. Seal-in contact.
6. 2 convertible auxiliary contacts.
7. Push buttons.
8. Selector switches.

B. Contactors: NEMA ICS 2, Class A, combination controller equipped for panelboard mounting and including the following accessories:
1. Individual control-power transformers.
2. Fuses for control-power transformers.
3. Indicating lights.
4. Seal-in contact.
5. 2 convertible auxiliary contacts or as otherwise indicated on drawings.
6. Push buttons.
7. Selector switches.

C. Controller Disconnect Switches: Adjustable instantaneous-trip circuit breaker integrally mounted and interlocked with controller.
1. Auxiliary Contacts: Integral with disconnect switches to de-energize external control-power source.

D. Contactors in Main Bus: NEMA ICS 2, Class A, mechanically held general-purpose controller.
1. Control-Power Source: Control-power transformer, with fused primary and secondary terminals, connected to main bus ahead of contactor connection.
2. Control-Power Source: 120-V branch circuit.

2.10 ACCESSORY COMPONENTS AND FEATURES

A. Furnish accessory set including tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.

B. Furnish portable test set to test functions of solid-state trip devices without removal from panelboard.

C. Fungus Proofing: Permanent fungicidal treatment for panelboard interior, including overcurrent protective devices and other components.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install panelboards and accessories according to NEMA PB 1.1.

B. Comply with mounting and anchoring requirements specified in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

C. Mount top of trim 74 inches (1880 mm) above finished floor, unless otherwise indicated.

D. Mount plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish. Where panelboards are recessed into fire rated walls, notify Architect immediately of condition and provide additional furring of wall (and related drywall) to bring panelboard front flush with finished surface.

E. Install overcurrent protective devices and controllers.

1. Set field-adjustable switches and circuit-breaker trip ranges.

F. Install filler plates in unused spaces.

G. Stub five 1-inch (27-GRC) empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future. Stub four 1-inch (27-GRC) empty conduits into raised floor space or below slab not on grade.

H. Arrange conductors in gutters into groups and bundle and wrap with wire ties after completing load balancing in a neat and professional manor.

3.02 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 26 Section "Identification for Electrical Systems."

B. Create a directory to indicate installed circuit loads (after balancing panelboard loads). Obtain approval from Architect of description or areas served before installing. The Contractor shall be responsible for updating directories to indicate actual area served which is not necessarily the description indicated on the bid documents. Use a computer or typewriter to create directory; handwritten directories are not acceptable.

C. Panelboard Nameplates: Label each panelboard with engraved metal or laminated-plastic nameplate mounted with corrosion-resistant screws or rivets. Refer to Section 260553 for additional requirements.

3.03 CONNECTIONS

A. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

B. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

3.04 FIELD QUALITY CONTROL

A. Prepare for acceptance tests as follows:

1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.

2. Test continuity of each circuit.

B. Testing Agency: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

C. Testing Agency: Engage a qualified testing and inspecting agency to perform the following field tests and inspections and prepare test reports:

D. Perform the following field tests and inspections and prepare test reports:

1. Perform each electrical test and visual and mechanical inspection stated in NETA ATS, Section 7.5 for switches and Section 7.6 for molded-case circuit breakers. Certify compliance with test parameters.

2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

E. Load Balancing: After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes.

1. Measure as directed during period of normal system loading.
2. Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility and at time directed. Avoid disrupting critical 24-hour services such as fax machines and on-line data processing, computing, transmitting, and receiving equipment.
3. After circuit changes, recheck loads during normal load period. Record all load readings before and after changes and submit test records.
4. Tolerance: Difference exceeding 20 percent between phase loads, within a panelboard, is not acceptable. Rebalance and recheck as necessary to meet this minimum requirement.

F. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scanning of each panelboard. Remove panel fronts so joints and connections are accessible to portable scanner.

1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each panelboard 11 months after date of Substantial Completion.
2. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
3. Record of Infrared Scanning: Prepare a certified report that identifies panelboards checked and describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.05 CLEANING

A. On completion of installation, inspect interior and exterior of panelboards. Remove paint splatters and other spots. Vacuum dirt and debris prior to pulling any conductors; do not use compressed air to assist in cleaning. Repair exposed surfaces to match original finish.

END OF SECTION

SECTION 26 27 26
WIRING DEVICES

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Wall switches.

B. Receptacles.

C. Device plates and decorative box covers.

D. Time switches.

1.02 REFERENCES

A. NEMA WD 1 - General-Purpose Wiring Devices.

B. NEMA WD 6 - Wiring Device Configurations.

1.03 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years documented experience.

PART 2 - PRODUCTS

2.01 WALL SWITCHES

A. Single Pole Switch:

1. Hubbell.
2. Leviton.
3. Equal by Arrow Hart or Bryant.

B. Double Pole Switch:

1. Hubbell.
2. Leviton.
3. Equal by Arrow Hart or Bryant.

C. Three-way Switch:

1. Hubbell.
2. Leviton.
3. Equal by Arrow Hart or Bryant.

D. Substitutions: Under provisions of Division 01.

E. Description: NEMA WD 1, heavy-duty Commercial/Industrial grade, AC only general-use quiet type rocker witch, UL approved for tungsten lamp loads or inductive loads without derating.

F. Device Body: White plastic with rocker handle.

G. Ratings: 20A., 120-277V A.C. or as required to match with specific branch circuit and load characteristics.

H. Lock type switches shall be Hubbell #1221L only per District standards.

2.02 RECEPTACLES

A. Duplex Convenience Receptacle:

1. Hubbell
2. Leviton
3. Arrow Hart
4. Bryant.

B. GFCI Receptacle:

1. Hubbell
2. Leviton
3. Arrow Hart
4. Bryant.

C. Surge Protected Outlets:

1. Hubbell
2. Leviton
3. Arrow Hart
4. Bryant.

D. Substitutions: Under provisions of Division 01.

E. Description: NEMA WD 1; heavy-duty **Hospital Grade** receptacle. 20 Amp, 125V, 2-pole, 3-wire style line series.

F. Device Body: Plastic.

G. Configuration: NEMA WD 6; type as specified and indicated.

H. Convenience Receptacle: Type 5-20R

I. GFCI Receptacle: Convenience receptacle with integral ground fault circuit interrupter to meet regulatory requirements.

2.03 WALL PLATES

A. Plates shall be brushed stainless steel and supplied for every local switch, receptacle, telephone and data outlet, wall speaker outlet, etc.

B. Weatherproof Cover Plate: Gasketed cast metal with hinged gasketed device cover.

C. Locking Weatherproof Cover Plate: Pass & Seymour #WP26-L or equal at locations Indicated on drawings.

D. Plates shall be engraved and filled, when used for:

1. More than two gangs.
2. Equipment that cannot be seen from the locations.
3. All lock type switches.
4. All receptacles other than 120 volts.
5. All pilot switches.

6. Switches in locations from which the equipment or circuits controlled cannot be readily seen.
7. Manual motor starting switches.
8. Where so indicated on the drawings.
9. As required on all control circuit switches, such as heater controls, etc.

2.04 TIME SWITCHES

A. Manufacturers:
   1. Tork.
   2. Paragon.
   3. Intermatic.

B. Description: AC electronic time clock, 7-day.

C. Input voltage: 120V.

D. Poles: 40A, 120V, number as indicated. (4 pole minimum)

E. Enclosure: Type as required to meet installation.

F. Configuration: 365 Day Astronomic, electronic, programmable.

G. Accessories: Photocell control as indicated.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify outlet boxes are installed at proper height.

B. Verify wall openings are neatly cut and will be completely covered by wall plates.

C. Verify branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

3.02 PREPARATION

A. Provide extension rings to bring outlet boxes flush with finished surface.

B. Clean debris from outlet boxes.

3.03 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install devices plumb and level.

C. Install switches with OFF position down.

D. Install receptacles with grounding pole on top

E. Connect wiring device grounding terminal to branch circuit equipment grounding conductor.

F. Install decorative plates on switches, receptacles, etc., and blank outlets in finished areas.

G. Connect wiring devices by wrapping conductor around screw terminal.

H. Use jumbo size plates for outlets installed in masonry walls.

I. Install galvanized steel plates on outlet boxes and junction boxes in unfinished area, above accessible ceilings, and on surface mounted outlets.

3.04 INTERFACE WITH OTHER PRODUCTS

A. Coordinate locations of outlet boxes provided under Section 260533 to obtain mounting heights specified and indicated on drawings.

B. Install wall switches as indicated on drawings.

C. Install convenience receptacles 18 inches above finished floor.

D. Install convenience receptacle 6 inches above backsplash of counter.

3.05 FIELD QUALITY CONTROL

A. Inspect each wiring device for defects.

B. Operate each wall switch with circuit energized and verify proper operation.

C. Verify that each receptacle device is energized.

D. Test each receptacle device for proper polarity.

E. Test each GFCI receptacle device for proper operation.

3.06 ADJUSTING

A. Adjust devices and wall plates to be flush and level.

END OF SECTION

SECTION 31 10 00
SITE CLEARING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Clearing and protection of vegetation.

B. Grubbing of root systems of trees and shrubs, abandoned utility lines and structures and other below grade obstructions and debris.

C. Removal of existing debris.

1.02 RELATED REQUIREMENTS

A. Section 02 41 00 - Demolition: Removal of built elements and utilities.

1. Removal of paving and removal if indicated of abandoned utilities.

2. Sitework (Area of Work), removal of designated fences, walls, and other elements; capping and identifying utilities; landscape paving, and removal of concrete foundations.

B. Section 31 22 00 - Grading: Topsoil removal.

C. Section 31 23 23 - Fill: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

1.03 QUALITY ASSURANCE

A. Clearing Firm: Company specializing in the type of work required.

1. Minimum of five years of documented experience.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill Material: As specified in Section 31 23 23 - Fill and Backfill

PART 3 EXECUTION

3.01 SITE CLEARING

A. Minimize production of dust due to clearing operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

3.02 SURVEY STAKING IN UNCLEARED EASEMENTS

A. Flag centerline of utility lines prior to clearing. Contractor shall set offsets for clearing limits to suit the Work.

B. When the clearing is completed, survey for utility construction in accordance with requirements specified in Division 1 - Execution and Closeout Requirements.

C. Contractor shall replace all controls and stakes damaged or destroyed, at no change in Contract Time or Contract Price.

3.03 EXISTING UTILITIES AND BUILT ELEMENTS

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Protect existing structures and other elements that are not to be removed.

3.04 CLEARING

A. Perform clearing Work within confines of Project area indicated on Drawings or specified elsewhere herein and with strict adherence to the Contract Documents and Geotechnical recommendations.

3.05 VEGETATION

A. Scope: Remove trees, shrubs, brush, and stumps in areas to be covered by building structure, paving, lawns, and planting beds.

B. Do not begin clearing until vegetation to be relocated has been removed.

C. Do not remove or damage vegetation beyond the limits indicated on drawings.

D. Install substantial, highly visible fences at least 3 feet high to prevent inadvertent damage to vegetation to remain:

1. At vegetation removal limits.

E. Remove only trees within area to be cleared that have been marked for removal. Confirm trees to be removed with District and Architect before beginning removal process.

1. Cut trunks close and parallel to ground.
2. Remove roots where under or within five feet of proposed structures.
3. Neither remove nor prune trees and shrubbery in public rights-of-way except by written approval of authorities having jurisdiction.

F. In areas where vegetation must be removed but no construction will occur other than pervious paving, remove vegetation with minimum disturbance of the subsoil.

G. Vegetation Removed: Do not burn, bury, landfill, or leave on site, except as indicated.

1. Chip, grind, crush, or shred vegetation for mulching, composting, or other purposes; preference should be given to on-site uses.
2. Trees: Sell if marketable; if not, treat as specified for other vegetation removed; remove stumps and roots to depth of 18 inches.
3. Existing Stumps: Treat as specified for other vegetation removed; remove stumps and roots to depth of 18 inches.
4. Sod: Re-use on site if possible; otherwise sell if marketable, and if not, treat as specified for other vegetation removed.

H. Dead Wood: Remove all dead trees (standing or down), limbs, and dry brush on entire site; treat as specified for vegetation removed.

I. Restoration: If vegetation outside removal limits or within specified protective fences is damaged or destroyed due to subsequent construction operations, replace at no cost to District.

3.06 GRUBBING

A. At pipelines, remove all trees or stumps within five feet of the pipeline.

B. Perform grubbing where indicated on Drawings or as specified herein. Grubbing shall include removal from the ground of all stumps, roots, buried logs and other vegetation not otherwise indicated to remain, and removal and disposal of resulting refuse.

C. Completely grub areas where unsuitable surface material is to be removed.

3.07 DAMAGED VEGETATION

A. Neatly prune damaged branches and severed roots.

B. Apply wound paint to above-ground cuts and abrasions.

C. If trees and shrubs indicated to remain are damaged excessively, as determined by Construction Manager, Architect or authorities having jurisdiction, remove and replace damaged plants with comparable plants.

3.08 DEBRIS

A. Remove debris, junk, and trash from site.

B. Remove logs, rocks and other debris.

C. Dispose of Debris resulting from clearing and thoroughly clean rights-of-way.

D. Leave site in clean condition, ready for subsequent work.

E. Clean up spillage and wind-blown debris from public and private lands.

3.09 DISPOSAL

A. Debris Disposal: Dispose of all cleared and grubbed materials in a legal manner off site.

B. Hazardous Materials:

1. Immediately notify the Construction Manager should hazardous materials or suspected hazardous materials be encountered.

2. Dispose of such materials in accordance with all applicable laws and regulations and as directed by authorities having jurisdiction.

3. Unforeseen conditions will be resolved in accordance with the Conditions of the Contract.

C. Saleable Materials:

1. Unless otherwise indicated, all felled trees from which merchantable lumber or firewood can be produced shall become the property of the Contractor.

2. Unless otherwise indicated, all metallic debris of salvageable value shall become the property of the Contractor.

3. The Contractor shall remove all saleable materials from the site in a timely manner.

4. Sale of salvaged and merchantable materials shall be done on site only with prior

approval of the District.

D. Stockpiling Vegetation: Only if specified or indicated under landscape work, stockpile vegetation for subsequent mulching.

E. Burial and Burning: Debris shall not be buried or burned on site.

3.10 DUST CONTROL

A. Refer to requirements of:

1. Section 31 22 00 - Grading.

B. Minimize dust during clearing and grubbing to protect adjoining property and vehicles parked in the vicinity.

C. Clean-up: Keep public thoroughfares clear of dust and debris by periodic sweeping and washing down, at least daily at the end of working hours.

END OF SECTION

SECTION 31 22 00
GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Coordinate work of this Section to compliment and coordinate with field conditions and Civil Drawing noted specific referenced requirements. Utilize the most stringent requirements.

B. Removal of topsoil.

C. Rough grading and consolidation/compaction the site for site structures and building pads.

1. Preparation for excavation, trenching, backfilling and compacting Work.

D. Excavation of subsoil, stockpiling for later reuse, and removal of excess from the site.

E. Preparing of subgrade for walks, pavements and site retaining walls.

F. Excavating, backfilling and compaction for wet utility lines.

G. Finish grading.

1.02 RELATED REQUIREMENTS

A. Section 31 10 00 - Site Clearing.

B. Section 31 23 16.13 - Trenching: Trenching and backfilling for utilities.

C. Section 31 23 23 - Fill: Filling and compaction.

D. Section 32 11 23 - Aggregate Base Courses

E. Section 32 12 16 - Asphalt Paving.

F. Section 32 13 13 - Site Concrete.

1.03 SUBMITTALS

A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

1. Accurately record location of all changes in finish elevations and gradients which materially affect drainage.

1.04 QUALITY ASSURANCE

A. Regulatory Requirements: For conditions not covered in this Section, refer to applicable provisions of the California Building Code (CBC), Chapter 18A - Soils and Foundations, as amended and adopted by authorities having jurisdiction.

B. Perform Work in accordance with locally adopted SSPWC standards.

1.05 PROTECTION

A. Dust Control: Comply with requirements specified in Section 01 50 00 - Temporary Facilities and Controls.

B. Protection:

1. Comply with general requirements specified in Section 01 50 00 - Temporary Facilities

and Controls.

2. Provide protection for walks, curbs, drains, and trees and boxing around corners of existing buildings to prevent damage.

3. Keep adjacent roads, streets and drives clear of dirt and debris from earthwork operations.

C. Underground Utilities:

1. Buried utility lines may exist.

2. If such are encountered, notify Construction Manager, Architect and District and for directions to be followed for preservation, relocation or demolition of utilities.

PART 2 PRODUCTS

2.01 MATERIALS

A. Topsoil: See Section 31 23 23.

B. Shoring and Bracing: Provide all materials and services necessary to properly engineer and construct shoring for excavations. Selection of materials and design of shoring, underpinning and bracing of new and existing structures shall be solely the responsibility of the Contractor.

1. Shoring design shall comply with State of California Trenching and Shoring Manual issued by Offices of Structure Construction; 2011.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

B. Verify the absence of standing or ponding water.

C. Upon discovery of unknown utility or concealed conditions, discontinue affected Work and notify Construction Manager, Architect and District for direction. Unforeseen conditions shall be resolved in accordance with the General Conditions.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Locate, identify, and protect from damage above- and below-grade utilities to remain.

1. Maintain and protect existing utilities remaining which pass through Project area.

D. Notify utility company to remove and relocate utilities, as required.

E. Provide temporary means and methods to remove all standing or ponding water from areas prior to grading.

F. Protect site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from damage by grading equipment and vehicular traffic.

G. Protect trees to remain by providing substantial fencing around entire tree at the outer tips of

its branches; no grading is to be performed inside this line.

H. Protect plants, lawns, and other features to remain as a portion of final landscaping.

3.03 ROUGH GRADING

A. Comply with Geotechnical Report and field directives of geotechnical engineer on-site.

B. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.

1. Coordinate topsoil with Section 31 10 00 - Site Clearing and Grubbing.
    a. Remove existing turf areas and topsoil, as indicated in that section.

C. Do not remove topsoil when wet.

D. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.

1. See Section 31 23 16 - Excavation.

E. Do not remove wet subsoil, unless it is subsequently processed to obtain optimum moisture content.

F. When excavating through roots, perform work by hand and cut roots with sharp axe.

G. See Section 31 23 23 for filling procedures.

H. All permanent cut or fill slopes shall have a maximum slope of 2:1 (H:V) ratio, horizontal to vertical and shall comply with applicable requirements of the Geotechnical Report and California Building Code (CBC).

I. Benching Slopes: Horizontally bench existing slopes greater than 5:1 (H:V) to key fill material to slope for firm bearing.

J. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

K. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack surface water control.

L. Grade top perimeter of excavations to prevent surface water from draining into excavation.

1. Provide dewatering of excavations as required to ensure suitable conditions for concrete and backfilling operations.

M. Uniformly grade areas as shown on Drawings.

1. Evenly grade between points where elevations are shown or between points of Work and existing grades.

N. Slope rough grade away from building perimeter at gradient indicated.

1. Unpaved area slope for a distance of 10 feet from the building: Not less than one unit vertical in 20 units horizontal or 5 percent.
    a. CBC Section 1804A.4.
2. When supported by soil conditions and climate; slope not less than 1:48 or 2 percent in unpaved areas.
    a. CBC Section 1804A.4, Exception.

O. Make grade changes gradual. Blend slopes into level areas.

3.04 SOIL REMOVAL AND STOCKPILING

A. Stockpile topsoil to be re-used on site; remove remainder from site.

1. Topsoil and vegetation layers, root zones, and similar surface materials should be stripped and stockpiled for either reuse in landscape surface areas or removed from the site.

B. Stockpile subsoil on site for backfill, if soil is appropriate.

1. Stockpile subsoil to depth not exceeding 8 feet.

C. Remove all lumped subsoil, boulders and rock in excess of 3 inches in greatest dimension.

D. Stockpile subsoil to be re-used on site; remove remainder from site.

E. Stockpiles: Use areas designated on site; pile depth not to exceed 8 feet; cover to protect from erosion.

3.05 FINISH GRADING

A. Before Finish Grading:

1. Verify building and trench backfilling have been inspected.

2. Verify subgrade has been contoured and compacted.

B. Remove debris, roots, branches, stones, in excess of 1/2 inch in size. Remove soil contaminated with petroleum products.

1. Comply with CBC Section 1804A.3.

C. Where topsoil is to be placed, scarify surface to depth of 6 inches.

D. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 6 inches.

E. Place topsoil in areas indicated.

F. Place topsoil where required to level finish grade.

G. Place topsoil during dry weather.

H. Remove roots, weeds, rocks, and foreign material while spreading.

I. Near plants spread topsoil manually to prevent damage.

J. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

K. Lightly compact placed topsoil.

L. Maintain stability of topsoil during inclement weather. Replace topsoil in areas where surface water has eroded thickness below specifications.

3.06 TOLERANCES

A. Top Surface of Subgrade: Plus or minus 0.10 foot (1-3/16 inches) from required elevation.

B. Top Surface of Finish Grade: Plus or minus 0.04 foot (1/2 inch).

C. Top Surface Under Paving: Plus or minus 0.04 foot (1/2 inch) from required elevation.

D. Top Surface Under Footings and Foundations: Plus 0, minus 0.2 foot (2.4 inch).

E. Top Surface Under Slabs on Grade: Plus 0, minus 0.04 foot (1/2 inch).

3.07 REPAIR AND RESTORATION

A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.

B. Trees to Remain: If damaged due to this work, trim broken branches and repair bark wounds; if root damage has occurred, obtain instructions from Architect as to remedy.

C. Other Existing Vegetation to Remain: If damaged due to this work, replace with vegetation of equivalent species and size.

3.08 FIELD QUALITY CONTROL

A. See Section 31 23 23 for compaction density testing.

B. Field Quality Control:

1. Make required quality control submittals in accordance with requirements specified.

C. Non-compliance: Should grade elevations, tests of fill or backfill indicate non-compliance with required elevations or density, Contractor shall over-excavate, recompact and retest until specified grade or density is obtained.

1. Costs and Time associated with remedial Work and retesting shall be in accordance with provisions of the General Conditions.

2. Retesting to demonstrate compliance shall be by a testing laboratory acceptable to District and shall be at Contractor's expense.

3.09 SPECIAL INSPECTIONS FOR SOILS

A. Materials and Placement: Verify each item below complies with approved construction documents and approved geotechnical report.

1. Design bearing capacity of material below shallow foundations; periodic.

2. Design depth of excavations and suitability of material at bottom of excavations; periodic.

3. Materials, densities, lift thicknesses; placement and compaction of backfill: continuous.

4. Subgrade, prior to placement of compacted fill verify proper preparation; periodic.

B. Testing: Classify and test excavated material; periodic.

C. Excavations, Foundations and Retaining Walls (Chapters 17A, 18A, and 33):

1. Earth Compaction: CBC 1705A.6; Table 1705A.6, continuous; 1804A.6.

2. Verify use of proper materials, densities, and lift thicknesses during placement and compaction of compacted fill: CBC 1705A.6.1; Table 1705A.6, periodic; 1804A.6.

D. The Geotechnical Engineer of record or a Geotechnical Engineer selected by the District will provide continuous inspection of fill and will field test fill and earth backfill as placed and compacted, and inspect excavations and subgrade before concrete is placed and provide periodic inspection of open excavations, embankments, and other cuts or vertical surfaces of earth.

1. The Geotechnical Engineer will submit a Verified Report indicating observations, tested fills, and opinion the fills were placed in accordance with the project specifications.

E. Contractor shall remove unsatisfactory material, re-roll, adjust moisture, place new material, or in the case of excavations, provide proper protective measures, perform other operations

necessary, as directed by the Geotechnical Engineer whose decisions and directions will be considered final.

F. Soils Test and Inspection Procedure:

1. Allow sufficient time for testing, and evaluation of results before material is needed. The Geotechnical Engineer shall be sole and final judge of suitability of all materials.
2. Laboratory compaction tests to be used will be in accordance with ASTM D1557.
3. Field density tests will be made in accordance with ASTM D1556/D1556M.
4. Number of tests will be determined by Geotechnical Engineer. Materials in question may not be used pending test results.
5. Excavation and embankment inspection procedure. Geotechnical Engineer will visually or otherwise examine such areas for bearing values, cleanliness and suitability.
6. Earthwork Test Reports: In order to avoid misinterpretations by the reviewing agencies, all retest results shall be reported on the same sheet, immediately following the previous failure test to which it is related. Retests shall be clearly noted as such.

3.10 CLEANING

A. Remove unused stockpiled topsoil and subsoil. Grade stockpile area to prevent standing water.

B. Leave site clean and raked, ready to receive landscaping.

3.11 PROTECTION

A. Protect completed grading from erosion from weather and traffic.

B. Over-excavate and recompact areas damaged by construction activities and weather.

END OF SECTION

SECTION 31 23 16
EXCAVATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Excavating for footings, slabs-on-grade, paving, site structures, and utilities within the building.

B. Trenching for utilities outside the building to on-site existing utilities.

C. Temporary excavation support and protection systems.

1.02 RELATED REQUIREMENTS

A. Document 00 31 32 - Available Project Information: Geotechnical report; bore hole locations and findings of subsurface materials.

B. Section 01 45 00 - Quality Control: Inspection of bearing surfaces.

C. Section 02 41 00 - Demolition: Shoring and underpinning existing structures.

D. Section 31 10 00 - Site Clearing: Vegetation and existing debris removal.

E. Section 31 22 00 - Grading: Grading.

F. Section 31 23 16.13 - Trenching: Excavating for utility trenches outside the building.

G. Section 31 23 23 - Fill: Fill materials, backfilling, and compacting.

1.03 REFERENCE STANDARDS

A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.

1.04 REFERENCE STANDARDS

A. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); 2012, with Editorial Revision (2015).

1.05 SUBMITTALS

A. See Section 01 33 00 - Submittals, for submittal procedures.

B. Temporary Support and Excavation Protection Plan.

C. Project Record Documents: Record drawings at project closeout according to 01 77 00 - Contract Closeout and Final Cleaning. Show locations of installed support materials left in place, including referenced locations and depths, on drawings.

D. Shoring Installer's Qualification Statement.

E. Field Quality Control Submittals: Document visual inspection of load-bearing excavated surfaces.

1.06 QUALITY ASSURANCE

A. Temporary Support and Excavation Protection Plan:

1. Indicate sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property.

2. Include drawings and calculations for bracing and shoring.
3. Bracing and shoring design to meet requirements of OSHA's Excavation Standard, 29 CFR 1926, Subpart P.

B. Designer Qualifications: For design of temporary shoring and bracing, employ a Professional Engineer experienced in design of this type of work and licensed in California.

C. Shoring Installer Qualifications: Company specializing in performing the shoring and bracing work of this section with minimum five years of documented experience.

1.07 COORDINATION OF SPECIFICATION REQUIREMENTS

A. Coordinate these Specification Section requirements with specifications included on Drawings. Comply with more stringent requirements and with those requirements of authorities having jurisdiction.

B. Comply in full with the direction (recommendations) given in the Geotechnical Report.

PART 2 PRODUCTS

2.01 MATERIALS

A. Bedding and Fill to Correct Over-Excavation:

1. See Section 31 23 23 for bedding and corrective fill materials at general excavations.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench mark and intended elevations for the work are as indicated.

B. Survey existing adjacent structures and improvements and establish exact elevations at fixed points to act as benchmarks.

1. Resurvey benchmarks during installation of excavation support and protection systems and notify District if any changes in elevations or positions occur or if cracks, sags, or other damage is evident in adjacent construction.

C. Determine the prevailing groundwater level prior to excavation. If the proposed excavation extends less than 1 foot into the prevailing groundwater, control groundwater intrusion with perimeter drains routed to sump pumps, or as directed by Architect. If the proposed excavation extends more than 1 foot into the prevailing groundwater, control groundwater intrusion with a comprehensive dewatering procedures, or as directed by Geotechnical Engineer.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. See Section 31 10 00 for clearing, grubbing, and removal of existing debris.

C. Locate, identify, and protect utilities that remain and protect from damage.

D. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

E. Grade top perimeter of excavation to prevent surface water from draining into excavation. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by Architect.

3.03 TEMPORARY EXCAVATION SUPPORT AND PROTECTION

A. Excavation Safety: Comply with OSHA's Excavation Standard, 29 CFR 1926, Subpart P.

1. Excavations in stable rock or in less than 5 feet in depth in ground judged as having no cave-in potential do not require excavation support and protection systems.

2. Depending upon excavation depth, time that excavation is open, soil classification, configuration and slope of excavation sidewalls, design and provide an excavation support and protection system that meets the requirements of 29 CFR 1926, Subpart P:

a. Sloping and benching systems.

b. Support systems, shield systems, and other protective systems.

B. Shoring Design: Comply with State of California Trenching and Shoring Manual issued by Offices of Structure Construction; 2011.

1. Provide all materials and services necessary to properly engineer and construct shoring for excavations. Selection of materials and design of shoring, underpinning and bracing of new and existing structures shall be solely the responsibility of the Contractor.

C. Underpin adjacent structures that could be damaged by excavating work, including utilities and pipe chases.

D. Protect excavations from cave-in and from loose soil and other matter from falling in.

E. Leave excavation support and protection systems, used as formwork or within 10 feet of existing foundations, permanently in place, unless otherwise noted.

1. Cut off top 4 feet below grade, abandon remainder.

F. Excavation support and protection systems not required to remain in place may be removed subject to approval of District or District's Representative.

1. Remove temporary shoring and bracing in a manner to avoid harmful disturbance to underlying soils and damage to buildings, structures, pavements, facilities and utilities.

3.04 EXCAVATING

A. Excavate to accommodate new structures, construction operations, and paving/site structures.

1. Excavate to the specified elevations.

2. Excavate to the length and width required to safely install, adjust, and remove any forms, bracing, or supports necessary for the installation of the work.

3. Cut utility trenches wide enough to allow inspection of installed utilities.

4. See Section 31 23 16.26 for required excavation clearances for pipes in utility trenches.

5. Hand trim excavations. Remove loose matter.

6. Excavate subsoil from areas to be filled with topsoil, to construct foundations, footings, slabs on grade, paving and to achieve final finish grades.

7. Over-excavate to working elevations for backfilling and compaction operations.

8. Specific Site / Geotechnical requirements:
    a. Building Footprint:
        1) Within the footprint of proposed buildings, remove/over-excavate and recompact the upper 4 feet of soils below existing grade, or 2-1/2 feet below bottom of footings/slab-on-grade, whichever is deeper.
        2) Extend over-excavation and recompaction a minimum horizontal distance of 5 feet from perimeter edges and footings of proposed buildings.
        3) Localized areas of deeper removals/over-excavation may be required depending on the actual conditions encountered pending verification by the geotechnical engineer during grading to confirm suitable bottom.
    b. Flatwork/Hardscape/Pavement
        1) In areas of proposed concrete flatwork or pavement, provide a minimum over-excavation and recompaction of 1-1/2 feet below existing grade or 18 inches below proposed subgrade elevation, whichever is deeper.
        2) Extend over-excavation and recompaction a minimum horizontal distance of 2 feet from outside hardscape limits.
        3) Proof-roll the bottom of the removal with heavy equipment to identify yielding subgrade conditions (for additional removal, if necessary) under the observation of the geotechnical consultant.
    c. After completion of the removal of existing fill soils and prior to fill placement, scarify the exposed surface to a minimum depth of 8 inches, moisture condition as necessary to near optimum moisture content and recompact using heavy compaction equipment to an unyielding condition.
    d. Compact all structural fill within the building footprints throughout to at least 90 percent of the ASTM D1557 laboratory maximum density, slightly above to 125 percent of optimum moisture as directed by the geotechnical consultant.
    e. Compact all fill within the pavement and hardscape area throughout to at least 90 percent of the ASTM D1557 laboratory maximum density, at or slightly above optimum moisture.
    f. Compact all fill within the vehicular pavement area throughout to at least 93 percent of the ASTM D1557 laboratory maximum density, above optimum moisture.
9. Where excavations are made to a depth greater than that indicated, such additional depth shall be filled with concrete having the same compressive strength as specified for the footing.
    a. Correct unauthorized and erroneous excavation at no change in Contract Time or Contract Sum.
    b. All over-excavations should extend to a depth where the project geologist, engineer or his representative has deemed the exposed soils as being suitable for receiving compacted fill. The materials exposed at the bottom of excavations should be observed by a representative of the geotechnical engineer or geologist from our office prior to the placement of any compacted fill soils to verify that all old fill is removed. Additional removals may be required as a result of observation and/or testing of the exposed subgrade subsequent to the required over-excavation.

B. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

C. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored, per CalOSHA requirements for Type C Soil.

1. Machine slope banks of excavations to minimum 2.5 to 1 ratio horizontal to vertical or angle of repose, if less, until shored.
    a. Exception: If authorized in writing by Geotechnical Engineer.
    b. Slope must comply with local codes, ordinances and requirements of agencies having jurisdiction.
    c. See Section 00 31 00 - Available Project Information.

D. Do not interfere with 45 degree influence line of bearing splay of foundations.

1. Avoid interference at footings by providing additional width, depth, and other provisions.

E. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd measured by volume.

F. Provide temporary means and methods, as required, to remove all water from excavations until directed by Architect. Remove and replace soils deemed suitable by classification and which are excessively moist due to lack of dewatering or surface water control.

3.05 SUBGRADE PREPARATION

A. See Section 31 23 23 for subgrade preparation at general excavations.

B. See Section 31 23 16.13 for subgrade preparation at utility trenches.

3.06 FILLING AND BACKFILLING

A. Do not fill or backfill until all debris, water, unsatisfactory soil materials, obstructions, and deleterious materials have been removed from excavation.

B. Install underground warning tape at buried utilities.

C. See Section 31 23 16.13 for fill, backfill, and compaction requirements at utility trenches.

D. See Section 31 22 00 for rough and final grading and topsoil replacement requirements.

3.07 REPAIR

A. Correct areas that are over-excavated and load-bearing surfaces that are disturbed; see Section 31 23 23 at no additional cost.

3.08 FIELD QUALITY CONTROL

A. See Section 01 45 00 - Quality Control, for general requirements for field inspection and testing.

B. Provide for visual inspection of load-bearing excavated surfaces by Architect and geotechnical consultant before placement of foundations.

C. Scarification, over excavation and all other excavations will be subject to the approval of the Geotechnical Engineer.

3.09 CLEANING

A. Stockpile excavated material to be re-used in area designated on site in accordance with Section 31 22 00.

B. Remove excavated material that is unsuitable for re-use from site.

C. Remove excess excavated material from site.

1. Geotechnical engineer or other consultant as selected by District to test soils prior to export for disposition.

3.10 PROTECTION

A. Divert surface flow from rains or water discharges from the excavation.

B. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.

C. Protect open excavations from rainfall, runoff, freezing groundwater, or excessive drying so as to maintain foundation subgrade in satisfactory, undisturbed condition.

D. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

E. Keep excavations free of standing water and completely free of water during concrete placement.

END OF SECTION

SECTION 31 23 16.13
TRENCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Backfilling and compacting for utilities from 5 FEET outside the building to connection point on-site, where indicated on Drawings.

1.02 RELATED REQUIREMENTS

A. Section 31 22 00 - Grading: Site grading.

B. Section 31 23 23 - Fill: Backfilling at building and foundations.

1.03 DEFINITIONS

A. Finish Grade Elevations: Indicated on drawings.

B. Subgrade Elevations: Indicated on drawings.

1.04 REFERENCES

A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18 in.) Drop; 2018.

B. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2014.

C. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)); 2012, with Editorial Revision (2015).

D. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method; 2015, with Editorial Revision (2016).

E. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); 2012, with Editorial Revision (2015).

F. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2017.

G. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth); 2017a.

1.05 SUBMITTALS

A. See Section 01 33 00 - Submittals, for submittal procedures.

B. Comply with the requirements listed in Section 31 23 23 - Fill.

C. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used.

D. Compaction Density Test Reports.

1.06 COORDINATION OF SPECIFICATION REQUIREMENTS

A. Coordinate these Specification Section requirements with specifications included on

Drawings. Comply with more stringent requirements and with those requirements of the authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.

B. When fill materials need to be stored on site, locate stockpiles where designated.

1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
2. Prevent contamination.
3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. For fill materials see Section 31 23 23 - Fill.

B. For bed materials see Section 31 23 23 - Fill.

C. General Fill: Subsoil excavated on-site.

1. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.

D. Structural Fill: Subsoil excavated on-site.

1. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.

E. Concrete for Fill: Lean concrete.

F. Granular Fill - Gravel: Pit run washed stone; free of shale, clay, friable material and debris.

1. Graded in accordance with ASTM C136/C136M, within the following limits:
   a. 3/4 inch sieve: 95 to 100 percent passing.

G. Granular Fill - Pea Gravel: Natural stone; washed, free of clay, shale, organic matter.

1. Grade in accordance with ASTM D2487 Group Symbol GM.

H. Sand: Natural river or bank sand; washed; free of silt, clay, loam, friable or soluble materials, and organic matter.

1. Grade in accordance with ASTM D2487 Group Symbol SW.

I. Topsoil: Topsoil excavated on-site.

1. Select.
2. Graded.
3. Free of roots, rocks larger than 1/2 inch, subsoil, debris, large weeds and foreign matter.
4. Acidity range (pH) of 5.5 to 7.5.
5. Containing a minimum of 4 percent and a maximum of 25 percent inorganic matter.
6. Complying with ASTM D2487 Group Symbol OH.

2.02 SOURCE QUALITY CONTROL

A. See Section 01 45 00 - Quality Control, for general requirements for testing and analysis of soil material.

B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench marks and intended elevations for the work are as indicated.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. See Section 31 22 00 for additional requirements.

C. Locate, identify, and protect utilities that remain and protect from damage.

D. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

E. Protect plants, lawns, rock outcroppings, and other features to remain.

F. Grade top perimeter of trenching area to prevent surface water from draining into trench. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by the Architect.

3.03 TRENCHING

A. Excavate subsoil required for conduits, storm drain, sanitary sewer, water and gas piping to municipal utilities.

B. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

C. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.

D. Trenches Parallel to Footings: Do not place the trench below a 1 vertical to 2.5 horizontal from 9 inches above the bottom edge of the footing and no closer than 18 inches from the face of footing. CBC Section 1809A.14.

E. Do not interfere with 45 degree bearing splay of foundations.

F. Cut trenches wide enough to allow inspection of installed utilities.

G. Hand trim excavations. Remove loose matter.

1. Hand trim for bell and spigot pipe joints.

H. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.

I. Remove excavated material that is unsuitable for re-use from site.

J. Stockpile excavated material to be re-used in area designated in Section 31 22 00.

K. Remove excess excavated material from site.

L. Provide temporary means and methods, as required, to remove all water from trenching until

directed by the Architect. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

M. Determine the prevailing groundwater level prior to trenching. If the proposed trench extends less than 1 foot into the prevailing groundwater, control groundwater intrusion with perimeter drains routed to sump pumps, or as directed by the Architect.

3.04 PREPARATION FOR UTILITY PLACEMENT

A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.

B. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

C. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

D. Support pipe and conduit during placement and compaction of bedding fill.

3.05 BACKFILLING

A. Backfill to contours and elevations indicated using unfrozen materials.

B. Fill up to subgrade elevations unless otherwise indicated.

C. Employ a placement method that does not disturb or damage installed piping and conduits, or other work.

D. Systematically fill and compact as as to achieve 90 percent relative compaction without damaging conduit or pipe. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

E. Maintain optimum moisture content of fill materials to attain required compaction density.

F. Granular Fill: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.

G. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth or as directed by the Geotechnical Report.

H. Slope grade away from building minimum 2 inches in 10 feet, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

I. Correct areas that are over-excavated.

1. Thrust bearing surfaces: Fill with concrete.

J. Other areas: Use general fill, flush to required elevation, compacted to minimum 90 or 95 percent of maximum dry density as applicable for the fill area. Compaction Density Unless Otherwise Specified or Indicated:

1. Under paving and similar construction: 95 percent of maximum dry density.

2. At other locations: 90 percent of maximum dry density.

K. Reshape and re-compact fills subjected to vehicular traffic.

3.06 BEDDING AND FILL AT SPECIFIC LOCATIONS

A. Use general fill unless otherwise specified or indicated.

B. Utility Piping, Conduits, and Duct Bank:

1. Bedding: Use Fill Type SP or SW (ASTM D2487) or SM with sand equivalent of 30 or greater per ASTM D2419, 3 inches thick, compacted to 90 percent..
2. Cover with Fill Type SP, SW, SM, GM per ASTM D2487.
3. Fill up to subgrade elevation.
4. Compact in maximum 8 inch lifts to 95 percent of maximum dry density.
5. Gas Piping: As required by the Gas Company.

3.07 TOLERANCES

A. Top Surface of General Backfilling: Plus or minus 1.2 inch from required elevations.

B. Top Surface of Backfilling Under Paved Areas: Plus or minus 1.2 inch from required elevations.

3.08 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Control, for general requirements for field inspection and testing.

B. Perform compaction density testing on compacted fill in accordance with ASTM D1556 or ASTM D6938.

C. See Section 31 23 23 for compaction density testing.

D. Correct unauthorized excavation at no cost to District.

E. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D1557 ("modified Proctor"), AASHTO T 180, or ASTM D698 ("standard Proctor").

F. If tests indicate work does not meet specified requirements, remove work, replace and retest at no additional cost to District.

G. Correct areas over excavated by error in accordance with Section 31 23 23 - Fill.

H. Frequency of Tests: See Section 31 22 00 - Grading.

3.09 CLEANING

A. Leave unused materials in a neat, compact stockpile.

B. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

C. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

3.10 PROTECTION OF FINISHED WORK

A. Protect finished Work under provisions of Section 01 50 00 - Temporary Construction Facilities and Controls.

B. Recompact fills subjected to vehicular traffic.

END OF SECTION

SECTION 31 23 23
FILL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Filling, backfilling, and compacting for footings, slabs-on-grade, paving, site structures, and utilities within the building.

B. Backfilling and compacting for utilities outside the building to utility main connections.

C. Filling holes, pits, and excavations generated as a result of removal (demolition) operations.

1.02 RELATED REQUIREMENTS

A. Section 31 22 00 - Grading: Removal and handling of soil to be re-used.

B. Section 31 22 00 - Grading: Site grading.

C. Section 31 23 16.13 - Trenching: Excavating for utility trenches outside the building to utility main connections.

1.03 DEFINITIONS

A. Finish Grade Elevations: Indicated on drawings.

B. Subgrade Elevations: Indicated on drawings.

1.04 REFERENCE STANDARDS

A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18 in.) Drop; 2018.

B. ACI 302.2R - Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials; 2006.

C. ASTM D4829 - Standard Test Method for Expansion Index of Soils; 2011.

D. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method; 2015, with Editorial Revision (2016).

E. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); 2012, with Editorial Revision (2015).

F. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2017.

G. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth); 2017a.

H. DTSC-Clean Fill - California Department of Toxic Substances Control - Clean Imported Fill Material; Current.

I. Greenbook - Greenbook: Standard Specifications for Public Works Construction; latest adopted edition.

1.05 SUBMITTALS

A. See Section 01 33 00 - Submittals, for submittal procedures.

B. Soil Samples: 10 pounds sample of each type of fill; submit in air-tight containers to testing laboratory.
    1. Submit samples directly to Geotechnical Engineer for testing and analysis copy transmittals to Architect and District.
C. Materials Sources: Submit name of imported materials source.
D. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used, including manufactured fill.
E. Compaction Density Test Reports.
F. Manufacturer's Instructions.
G. Manufacturer's Qualification Statement.
H. Specimen Warranty.
I. Provide proof that all imported materials conform to the requirements of DTSC-Clean Fill Imported Fill Materials for School Sites by proper documentation for the imported materials.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than ten years of documented experience.
B. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.
C. Copies of Documents at Project Site: Maintain at the project site a copy of each referenced document that prescribes execution requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.
B. When fill materials need to be stored on site, locate stockpiles where agreed to.
    1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
    2. Prevent contamination.
    3. Protect stockpiles from erosion and deterioration of materials.

1.08 WARRANTY

A. Correct defective Work within a five year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. General Fill: Subsoil excavated on-site.

1. Graded.
2. Free of lumps larger than 3 inches, rocks larger than 3 inches, and debris.
3. Complying with ASTM D2487 Group Symbol CL.

B. Structural Fill: Subsoil excavated on-site.
   1. Graded.
   2. Free of organic matter, debris, and oversize particles (e.g., cobbles, rubble, etc. that are larger than 3 inches, rocks larger than 3 inches. Fill shall contain at least fifty percent of material smaller than 1/4 inch in size.
   3. Imported fill materials: The soil shall be tested for potential contamination in accordance with DTSC-Clean Fill protocols. Submit to Geotechnical Engineer.
      a. Import sandy soil shall be free of organics, debris and oversize particles (e.g., cobbles, rubble, rocks, etc. that are greater than 3 inches in the largest dimension).
      b. Additionally, import soils shall not have any corrosion impacts to buried concrete; and be non-expansive (Expansion Index less than 21 per ASTM D4829).
      c. Prior to import, geotechnical consultant shall evaluate and test the import soils in order to confirm the quality of the material.
   4. On-site soils should only be used as specified in the Soils Report.
   5. Complying with ASTM D2487 Group Symbol CL.

C. Concrete for Fill: As specified in Section 03 30 00; compressive strength of 2500 psi.
   1. Exception: Concrete used under footings and foundations to correct over-excavation shall be same as for footings and foundation.

D. Granular Fill - Fill Type GM, GW: Coarse aggregate, conforming to Uniform Standard Specifications for Public Works Construction Off-Site Improvements standard.

E. Granular Fill - Pea Gravel: Natural stone; washed, free of clay, shale, organic matter.
   1. Grade in accordance with ASTM D2487 Group Symbol GP.

F. Sand: Natural river or bank sand; free of silt, clay, loam, friable or soluble materials, and organic matter.
   1. Grade in accordance with ASTM D2487 Group Symbol SP or SW.

G. Topsoil: Topsoil excavated on-site.
   1. Unclassified.
      a. The soil shall be tested for potential contamination in accordance with DTSC-Clean Fill protocols.
   2. Graded.
   3. Free of roots, rocks larger than 1/2 inch, subsoil, debris, large weeds and foreign matter.
   4. Acidity range (pH) of 5.5 to 7.5.
   5. Containing a minimum of 4 percent and a maximum of 25 percent inorganic matter.
   6. Complying with ASTM D2487 Group Symbol OH.
   7. Limit decaying matter to 5 percent of total content by volume.

H. Type F - Subsoil: Reused, free of rocks larger than 3 inch size, and debris.

1. Existing fill and alluvium or older alluvium may be considered suitable for re-use as compacted fills provided the recommendations of the geotechnical report and observations of the geotechnical engineer are followed.
2. Expansive soils (EI>21) are not be placed within the upper 3 feet of subgrade soils

2.02 ACCESSORIES

A. Geotextile Fabric: Non-biodegradable, non-woven; Geotex 801 manufactured by Propex Geotextile Systems, geotextile.com.

2.03 SOURCE QUALITY CONTROL

A. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.
B. If tests indicate materials do not meet specified requirements, change material and retest.
C. Provide materials of each type from same source throughout the Work.
D. Comply with EPA/DTSC-Clean Fill requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify structural or other backfill materials to be reused or imported are acceptable to the satisfaction of the Geotechnical Engineer. Approval shall be obtained in advance of re-use or importation onto the site.
    1. Test soil for potential contamination in accordance with DTSC-Clean Fill protocols.
    2. Provide imported fill materials compatible with on-site soils in addition to being suitable for its intended use with the following criterion, as allowed by the Geotechnical Engineer.
        a. Predominantly granular in nature.
        b. Containing no rocks larger than 3 inches maximum dimension.
        c. Free of organic material (loss on ignition less-than 2 percent).
        d. Very low expansion potential (with an Expansion Index less than 21).
        e. Low corrosion impact to the proposed improvements.
B. Verify that survey benchmarks and intended elevations for the Work are as indicated.
C. Identify required lines, levels, contours, and datum locations.
D. See Section 31 22 00 for additional requirements.
E. Verify subdrainage, dampproofing, or waterproofing installation has been inspected.
F. Verify structural ability of unsupported walls to support imposed loads by the fill.
G. Verify areas to be filled are not compromised with surface or ground water.

3.02 PREPARATION

A. Scarify and proof roll subgrade surface to a depth of 8 inches to identify soft spots.

B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with Greenbook, Type II or concrete fill and compact to density equal to or greater than requirements for subsequent backfill material.

C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

D. Prior to placement of aggregate base course material at paved areas, compact subsoil to 95 percent of its maximum dry density in accordance with ASTM D1557.

E. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.03 FILLING

A. Fill to contours and elevations indicated using unfrozen materials.

B. Fill up to subgrade elevations unless otherwise indicated.

1. Place fill soils compacted in horizontal lifts to a relative compaction of 90 percent or more in general accordance with ASTM D1557.

2. Lift thickness for fill soils will vary depending on the type of compaction equipment used but should generally be placed in horizontal lifts not exceeding 8 inches in loose thickness.

3. Place fill soils at 1 percent above optimum moisture content for clayey sand and at least 125 percent of optimum for sandy clay and recompacted to at least 90% relative compaction as determined by ASTM D1557.

4. Avoid damage to wet and dry utility lines when compacting fill and subgrade materials.

C. Employ a placement method that does not disturb or damage other work.

1. Do not disturb or damage foundation perimeter drainage and foundation waterproofing and protective cover utilities in trenches.

D. Systematically fill and compact per geotechnical report. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

E. Maintain optimum moisture content of fill materials to attain required compaction density.

1. When the moisture content of the fill material is lower than the specified value or is too low to obtain adequate compaction, water should be added and thoroughly dispersed until the soil has a moisture content 1 percent above optimum for the sands and 125 percent of optimum for the clay unless determined otherwise by the Geotechnical Engineer at the time of construction.

2. When the moisture content of the fill material is too high to obtain adequate compaction, the fill material should be aerated by blading or other satisfactory methods until the soil has a moisture content as specified herein.

F. Granular Fill: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.

G. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth.

1. Expansive soils (EI>21) are not be placed with the upper 3 feet of subgrade soils. CBC Section 1803.5.3.

H. Slope grade away from building minimum 2 inches in 10 feet, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

I. Correct areas that are over-excavated.

1. Load-bearing foundation surfaces: Fill with concrete.
2. Other areas: Use general fill, flush to required elevation, compacted to minimum 90 percent of maximum dry density in subgrade zone.

J. Compaction Density Unless Otherwise Specified or Indicated:

1. Under paving, slabs-on-grade, and similar construction: 90 percent of maximum dry density.
2. At upper 12 inches beneath vehicular pavements: 93 percent of maximum dry density.
3. At other locations: At least 90 percent of maximum dry density.

K. Reshape and re-compact fills subjected to vehicular traffic.

L. Maintain temporary means and methods, as required, to remove all water while fill is being placed as required, or until directed by the Architect. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

M. Remove surplus fill and backfill materials from site.

3.04 FILL AT SPECIFIC LOCATIONS

A. Use general fill unless otherwise specified or indicated.

B. Structural Fill:

1. Use general fill.
2. Fill up to subgrade elevations.
3. Maximum depth per lift: 6 inches, compacted.
4. Compact to minimum at least 90 percent of maximum dry density.

C. Under Interior Slabs-On-Grade:

1. Comply with CALGreen Section 4.505.2.1 Capillary Break and ACI 302.2R
2. Use granular fill. Type Class 2 Aggregate base or No. 8 or No. 89, 1/2 inch or larger.
3. Depth: 4 inches deep.
4. Compact to at least 90 percent of maximum dry density.

D. At Footings:

1. Use general fill.
2. Fill up to subgrade elevation.
3. Compact each lift to at least 90 percent of maximum dry density.
4. Do not backfill against unsupported foundation walls.
5. Backfill simultaneously on each side of unsupported foundation walls until supports are in place.

E. Over Subdrainage Piping at Foundation Perimeter and Under Slabs:

1. Drainage fill and geotextile fabric.
2. Cover drainage fill with general fill.
3. Fill up to subgrade elevation.
4. Compact to at least 90 percent of maximum dry density.

F. Over Buried Utility Piping, Conduits, and Duct Bank in Trenches:
1. Bedding: Use general fill.
2. Cover with general fill.
3. Fill up to subgrade elevation.
4. Compact in maximum 8 inch lifts to at least 90 percent of maximum dry density. Compact to at least 95 percent in subgrade zone.

G. At Planting Areas Other Than Lawns :
1. Use general fill.
2. Fill up to finish grade elevations.
3. Compact to at least 90 percent of maximum dry density.
4. See Section 31 22 00 for topsoil placement.

H. Under Monolithic Paving :
1. Compact subsoil to at least 90 percent of its maximum dry density before placing fill.
2. Use general fill.
3. Fill up to subgrade elevation.
4. Compact to at least 90 percent of maximum dry density; , 93 percent in upper 12 inches, relative compaction at a moisture content above optimum.
5. See Section 32 11 23 for aggregate base course placed over fill.

3.05 TOLERANCES

A. Top Surface of General Filling: Plus or minus 1 inch from required elevations.

B. Top Surface of Filling Under Paved Areas: Plus or minus 1/2 inch from required elevations.

3.06 FIELD QUALITY CONTROL

A. See Division 01, for general requirements for field inspection and testing.
1. Laboratory Tests and Analyses: Where backfill is required to be compacted to a specified density, tests for compliance shall be made in accordance with requirements specified in Division 01.

B. Perform compaction density testing on compacted fill in accordance with ASTM D1556 or ASTM D6938.
1. Field inspections and testing shall be performed and submitted in accordance with requirements specified in Division 01.
2. Allow testing service to inspect and approve each subgrade and fill layer before further fill, backfill or construction Work is performed.
3. Alternate Density Test Method:

a. Field density tests may also be performed by the nuclear method in accordance with ASTM D6938, providing that calibration curves are periodically checked and adjusted to correlate to tests performed using ASTM D1556/D1556M.

b. In conjunction with each density calibration check, check the calibration curves furnished with the moisture gages in accordance with ASTM D6938.

c. If field tests are performed using nuclear methods, make calibration checks of both density and moisture gages at beginning of Work, on each different type of material encountered, and at intervals as directed by Architect or District's testing and inspection agency.

C. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D 1557 ("modified Proctor") or AASHTO T 180.

D. Non-compliance: If tests indicate work does not meet specified requirements, remove work, replace and retest.

1. Should tests of fill or backfill indicate non-compliance with required density, Contractor shall over-excavate, recompact and retest until specified density is obtained.

2. Costs and Time associated with remedial Work and retesting shall be in accordance with provisions of the General Conditions.

3. Retesting to demonstrate compliance shall be by a testing laboratory acceptable to District and shall be at Contractor's expense.

E. Frequency of Tests:

1. Footing Subgrade Testing:

a. For each strata of soil on which footings will be placed, perform at least one in-place density test to verify required design bearing capacities.

b. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested strata when acceptable to Geotechnical Engineer.

2. Paved Areas and Building Slab Subgrade Testing:

a. Perform at least one field density test of subgrade for every 2,000 sf of paved area or building slab, but in no case fewer than three tests.

b. In each compacted fill layer, perform one field density test for every 2,000 sf of overlaying building slab or paved area, but in no case fewer than three tests.

3. Foundation Wall Backfill Testing: Perform at least two field density tests at locations and elevations as directed.

F. Proof roll compacted fill at surfaces that will be under slabs-on-grade.

3.07 CLEANING

A. See Section 01 50 13 - Construction Waste Management and Disposal, for additional requirements.

B. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

C. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION

SECTION 32 11 23
AGGREGATE BASE COURSES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aggregate base course.

B. Paving aggregates.

C. Soil sterilization.

1.02 RELATED REQUIREMENTS

A. Section 31 22 00 - Grading: Preparation of site for base course.

B. Section 31 23 23 - Fill: Compacted fill under base course.

C. Section 32 12 16 - Asphalt Paving: Finish and binder asphalt courses.

D. Section 32 13 13 - Site Concrete: Finish concrete surface course.

1.03 REFERENCE STANDARDS

A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18 in.) Drop; 2018.

B. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)); 2012, with Editorial Revision (2015).

C. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method; 2015, with Editorial Revision (2016).

D. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); 2012, with Editorial Revision (2015).

E. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2017.

F. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth); 2017a.

G. SSPWC - Greenbook: Standard Specifications for Public Works Construction; latest adopted edition.

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittals, for submittal procedures.

B. Samples: 10 lb sample of each type of aggregate; submit in air-tight containers to testing laboratory.

C. Materials Sources: Submit name of imported materials source.

D. Certificates of Conformance: Aggregate and sterilant materials.

E. Aggregate Composition Test Reports: Results of laboratory tests on proposed and actual materials used.

F. Compaction Density Test Reports.

1.05 QUALITY ASSURANCE

A. Regulatory Requirements: Where reference is made to Standard Specifications, the following shall apply.

1. Perform off-site Work in public rights-of-way in accordance with requirements of authorities having jurisdiction, including SSPWC. For conditions not indicated otherwise on Contract Drawings, conform to Standard Details adopted by authorities having jurisdiction.

2. Perform on-site Work as indicated and referenced on Contract Drawings and as specified herein.

B. The quantity of volatile organic compounds (VOC) used in weed killer, tack coat, primer and other materials shall not exceed limits permitted under current regulations of:

1. South Coast Air Quality Management District (AQMD).

C. Source Quality Control: Obtain materials from one source throughout.

1.06 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.

B. When aggregate materials need to be stored on site, locate where directed by District.

C. Aggregate Storage, General:

1. Separate differing materials with dividers or stockpile separately to prevent intermixing.

2. Prevent contamination.

3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.01 MATERIALS

A. Sub-Base Material: Existing or imported materials as recommended in geotechnical report.

B. Aggregate Type Class II: Coarse or crushed aggregate, conforming to Municipality, SSPWC Section 200-2.2.

C. Coarse Aggregate: Pit run washed stone; free of shale, clay, friable material and debris.

1. Graded in accordance with ASTM D2487 Group Symbol GW.

D. Herbicide: Comply with all applicable environmental protection and hazardous materials laws and regulations .

1. Comply with current EPA acceptable standard and the California Department of Pesticide Regulations for soils sterilant.

2. Comply with the "Healthy Schools Act" as amended in 2014.

3. Obtain product approval from District, prior to purchase and use.

4. Sterilant: Selected as appropriate for the environment in which is it to be placed.

5. Contractor shall be licensed with the State of California to apply sterilant.

6. Sterilant: Commercial grade for commercial application.

7. Payment for soil sterilization: Include full compensation for application and all materials and incidental work required.
8. Application Rate: Follow manufacturer recommendations.
9. Acceptable Manufacturers:
    a. Dow AgroSciences; Spike 80DF: www.dowagro.com.
    b. Pro-Serve Inc.; Bare-Spot Monobor-Chlorate: www.pro-serveinc.com.
    c. Casoron 50W by Uniroyal Chemical Co., Inc.

2.02 SOURCE QUALITY CONTROL

A. See Section 01 45 00 - Quality Control, for general requirements for testing and analysis of aggregate materials.

B. Where aggregate materials are specified using ASTM D2487 classification, testing of samples for compliance shall be provided before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.01 EXAMINATION

A. Establishment of Grades
    1. Set grade stakes per Section 01 77 00 - Contract Closeout and Final Cleaning.
    2. All work shall conform to the lines, elevations, and grades shown on the Drawings.
        a. Use three consecutive points set on the same slope together so that any variation from a straight grade can be detected.
        b. Report any such variation to the Architect. Contractor shall be responsible for any error in the grade of the finished work.
    3. Grade or location stakes lost or disturbed, shall be reset by the Surveyor at no additional expense to District.
    4. Areas having drainage gradients of 2 percent or more, provide elevation stakes, set with instrument, at grid intervals of 25 feet.
        a. Intermediate stakes may be set by using a tightly-drawn string line over the tops of adjacent stakes.
        b. Grade stakes must be set at all grade breaks, grade changes, etc.
    5. Areas having drainage gradients of less than 2 percent; provide elevation stakes, set with instrument, at 10 foot intervals.
        a. Grade stakes must be set at all grade breaks, grade changes, etc.

B. Verify that survey bench marks and intended elevations for the work are as indicated.

C. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

3.02 PREPARATION

A. Stockpiling:

1. Clear and level storage sites prior to stockpiling of material.
2. Stockpile all materials, including approved material available from excavation and grading, in the manner and at the locations designated.
3. Aggregates shall be stockpiled on the cleared and leveled areas designated by the Construction Manager to prevent segregation.
4. Materials obtained from different sources shall be stockpiled separately.

B. Soil Sterilant:
1. Sterilize soil areas to receive paving.
2. Apply soil sterilant in accordance with manufacturer's instructions and applicable environmental regulations.
3. Take care to confine application to the areas to be paved. Sterilant shall not be applied within 2 feet of planting areas.

C. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.

D. Do not place aggregate on soft, muddy, or frozen surfaces.

3.03 INSTALLATION

A. Place and compact aggregate base material in accordance with ASTM D3763, Subsection 301-2. Place aggregate base below curbs and gutters and paving also, compacted to 95 percent at vehicular traffic and 90 percent at pedestrian-only traffic.

B. Application of Base Course:
1. After preparing the subgrade, Avoid all vehicular or machine traffic on the subgrade.
a. Should it be necessary to haul over the prepared subgrade, drag and roll the traveled way as frequently as may be necessary to remove ruts, cuts, and breaks in the surface.
b. Rake and hand tamp all cuts, ruts, and breaks in the surface of the subgrade that are not removed by the above operations.
c. Equip with pneumatic tires all equipment used for transporting materials over the prepared subgrade.
2. Do not permit continued use of sections of prepared subgrade for hauling, so as to cut up or deform it from the true cross-section. Protect the prepared subgrade from all traffic.
3. Maintain the surface in its finished condition until the succeeding layer is placed.

C. Under Bituminous Concrete Paving:
1. Compact to 95 percent of maximum dry density and 90 percent at pedestrian-only traffic.
2. It is required that areas of exterior asphalt pavement be underlain by a layer of aggregate base material which meets the requirements, Thickness of base layer is as shown on the Drawings and varies per the Usage Type area.

a. It is required that the upper 12 inches of soils below asphalt pavement base material be over-excavated and consist predominantly of satisfactory soil materials and/or approved imported fill.
   1) Engineered Fill: See Section 31 23 23 - Fill.
b. It is required that the exposed bottom surface soils, below overexcavation, be scarified to the recommended depth of 8 inches, moisture conditioned to achieve optimum moisture content, but not higher than 2 percent above optimum, and then re-compacted to a minimum 90 percent relative compaction before any fill materials are placed.

3. The above subgrade preparation recommendations are based on the assumption that soils encountered during field exploration are representative of soils throughout the site.
   a. However, there can be unforeseen and unanticipated variations in soils between points of subsurface exploration. For this reason, the actual subgrade preparation will have to be determined on the basis of in-grading observations and testing performed by representatives of the project geotechnical consultant.
4. Provide grade stakes and elevations by a California Licensed Surveyor (LS) for the Geotechnical Engineer.
   a. Verify that the over-excavation depths, shown on the construction drawings for asphalt concrete pavement structural sections, have been achieved prior to re-compaction.
5. Correct irregularities by dressing down or filling as may be required, to bring areas to true subgrade elevations.
6. Where filling is required, scarify the subgrade to bond the new material to the in place material; use additional material as required at no additional cost. Subject to the approval of the Architect.
7. Remove excess material from the site to a legal disposal area.

D. Under Portland Cement Concrete Paving:
   1. Compact to 95 percent of maximum dry density and 90 percent at pedestrian-only traffic.
E. Place aggregate in maximum 4 inch layers and roller compact to specified density.
F. Level and contour surfaces to elevations and gradients indicated.
G. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.
H. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
I. Use mechanical tamping equipment in areas inaccessible to compaction equipment.
J. Apply herbicide to finished surface.

3.04 TOLERANCES

A. Subgrade Tolerances:
   1. Subgrade for Pavement: Do not vary more than 0.02 ft..
   2. Subgrade for Subbase or Base Material: Do not vary more than 0.04 ft..

3. Variations within the above specified tolerances shall be compensating so that the average grade and cross section specified are met.

B. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.

C. Scheduled Compacted Thickness: Within 1/4 inch.

D. Variation From Design Elevation: Within 1/2 inch.

3.05 FIELD QUALITY CONTROL

A. See Section 01 45 00 - Quality Control, for general requirements for field inspection and testing.

B. Compaction density testing shall be performed on compacted aggregate base course in accordance with ASTM D1556 or ASTM D6938.

C. Results will be evaluated in relation to compaction curve determined by testing uncompacted material in accordance with AASHTO T 180, ASTM D698 ("standard Proctor"), or ASTM D1557 ("modified Proctor").

D. If tests indicate work does not meet specified requirements, remove work, replace and retest.

E. Proof roll compacted aggregate at surfaces that are under slabs-on-grade and paving.

3.06 CLEANING

A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

B. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION

SECTION 32 12 16
ASPHALT PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Single course bituminous concrete paving.

B. Double course bituminous concrete paving.

C. Surface sealer.

D. This section compliments and shall be coordinated with Civil Drawing specifications / requirements. The most stringent requirements shall be utilized.

E. Asphaltic concrete paving for vehicular traffic and curbs, including necessary patching and repair of damaged new and existing paving.

F. Patching and repair of existing asphaltic concrete paving for previous damage, for underground utility work and where damaged by new construction.

1. Bituminous Surfacing Repair: Areas removed for utility trenches, heaved by tree roots, cracked areas, protruding areas where pavement meets hard surfaces, depressed areas, holes and areas around new structures, and raveled bituminous pavement.

2. Areas heaved by tree roots, cracked areas, holes, trenches, and areas around new structures.

1.02 RELATED REQUIREMENTS

A. Section 02 41 00 - Demolition: Selective demolition, site demolition, structure removal.

B. Section 31 22 00 - Grading: Preparation of site for paving and base.

C. Section 31 23 23 - Fill: Compacted subgrade for paving.

D. Section 32 11 23 - Aggregate Base Courses: Aggregate base course.

1.03 REFERENCE STANDARDS

A. AI MS-2 - Asphalt Mix Design Methods; 2015.

B. AI MS-19 - Basic Asphalt Emulsion Manual; 2008.

C. ASTM D946 - Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction; 2009a.

D. SSPWC - Greenbook: Standard Specifications for Public Works Construction; latest adopted edition.

E. SSPWC (Greenbook) - Greenbook: Standard Specifications for Public Works Construction; Current Adopted Edition.

1.04 SUBMITTALS

A. Materials List: List source and quality standard for all asphaltic concrete materials.

B. Mix Design:

1. Formulate a job-mix formula using the Hveem method in accordance with SSPWC Section 203-6.2 and submit for approval.
2. Submit designs for asphaltic concrete prepared by a materials laboratory under direct supervision of a Civil Engineer licensed in the State of California or a standard mix design proven in actual performance.
3. Resultant Mixture: Hveem properties conforming to SSPWC Section 203-6.4.3.

C. Certifications:
1. Weighmaster's Certificates or certified delivery tickets for each truckload of bituminous material delivered to site.
2. Certificates of Conformance: Asphalt, aggregate and sterilant materials.
a. 20 days prior to the delivery of aggregates, asphalt materials, and paving mixes to the project site, submit certificates and test results of compliance of such materials with these specifications.
b. Submit certificates of compliance from the supplier for bituminous materials for paint binder, asphaltic concrete, and seal coat.
c. Submit weigh master's certificates or certified delivery tickets for each truck load of asphaltic material delivered to the project site.
d. Upon completion of the weed control treatment, and as a condition for final acceptance, furnish a written certificate stating the brand name of the sterilant and the manufacturer, and that the sterilant used had at least the minimum required concentration, and that the rate and method of application complied in every respect with the conditions and standards contained herein.

D. Samples:
1. Prior to the delivery of specified aggregate to the site, submit samples of the material for the Inspector's acceptance in accordance with SSPWC Section 4-1.4. Samples shall be typical of materials to be furnished from the proposed source and in conformance with the specified requirements.
2. Provide aggregate base gradation and quality certifications, dated within 30 days of submittal.

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with locally adopted SSPWC.

B. Mixing Plant: Conform to Locally adopted SSPWC.
1. Asphaltic Concrete Producers Qualifications: Use only materials furnished by a bulk asphaltic concrete producer regularly engaged in production of hot mix, hot laid bituminous concrete.
2. Applicator Qualifications: Paving machine and roller operators shall be fully trained and experienced in the installation of asphaltic concrete paving on projects of similar size and complexity.

C. Testing and analysis of granular base material and asphaltic concrete paving mix shall be performed under provisions of Division 1.

D. Obtain materials from same source throughout.

1.06 FIELD CONDITIONS

A. Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen; or when rain is imminent.

1. Tack Coats: Minimum surface temperature of 60 deg F.
2. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
3. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.

B. Place bitumen mixture when temperature is not more than 15 F degrees below bitumen supplier's bill of lading and not more than maximum specified temperature.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

A. Comply with applicable code for paving work on public property.

B. Where reference is made to SSPWC, the following shall apply.

1. For conditions not indicated otherwise on Contract Drawings, conform to Standard Details adopted by authorities having jurisdiction, including Standard Details for Public Works Construction, as amended and adopted by those authorities.
2. Perform on-site Work as indicated and referenced on Contract Drawings and as specified herein.

C. The quantity of volatile organic compounds (VOC) used in weed killer, seal coat, tack coat, primer, and other materials shall not exceed limits permitted under current regulations of local Air Quality Management District (AQMD).

2.02 MATERIALS

A. General: Aggregate base, prime coat paint binder, bituminous surface course and other materials shall be as noted on the Contract Drawings and shall comply with requirements of authorities having jurisdiction.

B. Asphalt Cement: ASTM D 946.

C. Aggregate for Base Course: See Section 32 11 23 - Aggregate Base Course.

D. Asphalt Concrete Materials: SSPWC, Subsection 203-6.

E. Aggregate for Binder Course : Angular crushed washed stone; free of shale, clay, friable material and debris.

1. Graded in accordance with ASTM D2487 Group Symbol GW.

F. Mineral Filler: Finely ground particles of limestone, hydrated lime or other mineral dust, free of foreign matter.

G. Fiber Reinforcement: Synthetic fibers shown to have long-term resistance to deterioration when in contact with alkalis and moisture; 1/2 inch length.

H. Crack Filler:

1. Cracks less than 1/2 inch in width: GuardTop Crackfiller or equal.

2. Cracks 1/2 inch or greater in width: #4 Sheet mix asphalt.

I. Primer: In accordance with locally adopted SSPWC.

J. Tack Coat: Homogeneous, medium curing, liquid asphalt.

K. Seal Coat: AI MS-19, slurry type.

1. Asphalt Emulsion, www.aema.ora., SS1-h, per SSPWC Section 203-9.

2. Acceptable Manufacturers:

a. Asphalt Coating Engineering; Sure Seal.

b. Diversified Asphalt Product; Over Kote: www.diversifiedasphalt.com.

c. SealMaster Pavement Products & Equipment; MasterSeal: sealmaster.net.

d. Vulcan Materials Company; GuardTop: www.vulcanmaterials.com.

e. Western Colloid Products; Park Top: www.westerncolloid.com.

f. Satin Seal by Blue Diamond Co., Long Beach, CA.

2.03 ASPHALT PAVING MIXES AND MIX DESIGN

A. Asphalt Surfacing Materials: Provide asphalt surfacing meeting the following requirement, furnished from a commercial asphalt central mixing plant.

B. Asphalt Paving Mix:

1. Standard Specifications, C2-PG-64-10.

C. Use dry material to avoid foaming. Mix uniformly.

D. Base Course: 4.5 to 5.8 percent of asphalt cement by weight in mixture in accordance with SSPWC (Greenbook) Section 203-6.4.3, Type B.

E. Binder Course: 4.5 to 6 percent of asphalt cement by weight in mixture in accordance with AI MS-2.

1. CSS-1 h and conform to the requirements of SSPWC (Greenbook), Section 203-3 Emulsified Asphalt.

F. Parking Lot Wearing Course: 4.6 to 6.0 percent of asphalt cement by weight in mixture in accordance with SSPWC (Greenbook) Section 203-6.4.3, Type C2.

1. Provide at least two courses of asphalt when Type C2 asphalt pavement is greater than 3 inches.

2. Surface Course Minimum Thickness: 1 inch and a maximum of 2 inches.

G. Submit proposed mix design of each class of mix for review prior to beginning of work.

2.04 SOURCE QUALITY CONTROL

A. Test mix design and samples in accordance with AI MS-2.

B. Submit asphaltic concrete mix design proposed by the Contractor to the Engineer for review.

C. Proposed mix to be tested for conformance with the specifications, including grading, asphalt content and stability.

2.05 ACCESSORIES

A. Headers and Stakes:

1. 2 x 6 inch nominal Redwood, Construction Heart Grade, or preservative treated douglas fir (PTDF), except at curves provide laminated 1 x 6 inch nominal PTD., unless indicated otherwise on Drawings
2. Stakes: 2 x 4 x 18 inch long Redwood, or 2 x 3 x 18 inch long PTDF; at 48 inch on center maximum.
3. Nails: Common, use hot dipped galvanized only, 12d minimum.

PART 3 EXECUTION

3.01 EXAMINATION

A. Refer to geotechnical report referenced in section 00 31 00 - Available Project Information, provided under separate cover, notes on Contract Drawings, and requirements of authorities having jurisdiction.

B. Verify that compacted subgrade and granular base is dry and ready to support paving and imposed loads.

C. Verify gradients and elevations of base are correct.

D. Fine grading, checking, shaping, and compacting of subgrade shall be complete before start of asphaltic concrete Work.

E. Soil Sterilant: Sterilize soil areas to receive asphaltic concrete paving. Apply soil sterilant in accordance with manufacturer's instructions and applicable environmental regulations. Take care to confine application to the areas to be paved. See Section 32 11 23 - Aggregate Base Courses for product information.

F. Curbs and Gutters: Gutters shall be in place and cured prior to start of asphaltic concrete Work. Provide lumber ramping at all locations where rolling equipment or vehicles cross new concrete paving, curbs and gutters.

G. Headers: Place headers with tops flush with finish asphaltic concrete surfaces. Back headers with stakes.

1. Install headers along edge of bituminous surfacing abutting turf, earth, or planting area, unless indicated otherwise.
2. Install headers so the bottom surface has continuous bearing on solid grade. Where excavation for headers is undercut, thoroughly tamp soil under the header. Compact backfill on both sides of header to the density of adjacent undisturbed earth.
3. Fasten headers in place with redwood or Douglas fir stakes of length necessary to extend into solid grade a minimum of 12 inches. Stakes shall be of sound material, neatly pointed, driven vertically, and securely nailed to headers. Space stakes, not to exceed 4 feet on centers with top of stakes set one inch below top of header. Provide a minimum of 2-12d galvanized common nails through each stake.
4. Remove existing headers where new surfacing is installed adjacent to existing surfacing.
5. Install temporary headers at transverse joints of paving where continuous paving operations are not maintained.
6. Provide additional stakes and anchorage as required to fasten headers in place

H. Do not asphalt concrete on any surface, which contains ponded water or excessive moisture in the opinion of the Architect or consulting engineer.

1. If paving operations are in progress and rain or fog forces a shut down, loaded trucks in transit shall return to the plant, and no compensation will be allowed therefore.
2. Provide canvas tarpaulins to cover all loads of asphalt from the time that the mixture is loaded until it is discharged from the delivery vehicle, unless otherwise directed in writing.

3.02 PAVEMENT REPAIR REMOVAL

A. Remove bituminous and concrete pavement in accordance with applicable provisions of SSPWC (Greenbook) Section 300 - Earthwork.

B. Pavement Heaved By Roots:

1. Remove pavement to limits of distortion and expose roots.
2. Trim roots to provide at least 12 inch clearance to pavement.

C. Remove protruding bituminous surfaces flush with the surrounding grade using a suitable tool or equipment so that adjacent finishes are not blackened.

D. Remove raveled and depressed bituminous pavement to limits indicated or required.

E. Saw cut existing improvements, trim holes and trenches in bituminous and concrete pavement to permit mechanical hand tampers to compact the fill.

F. Remove broken concrete by saw cutting. If the required cut line is within 30 inches of a score or joint line or edge, cut and remove to the score, joint line, or edge.

3.03 EXCAVATING, BACKFILLING AND COMPACTING FOR REPAIR

A. Conform to requirements in Section 31 23 16 - Excavation, 31 23 16.13 - Trenching, or 31 23 23 - Fill, as required.

B. Where subgrade or base is deemed to be unstable or otherwise unsuitable, excavate such materials to firm earth, and replace with a required material. Install and compact fill materials in accordance with the requirements of related Specification sections.

3.04 HEADERS

A. Install headers along edge of bituminous surfacing abutting turf, earth, or planting area, unless indicated otherwise.

B. Install headers so the bottom surface has continuous bearing on solid grade.

1. Where excavation for headers is undercut, thoroughly tamp soil under the header.
2. Compact backfill on both sides of header to the density of the adjacent undisturbed grade.

C. Fasten headers in place with redwood or Douglas fir stakes of length necessary to extend into solid earth a minimum of 12 inches.

1. Stakes shall be of sound material, neatly pointed, driven vertically, and securely nailed to headers.
2. Space stakes, not to exceed 4 feet on centers with top of stakes set one inch below top

of header.

3. Provide a minimum of two 12d galvanized common nails through each stake.

D. Remove existing headers where new surfacing is installed adjacent to existing surfacing.

E. Install temporary headers at transverse joints of paving where continuous paving operations are not maintained.

F. Provide additional stakes and devices as required to fasten headers.

3.05 RESURFACING

A. Holes and Trenches:

1. Remove loose dirt and backfill with cement-sand slurry allowing for surfacing one inch thicker than existing.

2. Resurface flush with existing adjoining pavement installing the same type of materials and section provided in existing improvements.

B. Other Areas:

1. Other surface improvements damaged or removed shall be cut to a neat even line and excavated one inch below the bottom of the existing pavement.

2. Resurface by following the original grades and installing the same type of materials provided in existing improvements.

C. Where bituminous surfacing abuts concrete, masonry, walks or paving, tamp joint smooth, if necessary, as described above to obtain a uniformly even joint, true to line and grade. Tamp and smooth materials before asphalt cools.

3.06 BASE COURSE

A. See Section 32 11 23.

B. Unless otherwise indicated, base course shall be crushed aggregate base, fine grade, 3 inches thick or equal to thickness of the existing base, whichever is greater.

C. Inspector will examine the base before the paving has begun. Correct any deficiencies before the paving is started.

D. Wherever asphaltic pavement does not terminate against a curb, gutter, or another pavement, provide and install a redwood or pressure treated Douglas fir header at the line of termination.

3.07 PREPARATION - PRIMER

A. Apply primer in accordance with manufacturer's instructions.

B. Apply primer on aggregate base or subbase at uniform rate of 0.25 gal/sq yd.

C. Apply primer to contact surfaces of curbs, gutters.

D. Use clean sand to blot excess primer.

3.08 PREPARATION - TACK COAT

A. Apply tack coat in accordance with SSPWC (Greenbook) Section 302-5.4.

B. Apply tack coat on asphalt or concrete surfaces over subgrade surface at uniform rate of 0.10

gal/sq yd.

C. Apply tack coat to contact surfaces of curbs, gutters and previously placed or existing paving.

D. Joining Pavement: Expose, cut and clean edges of existing pavement to straight, vertical surfaces for full depth of existing pavement.

1. Paint edge with asphalt emulsion before placing new asphaltic concrete.

2. Joints in New Paving: In accordance with SSPWC.

3.09 PLACING ASPHALT PAVEMENT - SINGLE COURSE

A. Install Work in accordance with SSPWC (Greenbook) Subsection 302-5.

B. Asphalt concrete of the class indicated in Part 2 shall be laid in courses conforming to SSPWC Table 302-5.5(A), unless otherwise stated herein.

C. Place asphalt within 24 hours of applying primer or tack coat.

D. Place thickness as indicated on Civil Drawings to minimum 1 inch compacted thickness.

1. Asphalt concrete work shall include full depth patching and variable thick asphalt concrete transition areas.

2. Provide daily the Inspector, with copies of certificates of weight for all materials delivered to the job site and/or incorporated in the work.

3. At no time shall the coarse aggregate that has segregated from the mix be scattered across the paved mat.

E. Install gutter drainage grilles and frames and manhole frames in correct position and elevation.

F. Compact pavement by rolling to specified density. Do not displace or extrude pavement from position.

1. Compact (roll) asphaltic concrete in accordance with SSPWC, Subsection 302-5.6, using machine rollers.

a. Compaction by vehicular traffic is prohibited.

b. Compact areas inaccessible to rolling equipment with machine-powered tamper.

G. Perform rolling with consecutive passes to achieve even and smooth finish without roller marks.

3.10 PLACING ASPHALT PAVEMENT - DOUBLE COURSE

A. Provide at least two courses of asphalt when Type D2 asphalt pavement is greater then 1-1/2 inches. The surface course shall be a minimum thickness of 1 inch and a maximum of 1-1/2 inches.

B. Provide at least two courses of asphalt when Type C2 asphalt pavement is greater then 3 inches. The surface course shall be a minimum thickness of 1 inch and a maximum of 2 inches.

C. Install Work in accordance with ASTM D3763 Subsection 302-5.

D. Place asphalt binder course within 24 hours of applying primer or tack coat.

E. Place binder course to thickness as indicated on Civil Drawings, minimum 1 inch compacted thickness.

F. Place wearing course within two hours of placing and compacting binder course.

G. Place wearing course to thickness as indicated on Civil Drawings, minimum 1 inch compacted thickness.

H. Install gutter drainage grilles and frames and manhole frames in correct position and elevation.

I. Compact pavement by rolling to specified density. Do not displace or extrude pavement from position.

1. Compact (roll) asphaltic concrete in accordance with ASTM D3763, Subsection 302-5.6, using machine rollers.
    a. Compaction by vehicular traffic is prohibited.
    b. Compact areas inaccessible to rolling equipment with machine-powered tamper.

J. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

3.11 SEAL COAT

A. Apply seal coat after surface course application, in accordance with manufacturer's recommendations.

B. Apply seal coat to surface course and asphalt curbs in accordance with SSPWC (Greenbook), Subsection 302-8.2.

C. Add water to specified seal coat material. When air temperatures of 90 degrees F or more are encountered during application, consult manufacturer for recommendations.

D. If pavement surface exhibits imperfections of roller marks, rock pockets, ridges or depressions as determined by the Architectt, the addition of sand aggregate to seal coat, and amounts thereof, shall be as recommended by the manufacturer.

E. A second application shall be made after first coat has dried to the touch. When sand is added to the first seal coat, two additional coats without extra sand shall be applied.

F. Allow seal coat to dry before permitting traffic or striping.

3.12 PAVEMENT REPAIR AND PAVING

A. Preparation of existing pavement: Where indicated, remove loose asphaltic concrete, cleanout "pot holes" and cracks, remove dirt, oil and other foreign materials.

B. Repair holes with full paving section as specified. Repair "alligatoring" with asphalt "skin-patch". Fill all cracks larger than 1/4 inch wide with asphalt emulsion slurry.

C. Repair of Existing Surfacing:

1. Fill cracks 1/2 inch wide and less with RS-1 emulsion and silica sand or other required material.
2. Cracks larger than 1/2 inch wide shall be filled with Type C2 Asphalt Concrete as specified.
    a. Cracks shall be filled to the level of adjacent surfacing.
3. Where low areas, holes, or depressions occur in existing surfacing, repair with emulsified asphalt.

a. Install material, strike off the emulsified asphalt with a straightedge flush with adjoining surfacing.
b. Finish with a steel trowel, and after dehydration, compact by rolling or tamping.

D. Tack Coat: Apply asphalt oil AR-4000 or AR-8000, as required for jobsite condition, at metered application rate of no less than a range from 0.2 to 0.3 gallons per square yard of fabric or as directed by manufacturer and to provide 100 percent fabric saturation and ample bonding for paving section.

E. Fabric Reinforcement: Place fabric smooth side up in tack coat with 2 to 4 inch overlap. Hand-broom to remove wrinkles. Apply addition tack coat to joints and between overlapped fabric layers.

F. Overlay Asphalt: Place single course asphalt, 1-1/2 inch compacted thickness, in conformance with specified standards in this section.

3.13 TOLERANCES

A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.

B. Compacted Thickness: Within 1/4 inch of specified or indicated thickness.

C. Variation from True Elevation: Within 1/2 inch.

3.14 FIELD QUALITY CONTROL

A. See Section 01 45 00 - Quality Control, for general requirements for quality control.

B. Provide field inspection and testing. Take samples and perform tests in accordance with AI MS-2.

1. Flood test entire area in presence of the Project Inspector.
2. Entire area tested shall be free of standing water or puddles.

C. Pavement at all longitudinal joints shall have a Field Density of 95%, as described in SSPWC, Section 302-5.6.2.

1. When the test results of the field cores are less than 95% Relative Compaction, remove a 1 foot wide section on each side of the longitudinal joint.
2. Replace the removed pavement with an asphalt mix that meets the job specification at no additional cost to the District.

D. Test: Flood test all paving to demonstrate positive drainage.

1. Before acceptance, water test all pavements to ensure proper drainage as directed by the Inspector.
2. Flooding Method: By water tank truck.
3. Fill depressions where the water ponds to a depth of more than 1/8 inch; or the slope corrected to provide proper drainage.
4. The edges of the fill shall be feathered and smoothed so that the joint between the fill and the original surface is invisible.
5. No standing water shall remain 1-hour after test.

3.15 PROTECTION

A. Immediately after placement, protect pavement from mechanical injury for 2 days or until surface temperature is less than 140 degrees F.

1. After final rolling, prohibit all traffic on asphaltic concrete until mix has fully cooled and set. Minimum time, in all cases shall be 6 hours.

3.16 CLEANING

A. After completion of paving operations, clean all existing and new improvements that have been soiled, especially by oil tracking from asphalt tanks or placement in general.

B. For Substantial Completion review, broom clean and wash paving with hoses. Clean residue from landscaping installation.

END OF SECTION

SECTION 32 13 13
CONCRETE PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete sidewalks and integral curbs.

1.02 RELATED REQUIREMENTS

A. Section 31 22 00 - Grading: Preparation of site for paving.

1.03 REFERENCE STANDARDS

A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.

B. ACI 301 - Specifications for Structural Concrete.

C. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete.

D. ACI 305R - Guide to Hot Weather Concreting.

E. ACI 306R - Guide to Cold Weather Concreting.

F. ACI 318 - Building Code Requirements for Structural Concrete and Commentary.

1. Use 2014 as indicated in 2016 CBC Ch. 35 Referenced Standards.

G. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design.

H. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.

1. Use 2012 as indicated in 2016 CBC Ch. 35 Referenced Standards.

I. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.

J. ASTM C33/C33M - Standard Specification for Concrete Aggregates.

1. Use 2013 as indicated in 2016 CBC Ch. 35 Referenced Standards.

K. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.

L. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.

1. Use 2014a as indicated in 2016 CBC Ch. 35 Referenced Standards.

M. ASTM C150/C150M - Standard Specification for Portland Cement.

1. Use 2012 as indicated in 2016 CBC Ch. 35 Referenced Standards.

N. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

O. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete.

P. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete.

Q. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving

and Structural Construction (Nonextruding and Resilient Bituminous Types).

R. ASTM D1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction.

S. ASTM D2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.

T. SSPWC (Greenbook) - Greenbook: Standard Specifications for Public Works Construction.

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittals, for submittal procedures.

B. Product Data: Provide data on joint filler, admixtures, and curing compound.

1.05 QUALITY ASSURANCE

A. Lines and Levels: Established by State of California licensed Surveyor or registered Civil Engineer. Costs of surveying services shall be included in the Contract Sum.

B. Installer Qualifications: Company specializing in performing work of the type specified and with minimum three years of documented experience.

PART 2 PRODUCTS

2.01 PAVING ASSEMBLIES

A. Comply with applicable requirements of ACI 301.

B. Concrete Sidewalks: 3,000 psi 28 day concrete, thickness as indicated on Drawings, minimum 4 inches, natural grey color Portland cement.

2.02 REGULATORY REQUIREMENTS:

A. Conform to California Code of Regulations (CCR), Volume 2, Part 2, Chapters 18 and 19.

B. Conform to California Building Code (CBC), Chapter 11B and ADA Standards for accessibility requirements.

1. Portland cement concrete paving shall be stable, firm, and slip resistant and shall comply with CBC Sections 11B-302 and 11B-403.

2. Concrete paving and concrete finishes along accessible routes of travel shall be at least as slip-resistant as that described as a medium salted finish for slopes of less than 6%, and slip resistant at slopes of 6% or greater; CBC 11B-403.2.

3. Continuous surfaces, including walks and sidewalks, shall have a continuous common surface, not interrupted by steps or by abrupt changes in level exceeding 1/4 inch vertical (CBC 11B-303.2), or beveled at 1:2 slope to a maximum height of 1/2 inch (CBC 11B-303.3) and shall have a minimum width of 48 inches; CBC 11B-403.5.1.

4. Surface cross slopes shall not exceed 2 percent on any accessible path of travel.

C. Albedo Reflectance of Finish Concrete: 0.30, minimum.

2.03 FORM MATERIALS

A. Wood form material, profiled to suit conditions.

B. Joint Filler: Preformed; non-extruding bituminous type (ASTM D1751) or sponge rubber or cork (ASTM D1752).

1. Thickness: 1/2 inch.

2.04 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) yield strength; deformed billet steel bars; unfinished.

B. Dowels: ASTM A615/A615M, Grade 60 - 60,000 psi yield strength; deformed billet steel bars; unfinished finish.

2.05 CONCRETE MATERIALS

A. Obtain cementitious materials from same source throughout.

B. Cement: ASTM C150/C150M, Sulfate Resistant - Type V Portland cement, gray color.

C. Fine and Coarse Mix Aggregates: ASTM C33/C33M.

D. Color Additives: Pure, concentrated mineral pigments specifically intended for mixing into concrete and complying with ASTM C979/C979M.

1. Concentration: Base dosage rates on weight of Portland cement, fly ash, silica fume, and other cementitious materials but not aggregate or sand.

2. Packaging: If pigments are to be added to mix at site, furnish pigments in premeasured disintegrating bags to minimize job site waste.

3. Color(s): As indicated on drawings.

4. Manufacturers:

a. Butterfield Color: www.butterfieldcolor.com/#sle.

b. Davis Colors: www.daviscolors.com/#sle.

c. Lambert Corporation: www.lambertusa.com/#sle.

d. L.M. Scofield Company; CHROMIX® Admixtures for Color-Conditioned® Concrete: www.scofield.com/#sle.

E. Water: Clean, and not detrimental to concrete.

F. Chemical Admixtures: ASTM C494/C494M, Type A - Water Reducing, Type C - Accelerating, and Type G - Water Reducing, High Range and Retarding.

1. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

2.06 ACCESSORIES

A. Curing Compound: ASTM C309, Type 1-D, Class A.

1. Comply with all applicable air pollution requirements.

B. Liquid Surface Sealer:

1. High solids, acrylic curing and sealing compound: Minimum 30% non-yellowing, acrylic solids curing compound; shall conform to ASTM C309 and ASTM C1315, Type I, Class A, VOC compliant.

a. Acceptable Products:

1) L&M Construction Chemicals, Inc.; Dress & Seal WB: www.lmcc.com.
2) L.M. Scofield Company; Cureseal-W: www.scofield.com.
3) W. R. Meadows Company; Decra-Seal W/B: www.wrmeadows.com.
4) Substitutions: See Section 01 25 13 - Product Requirements.

C. Surface Retarder:

1. Basis of Design Product: TOP-CAST® Top-Surface Retarder as manufactured by GCP Applied Technologies, or equal.
2. Spray applied film forming protective coating for surfaces adjacent to retarded finish surfaces.
   a. Basis of Design Product: Face Off as manufactured by GCP Applied Technologies, or equal.
   b. Acceptable Products:
      1) Fosroc, Inc., manufactured by , Georgetown, KY.
      2) GCP Applied Technologies; Face Off: www.graceconstruction.com
      3) Substitutions: See Section 01 60 00 - Product Requirements.

D. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.

1. Material: Closed-cell, non-absorbent, compressible polymer foam in sheet form.

E. Tactile Warning Surfaces: See Section 32 14 13 - Precast Concrete Unit Paving.

2.07 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.

1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.

C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

D. Concrete Properties:

1. Compressive strength, when tested in accordance with ASTM C39/C39M at 28 days; As indicated on drawings.
2. Water-Cement Ratio: Maximum 50-60 percent by weight, or according to indicated concrete strength.

2.08 MIXING

A. Transit Mixers: Comply with ASTM C94/C94M.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

3.02 SUBBASE

A. See Section 32 11 23 for construction of base course for work of this Section, where indicated on Drawings.

3.03 PREPARATION

A. Project Conditions:

1. Water and Dust Control: Maintain control of concrete dust and water at all times. Do not allow adjacent planting areas to be contaminated.

B. Moisten base to minimize absorption of water from fresh concrete.

C. Notify Architect minimum 24 hours prior to commencement of concreting operations.

3.04 COORDINATION WITH EXISTING CONSTRUCTION

A. Connection to Existing Construction: Where new concrete is doweled to existing construction, drill holes in existing concrete, insert steel dowels and pack with non-shrinking grout.

B. Preparation of Existing Concrete: Prepare previously placed concrete by cleaning with steel brush and apply bonding agent in accordance with manufacturer's instructions.

3.05 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.06 REINFORCEMENT

A. Place reinforcement at midheight of slabs-on-grade.

1. Locate reinforcement to provide required cover by concrete. If not otherwise indicated on Drawings, provide concrete cover in compliance with ACI 318.

2. Reinforcement Spacing: Space reinforcement as indicated on Drawings or in Standard Specifications, whichever is more stringent. If not indicated, maintain clear spacing of two times bar diameter but not less than 1-1/2 inch nor less than 1-1/3 times maximum size aggregate.

3. Reinforcement Supports: Provide load bearing pads under supports or provide precast concrete block bar supports.

B. Interrupt reinforcement at contraction and expansion joints.

C. Place dowels to achieve pavement and curb alignment as detailed.

1. Secure tie dowels in place before depositing concrete.

2. Provide No. 3 bars, 18 inch long at 24 inches O.C. for securing dowels where no other reinforcement is provided.

3.07 COLD AND HOT WEATHER CONCRETING

A. Follow recommendations of ACI 305R when concreting during hot weather.

B. Follow recommendations of ACI 306R when concreting during cold weather.

C. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

3.08 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

1. Mixing: If batch plant is within travel time not exceeding maximum limits, transit mix concrete in accordance with ASTM C94/C94M. If travel time exceeds limits, provide alternative means for mixing and submit for review and approval.

B. Do not place concrete when base surface is wet.

C. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.

D. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

E. Place concrete to pattern indicated.

3.09 JOINTS

A. Align curb, gutter, and sidewalk joints.

B. Place 1/2 inch wide expansion joints at 20 foot intervals and to separate paving from vertical surfaces and other components and in pattern indicated.

1. Form joints with joint filler extending from bottom of pavement to within 1/2 inch of finished surface.

2. Secure to resist movement by wet concrete.

3. If expansion joints are not indicated, conform to SSPWC (Greenbook) and standard details and specifications of authorities having jurisdiction.

C. Provide sawn joints.

1. At 5 feet intervals for pedestrian paving.

2. At 10 feet intervals for vehicle paving.

3. Between sidewalks and curbs.

4. Between curbs and pavement.

D. Provide keyed joints as indicated.

E. Saw cut contraction joints 3/16 inch wide at an optimum time after finishing. Cut 1/3 into depth of slab.

F. Refer to Architectural, Landscape and Civil Drawings for additional information and joint locations.

3.10 FINISHING

A. Area Paving: Medium broom, texture perpendicular to pavement direction..

B. Sidewalk Paving: Medium broom, texture perpendicular to pavement direction with troweled and radiused edge 1/4 inch radius.

1. Broomed: Pull broom across freshly floated concrete to produce medium texture in straight lines perpendicular to main line of traffic. Do not dampen brooms.

C. Curbs and Gutters: Light broom, texture parallel to pavement direction.

D. Specific Finishes: Where indicated on Drawings.

1. Concrete Paving Finish: ACI 301, two-step trowel finish, followed after surface has achieved initial set by flooding of surface and light rubbing with bristle brush so that concrete fines are exposed slightly.
    a. Finish surface less than 6 percent shall receive medium broom finish resembling medium grit sandpaper. CBC 11B-403 and 11B-302.1.
    b. Finish surface greater than 6 percent shall receive heavy broom finish. CBC 11B-403 and 11B-302.1.
    c. Surfaces shall have static coefficients of friction of 1.3 to 1.6 (dry) and 1.2 to 1.4 (wet) when field tested in accordance with ASTM D2047.

E. Place sealer on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.11 TOLERANCES

A. ACI 301, Class B, except paving in public rights-of-way shall conform to SSPWC (Greenbook).

B. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.

C. Maximum Variation From True Position: 1/4 inch.

D. Control-joint grooves and other conspicuous lines:

1. 1/4 inch maximum in any 20 feet.
2. 1/2 inch maximum in any 40 feet.

E. Variation in Cross-Sectional Thickness of Slabs:

1. Minus 1/4 inch.
2. Plus 1/2 inch.

F. Variation in Radii

1. In radii of less than 10 feet:
    a. 1/8 inch in any 5 feet.
    b. 1/4 inch in any 1 0 feet.
2. In radii of 20 feet:
    a. 1/4 inch in any 10 feet.
    b. 3/8 inch in any 20 feet
3. In radii of 30 feet or more:
    a. 1/2 inch in any 20 feet.
    b. 1 inch in any 30 feet.

G. Coefficient of Friction for Finish Surface:

1. Pedestrian Vehicular Finish Surface: Minimum 0.6 static coefficient of friction is required for all concrete paving finish surface. All concrete paving surfaces to be broom finish.
2. Ramps: Minimum 0.8 static coefficient of friction is required for all concrete paving finish surfaces on ramps. All concrete paving surfaces on ramps to be broom finish.

3.12 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 45 00 - Quality Control.
   1. Provide free access to concrete operations at project site and cooperate with appointed firm.
   2. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
   3. Tests of concrete and concrete materials may be performed at any time to ensure compliance with specified requirements.

B. Compressive Strength Tests: ASTM C39/C39M; for each test, mold and cure three concrete test cylinders. Obtain test samples for every 75 cu yd or less of each class of concrete placed.
   1. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
   2. Perform one slump test for each set of test cylinders taken.

C. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

3.13 PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.
   1. Provide lumber ramping and plywood covering where curbs and gutters are subject to vehicular and equipment traffic during construction.

END OF SECTION

SECTION 32 31 13
CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Posts, rails, and frames.

B. Wire fabric.

C. Concrete.

D. Manual gates with related hardware.

E. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Concrete anchorage for posts.

1.03 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

C. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.

D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2018.

E. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2018a.

F. ASTM A780/A780M - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings; 2009 (Reapproved 2015).

G. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2019a.

H. ASTM F567 - Standard Practice for Installation of Chain-Link Fence; 2014a.

I. ASTM F626 - Standard Specification for Fence Fittings; 2014.

J. ASTM F668 - Standard Specification for Polyvinyl Chloride (PVC) and Other Organic Polymer-Coated Steel Chain-Link Fence Fabric; 2017.

K. ASTM F1043 - Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework; 2018.

L. ASTM F1083 - Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures; 2018.

M. CLFMI CLF 2445 - Product Manual - Drawings; 2012.

N. ASTM F900 - Standard Specification for Industrial and Commercial Swing Gates; 2011.

O. CLFMI CLF-FIG0111 - Field Inspection Guide; 2014.

P. CLFMI CLF-PM0610 - Product Manual; 2017.

Q. CLFMI CLF-SFR0111 - Security Fencing Recommendations; 2014.

R. CLFMI WLG 2445 - Chain Link Fence Wind Load Guide for the Selection of Line Post and Line Post Spacing; June 2016.

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittals, for submittal procedures.

B. Product Data: Provide data on fabric, posts, accessories, fittings and hardware.

C. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, and schedule of components. See CLFMI CLF-SFR0111 for planning and design recommendations.

D. Samples: Submit two samples of fence fabric, 12 inch by 12 inch in size illustrating construction and colored finish.

E. Manufacturer's Installation Instructions: Indicate installation requirements and accessories.

F. Manufacturer's Qualification Statement.

G. Fence Installer Qualification Statement.

H. Project Record Documents: Accurately record actual locations of property perimeter posts relative to property lines.

I. Field Inspection Records: Provide installation inspection records that include post settings, framework, fabric, barbed wire, fittings and accessories, gates, and workmanship.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

B. Fence Installer: Company with demonstrated successful experience installing similar projects and products, with not less than five years of documented experience.

1.06 WARRANTY

A. Correct defective Work within a five year period after Date of Substantial Completion.

B. Provide five year manufacturer warranty for gate hardware.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Chain Link Fences and Gates, or equal:

1. Allied Tube and Conduit Corp.: www.atcfence.com
2. Anchor Fence, Inc.: www.anchorfenceinc.com.
3. Master-Halco, Inc: www.masterhalco.com/#sle.
4. Merchants Metals: www.merchantsmetals.com/#sle.

2.02 COMPONENTS

A. Line Posts: 1.9 inch diameter.

B. Corner and Terminal Posts: 2.38 inch diameter.

C. Fabric with Pre-Inserted Slats: 2 inch diamond mesh interwoven wire, 6 gage, 0.1920 inch thick, top selvage knuckle end closed, bottom selvage twisted tight.

1. Privacy Slats: High-density polyethylene (HDPE), woven into fabric.

2.03 REGULATORY REQUIREMENTS

A. Provide fences and gates meeting life safety and accessibility requirements of California Building Code (CBC) Title 24, Part 2, Chapters 10 and 11B; and ADA Standards, per latest amendments.

1. Gates that are part of the accessible route shall meet all the requirements of an accessible door in compliance with CBC Section 11B-404 and 11B-206.5.

2. Gate Hardware: Meet the requirements of CBC 11B-206.5 and 11B-404.2.9.

a. Latch: Latch, including padlock eye as integral part of latch, mounted 40 inches above finish grade. Comply with California Fire Code.

b. Hardware shall comply with local Fire Authority, California Building Code (CBC) Title 24, Section 1010.2, and California Fire Code (CFC) Section 503.5.2.

c. The lever of lever actuated latches or locks for an accessible gate shall be curved with a return to within 1/2 inch of the (face of) gate to prevent catching on the clothing or persons. California Referenced Standards Code T-24 Part 12, Section 12-10-202, Item (F).

d. Hand activated opening hardware, handles, pulls, latches, locks, and other operating devices for and accessible gate shall have a shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist to operate. CBC Section 11B-404.2.7 and 11B-309.4.

3. Swing doors and gate surfaces within 10 inches of the finish floor or ground shall have a smooth surface on the push side extending the full width of the door or gate. Parts creating horizontal or vertical joints in these surfaces shall be within 1/16 inch of the same plane as the other and be free of sharp or abrasive edges. Cavities created by added kick plates shall be capped. CBC Section 11B·404.2.10

4. The bottom of the gate shall be within 3 inches of the finish surface of the path of travel. The maximum effort to operate a gate shall not exceed 5 lbf. CBC Section 11B-404.2.9.

2.04 MATERIALS

A. Posts, Rails, and Frames:

1. ASTM A1011/A1011M, Designation SS; hot-rolled steel strip, cold formed to pipe configuration, longitudinally welded construction, minimum yield strength of 50 ksi; zinc coating complying with ASTM F1043 and ASTM F1083.

2. Line Posts: Type I round.

3. Terminal, Corner, Rail, Brace, and Gate Posts: Type I round.

4. Comply with CLFMI CLF-PM0610.

B. Wire Fabric:

1. ASTM F668 polymer-coated steel chain link fabric.

2. Comply with CLFMI CLF-PM0610.

C. Concrete:

1. Ready-mixed, complying with ASTM C94/C94M; normal Portland cement; 2,500 psi strength at 28 days, 3 inch slump; 3/4 inch nominal size aggregate.

2.05 COMPONENTS

A. Sizes to be determined by fencing manufacturer for wind load of fencing with "tennis court" windscreen and design wind speed of 110 mph. Comply with CLFMI WLG 2445.

B. Line Posts: 2.38 inch diameter. Unless indicated larger on Drawings.

C. Corner and Terminal Posts: 2.88 inch diameter. Unless indicated larger on Drawings.

D. Gate Posts: 3-1/2 inch diameter. Unless indicated larger on Drawings.

1. Provide posts for supporting single gate leaf, or one leaf of a double gate installation, for nominal gate widths.
    a. Comply with CLFMI CLF 2445 published standards.

E. Top and Brace Rail: 1.66 inch diameter, plain end, sleeve coupled. Unless indicated larger on Drawings.

F. Bottom Rail: 1.66 inch diameter, plain end, sleeve coupled. Unless indicated larger on Drawings.

G. Gate Kick Plate: Provide on push side, full width to minimum 10 inches high above finish surface, 1/8 inch thick, galvanized ASTM A653/A653M welded to gate frame.

H. Gate Frame: 1.90 inch diameter for welded fabrication.

1. Fabricate perimeter frames of gates from metal and finish to match fence framework. Provide horizontal and vertical members to ensure proper gate operation and attachment of fabric, hardware, and accessories with additional horizontal and vertical members to insure proper gate operation.

2. Use same fabric as for fence, installed with stretcher bars and bands at vertical edges and at top and bottom edges.

3. Install diagonal cross bracing consisting of 5/16 inch diameter truss rods with drop forged steel turnbuckles, per ASTM F626, where necessary to insure frame rigidity without sag or twist.

4. Meet the requirements of ASTM F900. Maximum gate leaf width 4'-0” and minimum gate width of 36 inches along path of travel and means of egress.
    a. Gate frame to be of welded construction.
        1) Weld areas to be protected with zinc-rich paint per ASTM A780/A780M.
    b. The gate frame members are to be spaced no greater than 8’-0” (2.44 m) apart horizontally or vertically.

I. Fabric: 1 inch diamond mesh interwoven wire, 9 gage, 0.1483 inch thick, top selvage knuckle end closed, bottom selvage knuckle end closed.

J. Tension Wire: 6 gage, 0.1920 inch thick steel, single strand.

K. Tension Band: 3/4 by 3/16 inch thick steel.

L. Tension Strap: 3/4 by 3/16 inch thick steel.

M. Tie Wire: Aluminum alloy steel wire.

2.06 MANUAL GATES AND RELATED HARDWARE

A. See Section 08 71 00 - Door Hardware for specific hardware components.

B. Hardware for Single Swinging Gates: 180 degree hinges, 2 for gates up to 60 inches high, 3 for taller gates; fork latch with gravity drop and padlock hasp.

C. Hardware for Double Swinging Gates: 180 degree hinges, 2 for gates up to 60 inches high, 3 for taller gates; drop bolt on inactive leaf engaging socket stop set in concrete, active leaf latched to inactive leaf preventing raising of drop bolt, padlock hasp; keepers to hold gate in fully open position.

1. See Drawings - Gate Hardware Schedule for specific hardware components.
2. Drop bolt is not to be provided or installed on exit gates.
3. Provide galvanized pressed steel locking latch, requiring one padlock for locking both gate leaves, accessible from either side.

D. Hinges: Finished to match fence components.

1. Hinges: Hot dip galvanized pressed steel or malleable iron, structurally capable of supporting gate leaf and allow opening and closing without binding.
2. Non-lift-off type hinge design to permit gate to swing 180 degrees.
3. Closing: Self.

E. Latches: Finished to match fence components.

1. Galvanized forked type with welded U-bracket on both sides. Capable of retaining gate in closed position and have provision for padlock.
    a. Latch shall permit operation from either side of gate.

F. Gate Holdback: Provide galvanized gate hold back keeper for each gate leaf over 5 feet (1524 mm) wide.

1. Gate keeper shall consist of mechanical device for securing free end of gate when in full open position.

2.07 ACCESSORIES

A. Caps: Cast steel galvanized; sized to post diameter, set screw retainer.

B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel.

C. Other Fencing Accessories: Provide other pressed steel or cast iron accessories and fencing items necessary for a complete installation as required by Project conditions and as recommended by fencing manufacturer.

2.08 FINISHES

A. Components (Other than Fabric): Galvanized in accordance with ASTM A123/A123M, at 1.7 ounces per square foot.

B. Components and Fabric: Vinyl coated over coating of 1.8 ounces per square foot galvanizing.

1. Polyvinyl Chloride (PVC) Finish: Comply with ASTM F668, Class 2 with core wire diameter (gage) measured before application of PVC coating. Color as selected by the Architect from manufacturer's standards.

a. Provide accessories required to install fabric with finish to match fabric.

2. Supplemental color coating: In addition to above metallic coatings, provide posts and rails with manufacturer's standard polymer coating according to ASTM F1043, 10-mil minimum polyvinyl chloride (PVC) or 3-mil minimum polyester plastic resin finish applied to exterior surfaces and, except for tubular shapes, to exposed interior surfaces.

3. Color shall match chain link fabric.

C. Hardware: Hot-dip galvanized to weight required by ASTM A153/A153M.

D. Accessories: Same finish as framing.

E. Color(s): To be selected by Architect from manufacturer's standard range.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Conditions: Verify that areas are clear of obstructions or debris.

3.02 PREPARATION

A. Removal: Obstructions or debris.

B. Fence Layout: Lay out fencing in advance of installation, noting locations for posts, gates, operators and accessories applicable to the installation.

1. Space line posts maximum 10 feet o.c., unless otherwise indicated.

2. Straight runs between braced posts shall not exceed 500 feet.

C. Excavation: Excavate line post holes as indicated on Drawings.

1. Provide footing depths as indicated on Drawings and conforming to CLFMI published standards, based on fabric height, wind pressure and soil types.

3.03 INSTALLATION

A. Install framework, fabric, accessories and gates in accordance with ASTM F567.

B. Place fabric on outside of posts and rails.

C. Set intermediate posts plumb, in concrete footings with top of footing 2 inches above finish grade. Slope top of concrete for water runoff.

D. Line Post Footing Depth Below Finish Grade: ASTM F567.

E. Corner, Gate and Terminal Post Footing Depth Below Finish Grade: ASTM F567.

F. Gates: Install gates plumb, level and secure. Install as recommended by fence manufacturer. Adjust hardware for smooth operation and lubricate as required.

G. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail one bay from end and gate posts.

H. Provide top rail through line post tops and splice with 6 inch long rail sleeves.

1. Connect ends with sleeves forming a rigid connection, allow for expansion and contraction.

I. Install center brace rail on corner gate leaves.

1. Center Rails: Install mid rails between line posts and attach to post using rail end or line rail clamps.

J. Bottom Rails: Install bottom rails between posts and attach to post using rail end or line rail clamps

K. Do not stretch fabric until concrete foundation has cured 28 days.

L. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.

1. Adjust fabric for rigid installation.
2. Tighten hardware, fasteners, and accessories.
3. Bend ends of tie wires to preclude snagging.

M. Position bottom of fabric 2 inches above finished grade.

N. Fastening: Fasten all fence and gate hardware secured in place by peening or welding to allow proper operation of components, but to prevent disassembly of fencing or removal of gates.

1. Fastenings, hardware, and all other connections, which have been peened or welded, shall be covered with a heated re-galvanizing alloy.

O. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.

P. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.

Q. Do not attach the hinged side of gate to building wall; provide gate posts.

R. Install gate locking device specified in Section 08 71 00.

S. Peen all bolts upon installation.

1. Fasten all fence and gate hardware secured in place by peening or welding to allow proper operation of components, but to prevent disassembly of fencing or removal of gates.
2. Cover fastenings, hardware, and all other connections, which have been peened or welded, with a heated re-galvanizing alloy.

T. Perform three random field inspections confirming proper installation.

3.04 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch.

B. Maximum Offset From True Position: 1 inch.

C. Do not infringe on adjacent property lines.

3.05 FIELD QUALITY CONTROL

A. See Section 01 45 00 - Quality Control, for additional requirements.

B. Layout: Verify that fence installation markings are accurate to design, paying attention to gate locations, underground utilities, and property lines.

C. Post Settings: Randomly inspect three locations against design for:

1. Hole diameter.
2. Hole depth.

3. Hole spacing.

D. Fence Height: Randomly measure fence height at three locations or at areas that appear out of compliance with design.

E. Gates: Inspect for level, plumb, and alignment.

F. Workmanship: Verify neat installation free of defects. See CLFMI CLF-FIG0111 for field inspection guidance.

3.06 CLEANING

A. Leave immediate work area neat at end of each work day.

B. Clean jobsite of excess materials; scatter excess material from post hole excavations uniformly away from posts. Remove excess material if required.

C. Clean fence with mild household detergent and clean water rinse well.

D. Remove mortar from exposed posts and other fencing material using a 10 percent solution of muriatic acid followed immediately by several rinses with clean water.

E. Touch up scratched surfaces using materials recommended by manufacturer. Match touched-up paint color to factory-applied finish.

F. See Section 01 50 13 - Construction Waste Management and Disposal, for additional requirements.

END OF SECTION

DOWNEY UNIFIED SCHOOL DISTRICT

COLUMBUS WELDING PROGRAM

12320 WOODRUFF AVENUE, DOWNEY, CA 90241

GATE HARDWARE

GATE TYPE 1: SECURED GATES (SECURED EGRESS-EXIT KEYFOB)

GATE IS INTENDED TO BE LOCKED AT ALL TIMES ONLY ALLOWED TO OPEN IN EMERGENCY

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MANUFACTURE
3 EA	HINGE	BB852	PC	STANLEY
1 EA	PANIC HARDWARE	LD-PA-AX-98-AD-03-WH-SNB	630	VON DUPRIN
1 EA	FSIC CORE	20-740	626	SCHLAGE
1 EA	CONST. FSIC CORE	23-030 ICX		SCHLAGE
1 EA	SURFACE CLOSER	4040XP EDA SRI	689	LCN
1 EA	PA MOUNTING PLATE	4040XP-18PA SRI	689	LCN
1 EA	FLOOR STOP	FS18L	BLK	IVES
1 EA	GATE BOX	K-BXED-V (AD-SERIES 993R TRIM)		KEEDEX
1 EA	KNOX BOX	3200		KNOX

GATE TYPE 2 : SECURED GATES (SECURED EGRESS BOTH SIDES)

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MANUFACTURE
3 EA	HINGE EACH LEAF	BB852	PC	STANLEY
1 EA	LATCH	4090-B	PC	DAC INDUSTRIES
1 EA	CANEBOLT	QB1-P		D&D TECHNOLOGIES
1 EA	PAD LOCK	BY DISTRICT	OR	

CODES AND STANDARDS

APPLICABLE CODES

- 2019 BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.
- 2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.
- 2019 CALIFORNIA ELECTRICAL CODE (CEC) , PART 3, TITLE 24 C.C.R.
- 2019 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.
- 2019 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.
- 2019 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 C.C.R.
- 2019 CALIFORNIA FIRE CODE, PART 9, TITLE 24 C.C.R.
- 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE, PART 11, TITLE 24 C.C.R.
- 2019 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R.
- TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
- 2016 ASME A17.1 SAFETY CODE FOR ELEVATORS AND ESCALATORS

PARTIAL LIST OF APPLICABLE STANDARDS

NFPA 13	AUTOMATIC FIRE SPRINKLER SYSTEMS	2016	EDITION
NFPA 14	STANDPIPE AND HOSE SYSTEMS	2013	EDITION
NFPA 17	DRY CHEMICAL EXTINGUISHING SYSTEMS	2016	EDITION
NFPA 17a	WET CHEMICAL EXTINGUISHING SYSTEMS	2017	EDITION
NFPA 20	STATIONARY PUMPS FOR FIRE PROTECTION	2017	EDITION
NFPA 22	WATER TANKS FOR PRIVATE FIRE PROTECTION	2013	EDITION
NFPA 24	PRIVATE FIRE MAINS & THEIR APPURTENANCES	2016	EDITION
NFPA 25	STANDARD FOR INSPECTION, TESTING AND MAINTENANCE OF WATER-BASED FIRE PROTECTION SYSTEMS	2017	EDITION
NFPA 72	NATIONAL FIRE ALARM & SIGNALING CODE	2016	EDITION
NFPA 80	FIRE DOORS AND OTHER OPENING PROTECTIVES	2016	EDITION
NFPA 92	STANDARD FOR SMOKE CONTROL SYSTEMS	2015	EDITION
NFPA 253	CRITICAL RADIANT FLUX OF FLOOR COVERING SYSTEMS	2015	EDITION
NFPA 2001	CLEAN AGENT FIRE EXTINGUISHING SYSTEMS	2015	EDITION
ICC 300	ICC STANDARDS ON BLEACHERS, FOLDING AND TELESCOPING SEATING, AND GRAND STANDS	2017	EDITION
UL 300	FIRE TESTING OF FIRE EXTINGUISHING SYSTEMS FOR PROTECTION OF RESTAURANT COOKING AREAS	2005	EDITION (R 2010)
UL 464	AUDIBLE SIGNAL APPLIANCES	2003	EDITION
UL 521	HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS	1999	EDITION

REFERENCE CODE SECTION FOR NFPA STANDARDS-2016 CBC (SFM) CHAPTER 35.
SEE CHAPTER 35 FOR STATE OF CALIFORNIA AMENDMENTS TO NFPA STANDARDS.

PROJECT DIRECTORY

CLIENT: DOWNEY UNION SCHOOL DISTRICT
11627 BROOKSHIRE AVE.
DOWNEY, CA 90241
TELEPHONE: 562.469.6707
CONTACT: VINCE MADSEN
EMAIL: vmadsen@dusd.net

ARCHITECT: SGH ARCHITECTS
707 BROOKSIDE AVENUE
REDLANDS, CA 92373
TELEPHONE: 909.375.3030
CONTACT: SCOTT GRIFFITH, AIA
EMAIL: sgriffith@sgharch.com

ELECTRICAL: DCGA ENGINEERS
4750 EAST ONTARIO PARKWAY
ONTARIO, CA 91764
TELEPHONE: 909.987.0017
CONTACT: CHRIS VILLALOBOS
EMAIL: chris.villalobos@dcgaengineers.com

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STATEMENT OF GENERAL CONFORMANCE

FOR ARCHITECTS / ENGINEERS WHO UTILIZE PLANS, INCLUDING BUT NOT LIMITED TO SHOP DRAWINGS, PREPARED BY OTHER LICENSED DESIGN PROFESSIONALS AND / OR CONSULTANTS.

(APPLICATION NO. 03-xxxxxx FILE NO. 19-97)

☒ THE SHEETS LISTED ON THE COVER SHEET WITH AN " * " IN THE HEADING.

HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS OR CONSULTANTS WHO ARE LICENSED AND / OR AUTHORIZED TO PREPARE SUCH DRAWINGS IN THIS STATE. IT HAS BEEN EXAMINED BY ME FOR:

1. DESIGN INTENT AND APPEARS TO MEET THE APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATORS AND THE PROJECT SPECIFICATIONS PREPARED BY ME AND
2. COORDINATION WITH MY PLANS AND SPECIFICATIONS AND IS ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THIS PROJECT.

THE STATEMENT OF GENERAL CONFORMANCE "SHALL NOT BE CONSTRUED AS RELIEVING ME OF MY RIGHTS, DUTIES AND RESPONSIBILITIES UNDER SECTIONS 17302 AND 81138 OF THE EDUCATION CODE AND SECTIONS 4-336, 4-341 AND 4-344* OF TITLE 24, PART 1. (TITLE 24, PART 1, SECTION 4-317(B))

I CERTIFY THAT: ☒ ALL SHEETS LISTED ON THE COVER SHEET WITH AN " * " IN THE HEADING.

☒ IS / ARE IN GENERAL CONFORMANCE WITH THE PROJECT DESIGN, AND

☒ HAS / HAVE BEEN COORDINATED WITH THE PROJECT PLANS AND SPECIFICATIONS

SIGNATURE — DATE: 8/26/2021

ARCHITECT OR ENGINEER DESIGNATED TO BE IN GENERAL RESPONSIBLE CHARGE.

SCOTT GRIFFITH — PRINT NAME

C-24897 — LICENSE NUMBER — EXPIRATION DATE: 7/31/2023

☐ IS / ARE IN GENERAL CONFORMANCE WITH THE PROJECT DESIGN, AND

☐ HAS / HAVE BEEN COORDINATED WITH THE PROJECT PLANS AND SPECIFICATIONS

SIGNATURE — DATE

ARCHITECT OR ENGINEER DESIGNATED TO BE IN GENERAL RESPONSIBILITY FOR THIS PORTION OF THE WORK.

PRINT NAME

LICENSE NUMBER — EXPIRATION DATE

GENERAL NOTES

1. CONTRACTOR SHALL REVIEW THE CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS FOR ACCURACY AND CONSTRUCTABILITY. CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
2. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDINGS AND SHALL DETERMINE ANY DISCREPANCIES BETWEEN THESE DRAWINGS AND ACTUAL FIELD CONDITIONS. CONTRACTOR SHALL NOTIFY THE ARCHITECT AND OWNER OF ANY DISCREPANCIES.
3. CONTRACTOR SHALL THOROUGHLY INVESTIGATE, VERIFY AND BEAR RESPONSIBILITY FOR DIMENSIONS AND EXISTING CONDITIONS. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY CONDITION REQUIRING MODIFICATION OR CHANGE PRIOR TO STARTING WORK. ANY WORK INSTALLED IN CONFLICT WITH THE DRAWINGS WITHOUT PRIOR APPROVAL SHALL BE CORRECTED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
4. WHERE EXISTING FINISHES, FACILITIES, AND SURFACES ARE DISTURBED, DAMAGED, OR REMOVED DURING THE COURSE OF CONSTRUCTION OPERATIONS, THE CONTRACTOR IS TO REPAIR OR REPLACE AS NECESSARY TO MATCH EXISTING. ALL NEW MATERIALS SHALL MATCH EXISTING IN ALL RESPECTS.
5. LOCATIONS OF UTILITIES, WHERE SHOWN, ARE APPROXIMATE, AND CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN EXCAVATING AND TRENCHING ON ALL SITES TO AVOID EXISTING DUCTS, PIPING, OR CONDUITS, ETC. AND TO PREVENT HARM TO PERSONNEL AND/OR DAMAGE TO EXISTING UTILITIES AND STRUCTURES. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT OR ENGINEER SHOULD UNIDENTIFIED CONDITIONS BE DISCOVERED.
6. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY WHERE THE PROPOSED WORK AFFECTS THE EXISTING IRRIGATION SYSTEMS THE CONTRACTOR SHALL PERFORM ANY WORK NECESSARY TO MAINTAIN AN OPERATIONAL IRRIGATION SYSTEM.
7. THESE DRAWINGS AND SPECIFICATIONS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
8. CONSTRUCTION WORKERS WILL ONLY BE ALLOWED IN THE AREAS APPROPRIATE TO THE WORK AND SHALL NOT DISTURB THE OWNER, STAFF, STUDENTS OR CUSTOMERS.
9. CONSTRUCTION WORKERS SHALL WEAR APPROPRIATE SAFETY GEAR & COMPLY WITH SAFETY REGULATIONS.
10. CONSTRUCTION WORKERS SHALL DRESS & BEHAVIOR IN A MANNER APPROPRIATE TO THE JOB SITE AND BE ACCEPTABLE TO THE OWNER REPRESENTATIVES.
11. SMOKING IS NOT PERMITTED ON THE CONSTRUCTION SITE.
12. THERE SHALL BE NO POSSESSION OR CONSUMPTION OF DRUGS OR ALCOHOLIC BEVERAGES ON THE JOB SITE BY ANY PERSON AT ANY TIME OR CONSUMPTION PRIOR THAT MAY IMPAIR THE USE OF EQUIPMENT IN A SAFE MANNER.

REGULATION NOTES

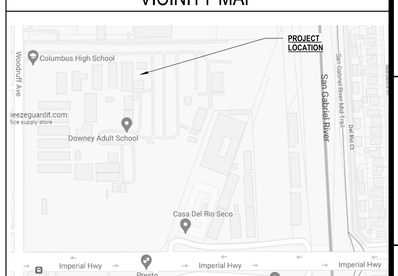
1. ALL WORK SHALL CONFORM TO 2019 TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR) PARTS 1 TO 6, 9 AND 12.
2. FABRICATION AND INSTALLATION OF DEFERRED SUBMITTAL ITEMS SHALL NOT BE STARTED UNTIL CONTRACTOR'S DRAWINGS, SPECIFICATIONS, AND ENGINEERING CALCULATIONS FOR THE ACTUAL SYSTEMS TO BE INSTALLED HAVE BEEN ACCEPTED AND SIGNED BY THE ARCHITECT OR STRUCTURAL ENGINEER AND APPROVED BY THE DSA. LIST DEFERRED SUBMITTAL ITEMS FOR THIS PROJECT.
3. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR A CONSTRUCTION CHANGED DOCUMENT (CCD) APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, CCR.
4. ALL SUBSTITUTIONS AFFECTING DSA REGULATED ITEMS SHALL BE CONSIDERED AS A CONSTRUCTION CHANGE DOCUMENT (CCD) OR ADDENDA, AND SHALL BE APPROVED BY DSA PRIOR TO FABRICATION AND INSTALLATION SECTION 4-338, PART 1, TITLE 24, CCR. SUBSTITUTIONS SHALL BE FOR ANY MATERIAL, SYSTEM OR PRODUCT THAT WOULD OTHERWISE BE REGULATED BY DSA.
5. A "DSA CERTIFIED" CLASS 1 PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DSA SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, PART 1, TITLE 24, CCR.
6. A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE DISTRICT (OWNER) SHALL CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THE PROJECT.
7. THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CCR. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CCR, A CONSTRUCTION CHANGE DOCUMENT (CCD), OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE WORK. (SECTION 4-317(C), PART 1, TITLE 24, CCR).
8. GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.
9. A COPY OF CCR TITLE 24, PARTS 1-6, 9 AND 12 SHALL BE KEPT ON SITE DURING CONSTRUCTION.
10. A COPY OF THE APPROVED DRAWINGS, SPECIFICATIONS, ADDENDUMS AND CONSTRUCTION CHANGE DOCUMENTS SHALL BE KEPT ON SITE DURING CONSTRUCTION.
11. THE CONTRACTOR SHALL MAINTAIN CONSTRUCTION SAFE GUARDS IN ACCORDANCE WITH CHAPTER 33, PART 2 TITLE 24, CCR AND CHAPTER 33, PART 9 TITLE 24, CCR (2016 CBC)
12. THE CONTRACTOR SHALL PROVIDE CLEAN, SANITARY, TEMPORARY TOILET FACILITIES FOR THE CONSTRUCTION PERSONNEL. UNDER NO CIRCUMSTANCES SHALL CONSTRUCTION PERSONNEL BE ALLOWED TO UTILIZE THE PERMANENT SITE FACILITIES. ALL TEMPORARY FACILITIES SHALL BE REMOVED FROM THE SITE AT THE CONCLUSION OF CONSTRUCTION.

SCOPE OF WORK

THIS PROJECT INCLUDES THE FOLLOWING SCOPE OF WORK:

1. SITE DEMOLITION NECESSARY TO PREPARE THE AREA FOR THE PROPOSED TRAINING AREA INCLUDING BUT NOT LIMITED TO REMOVAL OF EXISTING FENCING, STORAGE CONTAINERS, MISC. ABANDONED EQUIPMENT, ETC.
2. EXTEND ELECTRICAL POWER & DATA TO SERVE THE PROJECT AREA. INSTALL NEW SUBPANELS AND TRANSFORMERS
3. INSTALL NEW PERIMETER DECORATIVE FENCING
4. INSTALL 20 WELDING BOOTHS INCLUDING PERIMETER SUPPORT STEEL FOR ROUTING OF ELECTRICAL CONDUITS, LIGHTING AND RECEPTACLES

VICINITY MAP



CONSULTANT:

LICENSED ARCHITECT
SCOTT N. GRIFFITH
NO. C-24897
REN. 7-31-23
STATE OF CALIFORNIA

SEALS:

sgh ARCHITECTS

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COVER SHEET

COLUMBUS WELDING PROGRAM

DOWNEY UNIFIED SCHOOL DISTRICT
12320 WOODRUFF AVENUE
DOWNEY, CA 90241

PROJECT NUMBER: 21-59101-00
PROJECT STATUS: CD
PROJECT ISSUED: 08/09/21
REVISION DATE: DESCRIPTION:
1 9/9/21 ISSUED FOR BID

0.0

9/8/2021 3:20:17 PM

Bid Set - NOT FOR CONSTRUCTION

ABBREVIATIONS

E	
E	EAST
EA	EACH
EB	EXPANSION BOLT
EE	EACH END
EEW	EMERGENCY EYEWASH
EEWS	EMERGENCY EYEWASH/SHOWER
EF	EACH FACE
EF	EXHAUST FAN
EH	ELECTRICAL HEATER
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELAS	ELASTOMERIC
ELEC	ELECTRIC(AL)
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENTR	ENTRANCE
ERF	EPOXY RESIN FLOORING
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EMERGENCY SHOWER
ES	EXTRA STRONG
EST	ESTIMATE
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EWT	ENTERING WATER TEMPERATURE
EXC	EXCAVATE
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXP	EXPOSED
EXT	EXTERIOR
F	
F	FIRELINE
FA	FIRE ALARM
FAB	FABRICATED
FB	FACE BRICK
FC	FOOT CANDLE
FCMU	FLUTED CONCRETE MASONRY UNIT
FCO	FLOOR CLEAN OUT
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FFE	FINISH FLOOR ELEVATION
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FIG	FIGURE
FIN	FINISH
FIX	FIXTURE
FL	FLOOR
FLASH	FLASHING
FLEX	FLEXIBLE
FLG	FLOORING
FLM	FULL LENGTH MIRROR
FM	FIRE MAIN
FO	FACE OF
FO	FINISH OPENING
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOR	FUEL OIL RETURN
FOS	FACE OF STUD
FOS	FUEL OIL SUPPLY
FOV	FUEL OIL VENT
FOW	FACE OF WALL
FP	FIREPROOFING
FR	FIRE RESISTIVE
FR	FRAME
FRP	FIBERGLASS REINFORCED PANEL
FS	FLOOR SINK
FSD	FIRE/SMOKE DAMPER
FSS	FOLDING SHOWER SEAT
FT	FEET (FOOT)
FTG	FOOTING
FUT	FUTURE
FVC	FIRE VALVE CABINET
FWC	FABRIC WALL COVERING
G	
G	GRILLE
GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GCMU	GLAZED CONCRETE MASONRY UNIT
GD	GARBAGE DISPOSAL
GEN	GENERAL
GEN	GENERATOR
GFA	GROSS FLOOR AREA
GFI	GROUND FAULT INTERRUPTER
GFRC	GLASS FIBER REINFORCED CONCRETE
GI	GALVANIZED IRON
GL	GLUE LAMINATED
GL	GLASS
GMU	GLASS MASONRY UNIT
GOVT	GOVERNMENT
GR	GUAD RAIL

G CONTINUED	
GR	GRADE
GR	GRILLE
GRC	GLASS REINFORCED CONCRETE
GRGP	GLASS REINFORCED GYPSUM PLASTER
GRS	GALVANIZED RIGID STEEL
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
H	
H	HEIGHT
HB	HOSE BIB
HC	HOLLOW CORE
HD	HAND DRYER OR HAIR DRYER
HDBD	HARDBOARD
HDR	HEADER
HDWD	HARDWOOD
HDWR	HARDWARE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HR	HANDRAIL
HR	HOUR
HS	HEADSTUD
HSS	HOLLOW STRUCTURAL SECTION
HSTR	HIGH STRENGTH
HT	HEIGHT
HTR	HEATER
HW	DOMESTIC HOT WATER
I	
IAW	IN ACCORDANCE WITH
IC	INTERCOM
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IF	INSIDE FACE
IJ	ISOLATION JOINT
IN	INCH
INC	INCLUDE (ING)
INSUL	INSULATION
INT	INTERIOR
J	
JAN	JANITOR
JST	JOIST
JFB	JOINT FILLER BOARD
JT	JOINT
K	
KCJ	KEYED CONSTRUCTION JOINT
KCP	KEENE'S CEMENT PLASTER
KD	KNOCKDOWN
KH	KITCHEN HOOD
L	
L	ANGLE
LAM	LAMINATE(D)
LAV	LAVATORY
LB	POUND
LBR	LUMBER
LBS	POUNDS
LDG	LOADING
LF	LINEAR FOOT (FEET)
LG	LENGTH (LONG)
LIN	LINEAR
LINO	LINOLEUM
LKR	LOCKER
LH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LONG	LONGITUDINAL
LOX	LIQUID OXYGEN
LS	LAWN SPRINKLER
LSC	LIFE SAFETY CODE
LT	LIGHT
LTG	LIGHTING
LV	LOUVER
LW	LONG WAY
M	
MAC	MACHINE
MAINT	MAINTENANCE
MAN	MANUAL
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MB	MOP BASIN
MBD	MARKER BOARD
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MFRG	MANUFACTURING
MH	MANHOLE
MH	MOP HOLDER
MIN	MINIMUM
MISC	MISCELLANEOUS
MLDG	MOLDING
MLWK	MILLWORK
MO	MASONRY OPENING
MR	MIRROR
MR/S	MIRROR WITH SHELF
MTD	MOUNTED
MTG	MOUNTING
MTL	METAL

M CONTINUED	
MUL	MULLION
MW	MARKER WALL
N	
N	NORTH
N/A	NOT APPLICABLE
NC	NURSE CALL
NEUT	NEUTRAL
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
O	
O to O	OUT TO OUT
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OD	OVERFLOW DRAIN
OF	OUTSIDE FACE
OVFL	OVERFLOW
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFF	OFFICE
OFOI	OWNER FURNISHED OWNER INSTALLED
OPG	OPENING
OPP	OPPOSITE
OTCS	OPEN TO CEILING SPACE
OVHD	OVERHEAD
P	
P	PAINT
PA	PUBLIC ADDRESS
PAR	PARALLEL
PB	PARTICLE BOARD
PB	PULL BOX
PB	PUSH BUTTON
PC	PRECAST
PCD	PAPER CUP DISPENSER
PCF	POUNDS PER CUBIC FOOT
PCT	PORCELAIN CERAMIC TILE
PERF	PERFORATED
PERP	PERPENDICULAR
PIV	POST INDICATOR VALVE
PL	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLBG	PLUMBING
PLYWD	PLYWOOD
PNL	PANEL
POC	POINT OF CONNECTION
PORC	PORCELAIN
PR	PAIR
PREFAB	PREFABRICATED
PROJ	PROJECTION
PS	PROJECTION SCREEN
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PLASTER TRAP
PT	POINT
PTD	PAPER TOWEL DISPENSER
PTD/R	COMBINATION TOWEL DISPENSER/RECEPTACLE
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
PWR	POWER
Q	
QT	QUARRY TILE
QTR RND	QUARTER ROUND
R	
R	RADIUS
RA	RETURN AIR
RAD	RADIUS
RB	RUBBER BASE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REG	REGISTER
REM	REMOVABLE
REQ(D)	REQUIRE(D)
RESIL	RESILIENT
RET	RETAINING (WALL)
REV	REVISIONS
RF	RUBBER FLOOR
RFM	RECESSED FLOOR MAT
RH	ROBE HOOK
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
S	
S	SINK
S	SANITARY SEWER
S	SOAP DISH
S	SOUTH
S	SPRINKLER LINE
SA	SUPPLY AIR
SAN	SANITARY WASTE
SC	SECURITY
SC	SOLID CORE
SC	SHOWER CURTAIN
SC	SPECIAL COATING
SCD	SEAT COVER DISPENSER
SCH	SHOWER CURTAIN HOOKS
SCHED	SCHEDULE
SCR	SHOWER CURTAIN ROD
SCT	STRUCTURAL CLAY TILE

S CONTINUED	
SD	SOAP DISPENSER
SD	SMOKE DAMPER
SD	SMOKE DETECTOR
SD	STORM DRAIN
SEC	SECONDARY
SECT	SECTION
SECY	SECRETARY
SF	SQUARE FOOT
SFCMU	SPLIT-FACED CONCRETE MASONRY UNIT
SGL	SINGLE
SH	SHOWER
SHEATH	SHEATHING
SHM	SECURITY HOLLOW METAL
SHT	SHEET
SIM	SIMILAR
SL	SHORT LEG
SLNT	SEALANT
SM	SHEET METAL
SM	SPRINKLER MAIN
SND	SANITARY NAPKIN DISPOSAL
SNV	SANITARY NAPKIN VENDOR
SPEC	SPECIFICATIONS
SPL	SPECIAL
SPL BLK	SPLASH BLOCK
SQ	SQUARE
SS	SERVICE SINK
SS	SOLID SURFACE
SST	STAINLESS STEEL
ST	STAIR
STAG'D	STAGGERED
STD	STANDARD
STL	STEEL
STOR	STORAGE
STR	STRUCTURAL - STRUCTURE
SUBFL	SUBFLOOR
SURF	SURFACE
SUSP	SUSPENDED
SV	SHEET VINYL
SYM	SYMMETRICAL
T	
T	TEMPERED
T	THERMOSTAT
T & B	TOP & BOTTOM
T& G	TONGUE & GROOVE
T	TREAD
TA	TRANSFER AIR
TAN	TANGENT
TB	TOWEL BAR
TBD	TACK BOARD
TC	TEMPERATURE CONTROL
TC	TIME CLOCK
TD	TRENCH DRAIN
TEL	TELEPHONE
TEMP	TEMPERED - TEMPORARY
TERR	TERRAZZO
TEXT	TEXTURED
TH	THRESHOLD
TH	TOWEL HOOK
THK	THICK(NESS)
TMR	TILT MIRROR UNIT
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOIL	TOILET
TOP	TOP OF PAVING
TOS	TOP OF STEEL
TOW	TOP OF WALL
TPV	TRAP PRIMER
TR	TRIP
TRANS	TRANSVERSE
TRD	TREAD
TT	TERRAZZO TILE
TTD	TOILET TISSUE DISPENSER
TV	TELEVISION / MONITOR
TW	TACK WALL
TYP	TYPICAL
U	
U	URINAL
UL	UNDERWRITERS LABORATORIES
UNEX	UNEXCAVATED
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
US	UTILITY SHELF
UTIL	UTILITY
V	
V	VENT
VAV	VARIABLE AIR VOLUME
VB	VAPOR BARRIER
VB	VINYL BASE
VCB	VENTED COVE BASE
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VF	VINYL FLOOR
VP	VENEER PLASTER
VT	VINYL TILE
VTR	VENT THROUGH ROOF
VWC	VINYL WALLCOVERING
W	
W	WATER SERVICE
W	WIDE; WIDTH

W CONTINUED	
W	WEST
W	WIDE FLANGE
W	WITH
W/O	WITHOUT
WC	WALL COVERING
WC	WATER CLOSET
WCO	WALL CLEAN OUT
WD	WOOD
WDW	WINDOW
WF	WASH FOUNTAIN
WH	WALL HYDRANT
WH	WATER HEATER
WI	WROUGHT IRON
WNSCT	WAINSCOT
WP	WEATHERPROOF
WR	WATER RESISTANT
WR	WASTE RECEPTACLE
WSP	WET STAND PIPE
WT	WEIGHT
WWF	WELDED WIRE FABRIC
X	
XFMR	TRANSFORMER
Y	
YD	YARD
YH	YARD HYDRANT
#	
&	AND
@	AT
i.e.	THAT IS
#	NUMBER

GLAZING ABBREVIATIONS:

CG	CLEAR FLOAT GLASS
CIG	CLEAR INSULATING GLASS
CTG	CLEAR TEMPERED FLOAT GLASS
CTIG	CLEAR TEMPERED INSULATING GLASS
FG	FIRE-RATED GLASS
LG	LAMINATED GLASS
LIG	LAMINATED INSULATING GLASS
PG	PATTERN GLASS
PIG	PATTERN INSULATING GLASS
SG	SPANDREL GLASS
SIG	SPANDREL INSULATING GLASS
TG	TINTED FLOAT GLASS
TIG	TINTED INSULATING GLASS
TTG	TINTED TEMPERED FLOAT GLASS
TTIG	TINTED TEMPERED INSULATING GLASS

GENERAL SYMBOLS

DETAIL NUMBER / CALLOUT BUBBLE / SHEET NUMBER

INTERIOR ELEVATION

EXTERIOR ELEVATION

BUILDING SECTION

WALL SECTION

DETAIL SECTION

DETAIL SECTION

GRID LINES

ELEVATION LEVEL

DOOR TAG

CURTAIN WALL / WIDOW TAG

WALL TAG

FURNITURE, FIXTURE OR EQUIPMENT TAG

FINISH TAG

DEMOLITION KEYNOTE

LEGEND KEYNOTE

CONSTRUCTION KEYNOTE

REVISION NUMBER

ROOM NAME TAG

ROOM OCCUPANCY TAG

EGRESS / EXIT TAG

CEILING HEIGHT TAG

PATTERNS

EARTH
GRAVEL/BALLAST
SAND
CONCRETE
ASPHALT CONCRETE
STEEL
GYM FLOOR
WOOD (CONTINUOUS BLOCKING)
WOOD (NON-CONTINUOUS BLOCKING)
WOOD (TRIM/FINISH)
GLASS
STONE
SHINGLES
CONCRETE MASONRY UNIT
BRICK VENEER
METAL / WOOD STUDS
STEEL (LARGE SCALE)
PLYWOOD (LARGE SCALE)
GYPSUM WALL BOARD (LARGE SCALE)
BATT INSULATION
RIGID INSULATION
SPRAY FOAM INSULATION
MINERAL WOOL INSULATION
PROTECTION BOARD
CARPET (LARGE SCALE)
ACOUSTICAL TILE (LARGE SCALE)
TILE (LARGE SCALE)

ACCESSIBILITY CLEARANCES

60" DIA. ACCESSIBLE TURN AROUND

ACCESSIBLE CLEAR FLOOR SPACE

DOOR ACCESSIBLE CLEAR FLOOR SPACE

WALLS: SEE WALL TYPES SHEET

WALL
WALL WITH ACCOUSTIC INSUL
1-HR RATED WALL
2-HR RATED WALL

GENERAL NOTES

CONSTRUCTION DOCUMENT NOTES:

1. THE GENERAL CONTRACTOR SHALL CAREFULLY REVIEW AND COMPARE THE CONTRACT DOCUMENTS PRIOR TO CONSTRUCTION AND SHALL AT ONCE REPORT TO THE ARCHITECT ANY ERROR, INCONSISTENCY, OR OMISSION THE CONTRACTOR MAY DISCOVER. IF THE CONTRACTOR PERFORMS ANY WORK KNOWING IT TO BE CONTRARY TO APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS WITHOUT PRIOR NOTICE TO THE ARCHITECT, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY, AND SHALL BEAR ALL COSTS ATTRIBUTABLE THERETO FOR CORRECTION OF THE WORK.
2. CONTRACTOR SHALL REVIEW CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS FOR ACCURACY AND CONSTRUCTABILITY.
3. CONTRACTOR SHALL VERIFY ALL CONDITIONS AT THE SITE BEFORE STARTING ANY WORK AND REPORT FOR CLARIFICATION ANY DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
4. THE CONSULTING ENGINEERS' DRAWINGS ARE SUPPLEMENTARY TO THE ARCHITECTURAL DRAWINGS. SHOULD THERE BE A DISCREPANCY BETWEEN THE ARCHITECTURAL DRAWINGS AND THE CONSULTING ENGINEERS' DRAWINGS, SUCH DISCREPANCY IS TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO INSTALLATION OF SAID WORK. ANY WORK INSTALLED IN CONFLICT WITH THE DRAWINGS SHALL BE CORRECTED BY THE CONTRACTOR AT CONTRACTORS EXPENSE.
5. NOTWITHSTANDING ANY OMISSIONS, IT SHALL BE THE SOLE DUTY AND RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE ACTUAL CONSTRUCTION DETAILS AND FABRICATE AND INSTALL SAID DESIGN IN ACCORDANCE WITH ACCEPTED BEST PRACTICES AND PROCEDURES.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION AND COORDINATION WITH OTHER TRADES AND THEIR WORK FOR COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS.
7. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO COORDINATE ALL WORK WITH THE SUBCONTRACTORS. IF A PORTION OF WORK FOR A SPECIFIC TRADE APPEARS IN A SECTION OF THESE DOCUMENTS OTHER THAN THAT WHICH IS SPECIFIC TO THAT TRADE, IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE SAID TRADE OF SUCH WORK.
8. CONTRACTOR TO COORDINATE WITH N.I.C. EQUIPMENT CONTRACTOR(S) BEFORE STARTING WORK ADJACENT TO N.I.C. EQUIPMENT SHOWN ON DRAWINGS. VERIFY THAT ALL ITEMS (SUCH AS BELOW FLOOR PIPING AND ELECTRICAL CONDUITS, INSERTS, PIT AND PLATFORM SIZES AND LOCATIONS, ETC.) HAVE BEEN PROVIDED AND INSTALLED AS REQUIRED FOR OPERATION OF THIS EQUIPMENT. NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE STARTING WORK.
9. VERIFY LOCATION AND SIZE OF OPENINGS, BLOCKING, INSERTS, AND EMBEDDED ITEMS ON APPLICABLE SHOP DRAWINGS BEFORE STARTING WORK.
10. CONTRACTOR SHALL COORDINATE WITH ALL EQUIPMENT MANUFACTURERS FOR EQUIPMENT ROUGH-IN REQUIREMENTS.
11. CONTRACTOR SHALL VERIFY SIZES AND LOCATIONS OF ALL OPENINGS FOR MECHANICAL, ELECTRICAL AND PLUMBING EQUIPMENT WITH RESPECTIVE SUBCONTRACTORS.
12. THE GENERAL CONTRACTOR SHALL COORDINATE CUTOUTS FOR CASEWORK, MILLWORK, OR OTHER EQUIPMENT AS REQUIRED.
13. ALL ASPECTS OF THE WORK AND ITEMS NOT SPECIFICALLY MENTIONED, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED, AND INDICATED IN THE CONTRACTORS BID.
14. THE USE OF THE WORD "PROVIDE" IN CONNECTION WITH ANY ITEM SPECIFIED, IS INTENDED TO MEAN THAT SUCH SHALL BE FURNISHED, INSTALLED COMPLETE, CONNECTED AND TESTED FOR PROPER OPERATION WHERE SO REQUIRED.
15. PROVIDE ALL PERTINENT SHOP DRAWINGS FOR APPROVAL IN ADVANCE OF FABRICATION AND INSTALLATION ALLOWING SUFFICIENT TIME FOR REVIEW AND CORRECTIVE ACTIONS SHOULD IT BE REQUIRED. SUBMIT CUT SHEETS OF ALL FIXTURES, EQUIPMENT AND SAMPLES OF ALL FINISHES SPECIFIED FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION.
16. PRIOR TO SUBMITTAL OF BID, NOTIFY ARCHITECT IN WRITING, IF ANY SPECIFIED MATERIALS OR EQUIPMENT ARE EITHER UNAVAILABLE OR WILL CAUSE A DELAY IN THE CONSTRUCTION COMPLETION SCHEDULE.
17. ARCHITECT IS NOT RESPONSIBLE FOR THE ACCURACY OF INFORMATION CONTAINED IN OWNER SUPPLIED DOCUMENTS.
18. DO NOT SCALE DRAWINGS. IN CASE OF DISCREPANCIES, OBTAIN CLARIFICATION FROM THE ARCHITECT.
19. LARGER SCALE DRAWINGS TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS, CONTRACTOR TO NOTIFY ARCHITECT OF DISCREPANCIES.
20. DETAILS ARE NOT INTENDED TO SHOW METHOD AND MANNER OF ACCOMPLISHING WORK.
21. WHEN +/- SIGN OR V.I.F. ABBREVIATION IS ADJACENT TO A GIVEN DIMENSION, IT INDICATES THAT THE ACTUAL DIMENSION MIGHT VARY DUE TO EXISTING CONDITIONS. VERIFY DIMENSIONS BEFORE PROCEEDING WITH THE WORK; DISCREPANCIES BETWEEN THE NOTED DIMENSIONS AND ACTUAL DIMENSIONS ARE TO BE BROUGHT TO THE ARCHITECT'S ATTENTION FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.

HAZARDOUS MATERIAL NOTES:

22. THE ARCHITECT ASSUMES NO RESPONSIBILITY RELATING TO ANY HAZARDOUS OR TOXIC MATERIALS, INCLUDING ASBESTOS, AND ASSUMES NO RESPONSIBILITY FOR VERIFYING ITS EXISTENCE OR REMOVAL. THE OWNER/TENANT SHALL TAKE ACTION FOR DIRECTLY CONTRACTING WITH A CONSULTANT OR SPECIALIST FOR SUCH, LICENSED BY THE STATE OF CALIFORNIA, SHOULD THOSE SERVICES BE REQUIRED ON THE PROJECT.
23. NO PRODUCTS CONTAINING ASBESTOS OR LEAD IN ANY FORM SHALL BE USED ON ANY PART OF THE WORK.

CONSTRUCTION NOTES:

24. MAKE NECESSARY PROVISIONS TO PROTECT EXISTING CONSTRUCTION AND BUILDING IMPROVEMENTS, CONCRETE SIDEWALKS CURBS, ETC., AND UPON COMPLETION OF WORK REPAIR ANY DAMAGE THAT MAY OCCUR DURING CONSTRUCTION. MAKE NECESSARY PROVISIONS TO INCLUDE TEMPORARY DUST TIGHT PARTITIONS TO PREVENT SPREAD OF DUST AND DIRT TO INHABITED AREAS OF THE EXISTING BUILDINGS AND PROTECT EXISTING FACILITIES ON AND ADJACENT TO THE SITE. VERIFY EQUIPMENT LOCATIONS AND REQUIREMENTS WITH CONSULTANT'S DRAWINGS AND COORDINATE WITH CONTRACT DOCUMENTS. REMOVE AND LEGALLY DISPOSE OF DEBRIS, RUBBISH, ETC., LEAVING AREA CLEAR AND BROOM CLEAN READY FOR WORK. ROUTE FOR RUBBISH DISPOSAL SHALL BE APPROVED BY OWNER.
25. NEITHER THE OWNER NOR THE ARCHITECT SHALL ENFORCE SAFETY MEASURES OR REGULATIONS. CONTRACTOR SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES DURING SHORING AND BRACING, AND SHALL SOLELY BE RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH REGULATIONS, STANDARDS AND LAWS.
26. THE GENERAL CONTRACTOR AND SUBCONTRACTORS PERFORMING WORK ON THE PREMISES SHALL BE RESPONSIBLE FOR MAINTAINING AND SUPERVISING THEIR SAFETY PROGRAM, INCLUDING, BUT NOT LIMITED TO THE ISOLATION OF WORK AREAS AND THE PROMPT REMOVAL OF DEBRIS OR TOOLS WHICH MIGHT ENDANGER VISITORS, PATIENTS OR EMPLOYEES OF THE FACILITY. ALL ROADS AND WALKWAYS SHALL REMAIN UNOBSTRUCTED. WHEN NECESSARY, ALTERNATE ROUTES OF TRAFFIC CONTROL MUST BE MAINTAINED, SHOULD UNSAFE CONDITIONS OCCUR.
27. CONTRACTOR SHALL PROVIDE BARRICADES AROUND ALL NEW AND EXISTING OPENINGS WHERE REQUIRED OR NECESSARY FOR SAFETY.
28. CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY BARRICADES, CLOSURE WALLS, ETC., AS REQUIRED TO PROTECT THE PUBLIC DURING THE PERIOD OF CONSTRUCTION. CONSTRUCTION BARRICADE WALLS TO BE EQUAL TO RATING OF THE WALL REPLACED.
29. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTINUOUS CLEAN UP OF THE SITE OF ALL DEBRIS WHETHER CREATED BY HIS WORK OR THE FAILURE OF HIS SUB-CONTRACTORS TO CLEAN UP AFTER THEIR WORK.
30. THE CONTRACTOR SHALL MAINTAIN EQUIPMENT, MATERIALS AND WORK IN A NEAT, CLEAN, ORDERLY AND SAFE CONDITION AT ALL TIMES
31. CONTRACTOR SHALL KEEP SITE AND BUILDING CLEAN, HAZARD FREE AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH, ETC. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST OR SMUDGES OF ANY NATURE
32. CONTRACTOR SHALL LEAVE WORK / PROJECT AREA IN A SECURE CONDITION DURING PERIOD OF THIS WORK WHEN WORKERS ARE NOT ON THE PROJECT SITE.
33. CONTRACTOR TO SCHEDULE CONSTRUCTION ACTIVITIES TO HAVE THE LEAST IMPACT ON EXISTING BUILDING FUNCTIONS. THIS INCLUDES RESTRICTING TYPICAL DEMOLITION AND CONSTRUCTION ACTIVITIES TO THE HOURS DESIGNATED BY THE OWNER. CERTAIN ACTIVITIES SUCH AS THE USE OF JACKHAMMERS ON EXISTING BUILDINGS WILL NEED TO BE SCHEDULED AT SPECIAL TIMES. CONTACT THE OWNER FOR SCHEDULING OF ALL ACTIVITIES.
34. THE GENERAL CONTRACTOR SHALL MAKE SPECIAL PROVISIONS FOR NOISE AND DUST CONTROL SO AS NOT DISRUPT EXISTING ADJACENT OCCUPIED AREA.
35. THE CONTRACTOR SHALL COOPERATE WITH OWNER AS REQUIRED TO MINIMIZE INTERFERENCE WITH AND DISRUPTION OF OWNER ACTIVITIES.
36. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER REGARDING SITE ACCESS, STAGING AREAS, USE OF SITE, USE OF UTILITY SERVICES AND FACILITIES.
37. CONTRACTOR SHALL MAINTAIN FIRE LANES, PEDESTRIAN AND VEHICULAR ACCESS, FIRE PROTECTIVE DEVICES AND ALARMS DURING CONSTRUCTION.
38. DO NOT STORE MATERIALS ON ANY FLOOR OR ROOF IN EXCESS OF ALLOWABLE LOAD.
39. ALL EXITS MUST BE CONTINUOUS AND TERMINATE IN A PUBLIC WAY OR EXIT COURT LEADING TO A PUBLIC WAY OR AN APPROVED AREA OF REFUGE.
40. WHENEVER THE BUILDING IS OCCUPIED, EXIT SIGNS SHALL BE ILLUMINATED SO THAT THEY ARE CLEARLY VISIBLE.
41. PROVIDE PORTABLE FIRE EXTINGUISHERS AT EACH FIRE EXTINGUISHER CABINET AS SHOWN ON DRAWINGS. ADDITIONAL FIRE EXTINGUISHERS AS REQUIRED BY FIRE DEPARTMENT OR STATE FIRE MARSHALL FIELD INSPECTORS ARE N.I.C.
42. GENERAL CONTRACTOR IS TO MAKE EXACT DETERMINATIONS AS TO THE LOCATION OF ALL EXISTING UTILITIES. DO NOT BEGIN WORK UNTIL THIS DETERMINATION HAS BEEN MADE. CONTRACTOR IS FULLY RESPONSIBLE FOR DAMAGE CAUSE BY FAILURE TO LOCATE AND PROTECT UTILITIES.
43. PROVIDE RE-ROUTING OF EXISTING UTILITIES SERVING OCCUPIED AREAS AS REQUIRED TO MAINTAIN OPERATIONS.
44. SUPPLY TEMPORARY ELECTRICAL POWER TO THE JOB SITE FOR USE BY ALL CONSTRUCTION TRADES PRIOR TO CONNECTION OF THE SPECIFIED ELECTRICAL WORK.
45. NOTIFY OWNER AT LEAST SEVENTY-TWO HOURS PRIOR TO DISRUPTION OF UTILITIES.
46. PATCH SURFACES WHERE AFFECTED BY INSTALLATION OF NEW MECHANICAL, ELECTRICAL AND STRUCTURAL ITEMS. MATCH EXISTING ADJACENT SURFACES AND FINISHES EXCEPT WHERE OTHERWISE NOTED OR INDICATED.
47. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING AS REQUIRED TO COMPLETE THE WORK OR TO MAKE ITS PARTS FIT TOGETHER PROPERLY. PATCHING OF FINISHED WORK ALREADY INSTALLED AS A RESULT BY ERRORS, CHANGES OR OTHER REASONS IS ALSO THE CONTRACTORS RESPONSIBILITY. THE REFINISHED SURFACES SHALL MATCH THE ADJACENT SURFACES FOR COLOR, TEXTURE AND MATERIAL.
48. WHEN INSTALLING DRILLED-IN ANCHORS AND/OR POWER-DRIVEN PINS IN EXISTING NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. WHEN INSTALLING THEM INTO EXISTING PRESTRESSED CONCRETE (PRE OR POST-TENSIONED) LOCATE THE PRESTRESSED TENDON BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. EXERCISE EXTREME CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE TENDONS DURING INSTALLATION. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR AND/OR PIN.
49. PATCH AND REPAIR EXISTING FIRE-RATED ASSEMBLIES DAMAGED DURING DEMOLITION TO MAINTAIN RATED ASSEMBLY.
50. ALL PENETRATIONS THROUGH FIRE RATED WALLS AND SHAFTS SHALL BE EQUIPPED WITH DAMPERS, SEALANTS, OR OTHER APPROPRIATE AND APPROVED U.L. LISTED ASSEMBLIES, MATERIALS AND METHODS SO AS TO MAINTAIN THAT RATING.
51. ALL OPENINGS AT WINDOWS, OPENINGS FOR UTILITY PIPING AND WIRING, ETC., WITHIN THE AREA OF WORK SHALL BE CAULKED AND SEALED.
52. PROVIDE BACKING FOR CASEWORK, TOILET ACCESSORIES, LOCKERS, ELECTRICAL PANELS, AND OTHER ANY WALL MOUNTED ITEMS AS INDICATED IN THE DRAWINGS.
53. PROVIDE ALL NECESSARY BLOCKING, BACKING AND FRAMING FOR LIGHT FIXTURES, ELECTRICAL UNITS, MECHANICAL AND PLUMBING EQUIPMENT AND ALL OTHER ITEMS REQUIRING THE SAME AS INDICATED IN THE DRAWINGS.
54. MECHANICAL, PLUMBING AND ELECTRICAL PLANS INDICATE THE GENERAL DESIGN AND ARRANGEMENT OF DUCTS, PIPES, CONDUIT, WIRING, EQUIPMENT, SYSTEMS, ETC. INFORMATION SHOWN IS DIAGRAMMATIC IN CHARACTER AND DOES NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING AND EXISTING CONDITION. LOCATION OF THESE ITEMS MAY BE ADJUSTED CONDITIONAL UPON THE SATISFACTORY COMPLIANCE WITH ALL OTHER REQUIREMENTS.
55. ALL PIPING AND CONDUITS SHALL BE CONCEALED WITHIN WALLS, UNDERGROUND, ABOVE CEILINGS OR IN ARCHITECT APPROVED UTILITY SPACES IN ALL CASES UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS. EXPOSED ITEMS MUST BE LOCATED IN AREAS APPROVED BY THE ARCHITECT. EXPOSED ITEMS SHALL BE INSTALLED AND FINISHED TO PROVIDE MINIMAL VISUAL IMPACT. ALL EXPOSED ITEMS ARE TO BE PAINTED TO MATCH THE ADJACENT SURFACES UNLESS SCHEDULED FOR AN ACCENT COLOR.
56. EQUIPMENT SUPPORTS, AND ANCHORAGE SHALL BE APPROVED BY THE

STRUCTURAL STEEL AND MISCELLANEOUS METAL

1. ALL PORTIONS OF WORK PERTAINING TO STRUCTURAL STEEL CONSTRUCTION SHALL CONFORM TO TITLE 24, PART 2, CHAPTER 22A.
2. ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A–992, UNLESS NOTED OTHERWISE.
3. ROUND HOLLOW STRUCTURAL SECTION (HSS) SHALL CONFORM TO ASTM A–500, GRADE B.
4. SQUARE AND RECTANGULAR HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO ASTM A–500, GRADE B.
5. CHANNELS, ANGLES AND PLATES SHALL CONFORM TO ASTM A–36, UNLESS NOTED OTHERWISE.
6. ALL BOLTS SHALL CONFORM TO THE FOLLOWING, UNLESS NOTED OTHERWISE:
   - ANCHOR BOLT RODS: ASTM F1554, GRADE 36
   - TYPICAL STEEL CONNECTIONS: ASTM A–325N OR F1852 (NON–SLIP–CRITICAL)
   - MOMENT AND DRAG CONNECTIONS: ASTM A–325SC OR F1852 (SLIP–CRITICAL)
   - MISCELLANEOUS CONNECTIONS NOT NOTED OTHERWISE: ASTM A–307
7. HIGH STRENGTH BOLTS SHALL CONFORM TO THE FOLLOWING, UNLESS NOTED OTHERWISE:
   - JOINT ASSEMBLIES USING HIGH–STRENGTH BOLTS SHALL BE IN ACCORDANCE WITH SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS, BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS.
   - ALL HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A325 OR F1852 TWIST OFF TYPE, NUTS SHALL CONFORM TO ASTM A–563, AND WASHERS SHALL CONFORM TO ASTM F–436.
   - PAINT SHALL NOT BE PERMITTED ON CONTACT SURFACES UNLESS NOTED OTHERWISE. CONTACT SURFACES OF BOLTED PARTS SHALL BE DESCALED AND FREE OF DIRT, OIL, BURRS, PITS, AND OTHER DEFECTS WHICH PREVENT SOLID SEATING OF PARTS.
   - SLIP–CRITICAL JOINT ASSEMBLIES SHALL BE FULLY PRE–TENSIONED BY TURN–OF–NUT TIGHTENING, CALIBRATED WRENCH TIGHTENING, INSTALLATION OF ALTERNATE DESIGN BOLTS OR BY DIRECT TENSION INDICATOR TIGHTENING.
8. ALL BOLTS CONNECTING STEEL FRAMING MEMBERS SHALL BE FULLY PRETENSIONED AND INSPECTED PER AISC. TWIST OFF TYPE TENSION CONTROL BOLTS ARE ACCEPTABLE.
9. STRUCTURAL STEEL IN SFRS LINES SHALL BE CONNECTED IN SLIP–CRITICAL JOINTS COMPLYING WITH AISC 341–16, SECTION D.2.2, CLASS A FAYING SURFACE.
10. ANCHOR BOLTS SHALL BE HEX HEADED. BENT BAR ANCHORS SHALL NOT BE USED.
11. STRUCTURAL STEEL SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
12. ALL WELDING SHALL CONFORM TO THE STRUCTURAL WELDING CODE – STEEL, AWS D1.1 STRUCTURAL WELDING CODE SEISMIC AND SUPPLEMENT AWS D1.8, BY THE AMERICAN WELDING SOCIETY. WELDING RODS SHALL BE E70XX.
13. ALL WELDING IN SFRS LINES SHALL COMPLY WITH AWS D1.8 AND AISC 341–16 SECTION A3.4A.
14. THE FILLER METAL FOR ALL WELDING SHALL HAVE A NOTCH TOUGHNESS OF NOT LESS THAN 20 FT–LBS AT 0 DEGREES F, AS MEASURED BY A STANDARD CHARPY V–NOTCH TEST, ASTM E23, IN ACCORDANCE WITH THE APPLICABLE FILLER METAL SPECIFICATION REFERENCED IN AWS D1.1 AND SEISMIC SUPPLEMENT AWS D1.8.
15. ALL DEMAND CRITICAL WELDS SHALL HAVE A NOTCH TOUGHNESS OF NOT LESS THAN 40 FT–LBS AT 70 DEGREES F, AS MEASURED BY STANDARD CHARPY V–NOTCH TEST, ASTM E23, IN ACCORDANCE WITH THE APPLICABLE FILLER METAL SPECIFICATION REFERENCED IN AWS D1.1 AND SEISMIC SUPPLEMENT AWS D1.8.
16. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS.
17. ALL WELDS NOT SPECIFIED SHALL BE CONTINUOUS FILLET WELDS. SIZE OF WELDS SHALL BE BASED ON AWS D1.1 FOR THICKER PART JOINED.
18. BOLT HOLES SHALL BE 1/16" LARGER IN DIAMETER THAN NOMINAL SIZE OF BOLT USED, UNLESS NOTED OTHERWISE. BOLT HOLES AT COLUMN BASEPLATES MAY BE 3/16" MAXIMUM LARGER IN DIAMETER THAN NOMINAL SIZE OF ANCHOR BOLT USED, UNLESS NOTED OTHERWISE.
19. DO NOT PAINT STRUCTURAL STEEL SURFACES THAT ARE TO RECEIVE SPRAY–APPLIED FIREPROOFING OR TO BE ENCASED IN CONCRETE OR MASONRY.
20. ALL STRUCTURAL STEEL AND MISCELLANEOUS METAL ITEMS, INCLUDING CONNECTORS, EXPOSED TO THE WEATHER SHALL BE HOT–DIPPED GALVANIZED, AFTER FABRICATION.
21. STRUCTURAL STEEL SHALL BE DELIVERED TO THE JOB SITE FREE OF EXCESSIVE RUST, MILL SCALE, GREASE, ETC.
22. OPENINGS SHALL NOT BE PLACED IN STEEL MEMBERS UNLESS SPECIFICALLY DETAILED.
23. THE CONTRACTOR SHALL IDENTIFY THE PROTECTED ZONES USING ANY SUITABLE NON–DESTRUCTIVE MEANS (SUCH AS YELLOW PAINT).
24. ONCE THE STEEL DECKING IS IN PLACE, THE CONTRACTOR SHALL USE ANY SUITABLE NON–DESTRUCTIVE MEANS TO IDENTIFY THE PROTECTED ZONES PRIOR TO THE INSTALLATION OF SHEAR STUDS, DECK ATTACHMENTS.
25. AFTER SPRAYED ON FIRE–RESISTIVE MATERIAL HAS BEEN APPLIED, THE CONTRACTOR SHALL USE ANY SUITABLE NON–DESTRUCTIVE MEANS TO IDENTIFY THE PROTECTED ZONES FOR OTHER DISCIPLINES TO PRECLUDE UNAUTHORIZED ATTACHMENTS.

POST-INSTALLED ANCHORS

1. ACCEPTABLE EQUIVALENT MANUFACTURERS OF POST–INSTALLED EXPANSION ANCHORS AND SCREW ANCHORS SHALL BE HILTI INC., SIMPSON STRONG–TIE COMPANY INC., OR DEWALT, UNO.
2. TESTS FOR POST–INSTALLED ANCHORS IN HARDENED CONCRETE SHALL CONFORM TO TITLE 24, PART 2, CHAPTER 19A, SECTION 1910A.5.
3. POST–INSTALLED ANCHOR INSTALLATION SHALL BE INSPECTED BY A SPECIAL INSPECTOR SPECIFICALLY APPROVED BY THE ENFORCEMENT AGENCY FOR THAT PURPOSE.
4. POST–INSTALLED ANCHOR TESTING SHALL BE DONE IN THE PRESENCE OF THE PROJECT INSPECTOR.
5. TEST QUANTITY OF POST–INSTALLED ANCHORS AS NOTED BELOW:

APPLICATION	QUANTITY
SILL PLATES	10% OF BOLTS
STRUCTURAL	100% OF BOLTS
NON–STRUCTURAL (EQUIP. ANCHORAGE, ETC.)	50% OF BOLTS

6. IF ANY ANCHOR FAILS TESTING, TEST ALL ANCHORS OF THE SAME CATEGORY NOT PREVIOUSLY TESTED UNTIL TWENTY (20) CONSECUTIVE ANCHORS PASS, THEN RESUME INITIAL TESTING FREQUENCY.
7. TORQUE TESTING SHALL BE APPLIED BY CALIBRATED WRENCH. TENSION TESTING (WHERE INDICATED) SHALL BE APPLIED BY HYDRAULIC JACK OR CALIBRATED SPRING LOADING DEVICE.
8. THE FOLLOWING CRITERIA SHALL APPLY FOR THE ACCEPTANCE OF INSTALLED POST–INSTALLED ANCHORS:
   A. TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE MUST BE ATTAINED WITHIN ONE–HALF (½) TURN OF THE NUT. SLEEVE ANCHORS ⅜ INCH DIAMETER OR LESS MUST ATTAIN THE SPECIFIED TEST TORQUE WITHIN ONE–QUARTER (¼) TURN OF THE NUT, AND THREADED ANCHORS MUST ATTAIN THE SPECIFIED TEST TORQUE WITHIN ONE–QUARTER (¼) TURN OF THE SCREW AFTER INITIAL SEATING OF THE SCREW HEAD.
   B. HYDRAULIC RAM METHOD: (FOR TENSION TESTING WHERE INDICATED) ANCHORS SHALL MAINTAIN THE TENSION TEST LOAD FOR A MINIMUM OF 15 SECONDS AND SHALL EXHIBIT NO DISCERNABLE MOVEMENT DURING THE TENSION TEST. (AN EXAMPLE OF DISCERNABLE MOVEMENT WOULD BE LOOSENING OF THE WASHER UNDER THE NUT).
8. TEST LOADS (1)(2)(3)

TORQUE TEST VALUES – EXPANSION ANCHORS NORMAL WEIGHT CONCRETE		
ANCHOR DIAMETER (INCH)	ANCHOR DEPTH (INCHES)	TORQUE (FT–LBF)
⅜	2	25
½	2	40
	3¼	40
⅝	3⅛	60
	4	60
¾	3¾	110
	4¾	110

(1) TEST VALUES ARE BASED ON KWIK BOLT TZ (KB–TZ) EXPANSION ANCHORS BY HILTI, INC. (ICC EVALUATION REPORT NUMBER ESR–1917).

(2) TEST VALUES ARE BASED ON CARBON STEEL ANCHORS.

(3) VERIFY TORQUE VALUES WITH MANUFACTURER FOR SIMPSON STRONG–BOLT 2 (ICC ESR–3037) OR DEWALT POWER–STUD+SD2 (ICC ESR–2502)

TORQUE TEST VALUES – EXPANSION ANCHORS GROUT–FILLED CMU		
ANCHOR DIAMETER (INCH)	ANCHOR DEPTH (INCHES)	TORQUE (FT–LBF)
⅜	2	15
½	2	25
	3¼	25
⅝	3⅛	35
	4	35
¾	3¾	70
	4¾	70

(1) TEST VALUES ARE BASED ON KWIK BOLT TZ (KB–TZ) EXPANSION ANCHORS BY HILTI, INC. (ICC EVALUATION REPORT NUMBER ESR–3785).

(2) TEST VALUES ARE BASED ON CARBON STEEL ANCHORS.

(3) VERIFY TORQUE VALUES WITH MANUFACTURER FOR SIMPSON WEDGE–ALL (ICC ESR–1396) OR DEWALT POWER–STUD+SD1 (ICC ESR–2966)

TORQUE TEST VALUES – EXPANSION ANCHORS STRUCTURAL LIGHT WEIGHT CONCRETE OVER METAL DECK		
ANCHOR DIAMETER (INCH)	ANCHOR DEPTH (INCHES)	TORQUE (FT–LBF)
⅜	2	25
½	2	40
	3¼	40
⅝	3⅛	60
	4	60

(1) TEST VALUES ARE BASED ON KWIK BOLT TZ (KB–TZ) EXPANSION ANCHORS BY HILTI, INC. (ICC EVALUATION REPORT NUMBER ESR–1917).

(2) TEST VALUES ARE BASED ON CARBON STEEL ANCHORS.

(3) VERIFY TORQUE VALUES WITH MANUFACTURER FOR SIMPSON STRONG–BOLT 2
(4) (ICC ESR–3037) OR DEWALT POWER–STUD+SD2 (ICC ESR–2502)

TORQUE TEST VALUES – SCREW ANCHORS NORMAL WEIGHT CONCRETE		
ANCHOR DIAMETER (INCH)	ANCHOR DEPTH (INCHES)	TORQUE (FT–LBF)
⅜	2¾	50
	3½	50
½	3¾	65
	4½	65
⅝	4½	100
	6	100
¾	6	150
	6¾	150

(1) TEST VALUES ARE BASED ON TITEN HD SCREW ANCHORS BY SIMPSON STRONG–TIE, (ICC EVALUATION REPORT NUMBER ESR–2713).

(3) VERIFY TORQUE VALUES WITH MANUFACTURER FOR HILTI KWIK HUS–EZ SCREW ANCHORS (ICC ESR–3027) OR DEWALT SCREW–BOLT+SCREW ANCHOR (ICC ESR–3889)

EXISTING UNDERGROUND UTILITIES

1. THE ARCHITECT AND ENGINEERS ARE NOT RESPONSIBLE FOR THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES WHETHER OR NOT SHOWN ON THE DRAWINGS. THE LOCATION OF ANY EXISTING UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS, IF ANY, IS APPROXIMATE. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN EXCAVATING AND TRENCHING ON THE SITE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT SHOULD ANY SUCH UNIDENTIFIED CONDITIONS BE DISCOVERED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES WHICH MAY RESULT FROM HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ALL EXISTING UNDERGROUND UTILITIES.

CONCRETE

1. ALL PORTIONS OF WORK PERTAINING TO CONCRETE CONSTRUCTION SHALL CONFORM TO TITLE 24, PART 2, CHAPTER 19A.
2. CONCRETE MIXES SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY. MIX DESIGNS SHALL CONFORM TO ACI 318, SEC. 26.4, CBC SEC.1903A AND 1904A. MIX DESIGNS SHALL INCORPORATE THE FOLLOWING CRITERIA:
   - MINIMUM OF 5 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE. MAXIMUM OF 7 SACKS OF CEMENT PER YARD OF CONCRETE.
   - MAXIMUM WATER/CEMENT RATIO (BY WEIGHT) OF CONCRETE IN CONTACT WITH SOIL SHALL BE 0.45.
   - MAXIMUM SLUMP SHALL NOT EXCEED 3" ± 1" FOR FOOTINGS, SLABS ON GRADE, AND MASS CONCRETE; AND 4" ± 1" FOR OTHER CONCRETE. SLUMP LIMITATIONS NOTED SHALL APPLY TO CONCRETE MIX PRIOR TO THE ADDITION OF ANY WATER–REDUCING ADMIXTURES OR SUPER–PLASTICIZERS. MAXIMUM SLUMP MAY BE INCREASED TO 5 +/– 1" FOR MIX INCLUDING WATER–REDUCING ADMIXTURES OR SUPER–PLASTICIZERS.
   - CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CHLORIDE(S) SHALL NOT BE USED.
3. SCHEDULE OF STRUCTURAL CONCRETE 28 DAY MINIMUM STRENGTHS AND TYPES:
   - FOOTINGS, CAISSONS, GRADE BEAMS — 145 PCF, f'c = 4500 PSI
   - SLABS ON GRADE — 145 PCF, f'c = 4500 PSI
   - SLABS ON METAL DECKING — 110 PCF, f'c = 3000 PSI (W/C=0.50)
   - ELSEWHERE UNLESS NOTED — 145 PCF, f'c = 4000 PSI (W/C=0.50)
4. PORTLAND CEMENT SHALL CONFORM TO ASTM C–150, TYPE II. CEMENT USED FOR CONCRETE IN CONTACT WITH SOIL SHALL CONFORM TO ASTM C–150, TYPE V.
5. AGGREGATE FOR NORMALWEIGHT CONCRETE SHALL CONFORM TO ASTM C–33. COMBINED AGGREGATE GRADATION OF ⅜" MAXIMUM (PEA GRAVEL) SHALL NOT BE USED FOR NORMAL WEIGHT (ONLY PERMITTED AT LIGHTWEIGHT SLABS ON METAL DECK)
6. AGGREGATE FOR LIGHTWEIGHT CONCRETE SHALL CONFORM TO ASTM C–330. THE COURSE AGGREGATE SIZE SHALL NOT EXCEED ¾" AND THE ABSOLUTE VOLUME OF COARSE AGGREGATE SHALL NOT EXCEED 9.0 CUBIC FEET PER CUBIC YARD OF CONCRETE.
7. READY MIXED CONCRETE SHALL CONFORM TO ASTM C–94.
8. PLACEMENT OF CONCRETE SHALL CONFORM TO ACI 304. CLEAN AND ROUGHEN TO ¼" AMPLITUDE ALL CONCRETE SURFACES AGAINST WHICH CONCRETE IS TO BE PLACED.
9. ALL REINFORCING BARS, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE SECURED IN POSITION PRIOR TO PLACING CONCRETE.
10. PROVIDE SLEEVES FOR PLUMBING AND ELECTRICAL OPENINGS IN CONCRETE BEFORE PLACING. DO NOT CUT ANY REINFORCING WHICH MAY CONFLICT. CORING IN CONCRETE IS NOT PERMITTED EXCEPT AS SHOWN. NOTIFY THE STRUCTURAL ENGINEER, IN ADVANCE, OF CONDITIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
11. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:

    CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ..... 3"

    CONCRETE EXPOSED TO EARTH OR WEATHER:
    #6 THROUGH #18 BARS ..... 2"
    #5 BARS, W31 OR D31 WIRE, AND SMALLER ..... 1½"

    CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
    SLABS, WALLS, JOISTS:
    #14 AND #18 BARS ..... 1½"
    #11 BAR AND SMALLER ..... ¾"
    BEAMS, COLUMNS:
    PRIMARY REINFORCEMENT STIRRUPS, TIES, SPIRALS ..... 1½"
12. CONDUITS OR PIPES SHALL NOT BE EMBEDDED WITHIN A SLAB, WALL, BEAM, OR COLUMN, UNLESS SPECIFICALLY DETAILED.
13. CONDUITS OR PIPES SHALL NOT BE EMBEDDED WITHIN CONCRETE FILL OVER METAL DECK.
14. DRYPACK WHERE NOTED ON DRAWINGS SHALL CONSIST OF 1 PART PORTLAND CEMENT AND 2½ PARTS OF FINE AGGREGATE CONFORMING TO ASTM C–33 WITH ENOUGH WATER TO FORM A BALL WHEN SQUEEZED IN THE HAND. THE SPACE BETWEEN TWO SURFACES REQUIRING DRYPACK SHALL BE PACKED WITH THE DRYPACK MATERIAL BY TAMPING OR RAMMING WITH A BAR OR ROD UNTIL THE VOIDS ARE COMPLETELY FILLED.
15. NON–SHRINK GROUT WHERE NOTED ON DRAWINGS SHALL BE A PRE–MIXED COMPOUND CONSISTING OF NON–METALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING ADDITIVES, CAPABLE OF DEVELOPING A MINIMUM COMPRESSIVE STRENGTH OF 8,000 PSI AT 28 DAYS. WHERE APPLICATION THICKNESS EXCEEDS MANUFACTURER'S LIMITATIONS, EXTEND WITH ⅜" (GRAVEL) AGGREGATE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
16. IF APPROVED BY DIVISION OF THE STATE ARCHITECT, BATCH PLANT INSPECTION MAY BE REDUCED TO PERIODIC SUBJECT TO THE REQUIREMENTS OF CBC SEC. 1705A.3.3.1.

REINFORCING STEEL

1. ALL PORTIONS OF WORK PERTAINING TO FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL CONFORM TO TITLE 24, PART 2, CHAPTER 19A.
2. REINFORCING BARS SHALL CONFORM TO ASTM A–615 GRADE 60, EXCEPT #3 BARS MAY BE GRADE 40. REINFORCING BARS THAT ARE TO BE WELDED SHALL CONFORM TO ASTM A–706, GRADE 60.
3. WELDING OF REINFORCEMENT SHALL BE WITH LOW HYDROGEN ELECTRODES AND SHALL CONFORM TO STRUCTURAL WELDING CODE – REINFORCING STEEL, AWS D1.4, BY THE AMERICAN WELDING SOCIETY AND CBC SEC. 1903A.8. WELDING RODS USED FOR THE WELDING OF REINFORCING SHALL BE E80XX. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS.
4. ALL REINFORCING BAR BENDS SHALL BE MADE COLD. ALL #5 OR LARGER REINFORCING BARS SHALL NOT BE RE–BENT.
5. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A–1064, AND SHALL BE LAPPED 1½ SPACES AND 12" MINIMUM.
6. DOWELS BETWEEN FOOTINGS AND WALLS OR COLUMNS SHALL BE THE SAME GRADE, SIZE, SPACING AND NUMBER AS THE VERTICAL REINFORCEMENT, RESPECTIVELY.
7. REINFORCING SPLICES SHALL BE MADE AS INDICATED ON THE DRAWINGS.
8. ALL VERTICAL REINFORCING SHALL BE CONTINUOUS BETWEEN TWO DIAPHRAGM LEVELS, UNLESS NOTED OTHERWISE.

CONSULTANT:

GENERAL NOTES

COLUMBUS WELDING PROGRAM

DOWNEY UNIFIED SCHOOL DISTRICT
12320 WOODRUFF AVENUE
DOWNEY, CA 90241

SEAL:
LICENSED ARCHITECT
SCOTT N. GRIFFITH
NO. C24897
REN. 7-31-23
STATE OF CALIFORNIA

sgh ARCHITECTS

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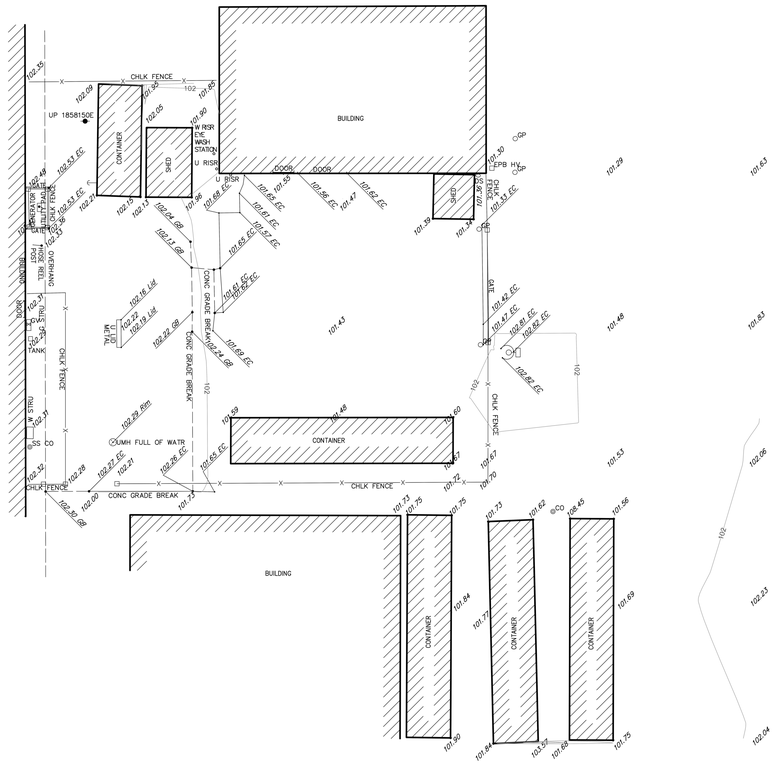
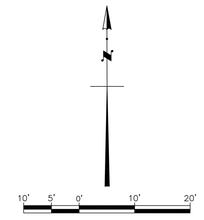
PROJECT NUMBER: 21-59101-00
PROJECT STATUS: CD
PROJECT ISSUED: 08/26/21
REVISION: DATE: DESCRIPTION:
1 9/9/21 ISSUED FOR BID

0.2

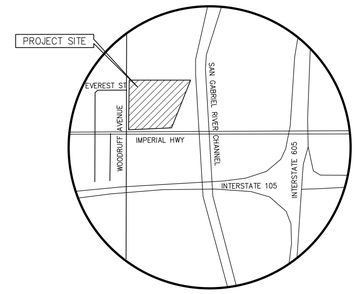
9/8/2021 3:20:21 PM

Bid Set - NOT FOR CONSTRUCTION





GRAPHIC SCALE
SCALE: 1" = 10'



VICINITY MAP
NOT TO SCALE

LEGEND

- PROPERTY / BOUNDARY LINE
- STREET R/W LINE
- CURB LINE (FROM 1"=20' ON TO 1"=200')
- CURB LINE (1"=10', 1"=8', 1"=16')
- CENTER LINE
- FLOW LINE
- EASEMENT LINE (W=WIDTH)
- CONTOUR LINE (APPROXIMATE)
- BUILDING FOOT PRINT LINE
- OVERHANG LINE
- FENCE LINE
- GUARD RAIL
- RETAINING WALL
- CONC. BLOCK WALL
- EDGE OF ASPHALT PAVING
- CONCRETE PAVING
- AD — AREA DRAIN
- CB — CATCH BASIN W/ACCESS HOLE
- MH — MANHOLE (SEWER, STORM DRAIN, POWER, TELEPHONE)
- PP/TP — POWER POLE (P.P.) / TELEPHONE POLE (T.P.)
- S — SIGN (ALL KINDS)
- YL — YARD LIGHT
- FH — FIRE HYDRANT
- DS — DOWNSPOUT
- GV/WV — GAS / WATER VALVE
- EPB/SLPB/TSPB/UPB — ELEC./STREET LIGHT/TRAFFIC/UNKNOWN PULL BOX
- OT — TREE IN WELL W/TRUNK DIAMETER
- PL — PLANTER
- GP — GUARD POST
- APPR. — APPROACH (DRIVEWAY)
- BFP — BACKFLOW PREVENTER
- CO — CLEAN OUT
- CHLK — CHAINLINK (FENCE/GATE)
- BENCHMARK
- DRIP LINE
- DF — DRINKING FOUNTAIN
- 123.4 — TOPOGRAPHIC SPOT ELEVATION, NO LEADER
- BW — BACK OF WALK ELEVATION
- EC — EDGE OF CONCRETE ELEVATION
- EG — EDGE OF GUTTER ELEVATION
- EP — EDGE OF PAVEMENT ELEVATION
- FL — FLOW LINE ELEVATION
- TC — TOP OF CURB ELEVATION
- TG — TOP OF GRATE ELEVATION
- TW — TOP OF WALL ELEVATION
- RIM — MANHOLE RIM ELEVATION
- INV — MANHOLE INVERT ELEVATION
- CD — CURB DRAIN

SURVEYOR'S NOTES

THIS SURVEY HAS BEEN PREPARED FOR DESIGN PURPOSES

1. BEFORE USING THIS MAP FOR DESIGN OR CONSTRUCTION PURPOSES, ALL EASEMENTS OF RECORD AND SETBACK LINES DEFINED IN COVENANTS, CONDITIONS AND RESTRICTIONS OF RECORD AFFECTING THIS PROPERTY SHOULD BE PLOTTED ON THIS MAP FROM A CURRENT TITLE REPORT. IF NO TITLE REPORT WAS FURNISHED, OUR CLIENT IS URGED TO FURNISH A CURRENT TITLE REPORT SO THAT THESE EASEMENT AND SETBACK LINES OF RECORD CAN BE PLOTTED ON THIS MAP.
2. THIS MAP SHOULD BE EXPANDED TO MEET ALTA REQUIREMENTS IF FINANCING IS TO BE OBTAINED FOR THE PROJECT, REQUIRING AN EXTENDED COVERAGE POLICY OF TITLE INSURANCE.
3. THIS SURVEY DOES NOT INCLUDE EASEMENTS EXCEPT THOSE SPECIFICALLY DELINEATED HEREON.
4. IF UNDERGROUND PUBLIC UTILITIES AND OTHER SUBSTRUCTURES, ZONES, SET BACK AND STREET WIDENING DATA ARE SHOWN HEREON, IT IS FOR INFORMATION ONLY, HAVING BEEN OBTAINED FROM A GENERAL REQUEST AT THE LOCAL AGENCY'S PUBLIC COUNTER AND/OR OTHER SOURCES NOT CONNECTED WITH THIS COMPANY. NO REPRESENTATION IS MADE AS TO THE ACCURACY, CURRENCY OR COMPLETENESS OF SAID INFORMATION AND ANY USERS OF SAID INFORMATION IS URGED TO CONTACT THE UTILITY OR LOCAL AGENCY DIRECTLY.

BASIS OF BEARINGS

THE CENTERLINE OF WOODRUFF AVENUE BETWEEN IMPERIAL HIGHWAY AND EVEREST STREET, DEPICTED AS N 00°04'20" W ON RECORD OF SURVEY IN BOOK 132 PAGE 12 OF OFFICIAL RECORDS OF LOS ANGELES COUNTY WAS SELECTED AS THE BASIS OF BEARINGS FOR THIS SURVEY

FOR REFERENCE ONLY

SEAL: PROFESSIONAL LAND SURVEYOR — DANIEL L. RAHE — No. 9425 — STATE OF CALIFORNIA — 8/30/21

DESIGNED	DRAFTED	CHECKED
DLR	DLR	DLR

REV	DATE	DESCRIPTION	BY	APP'D

BENCHMARK: EY9717
LOS ANGELES COUNTY PUBLIC WORKS SURVEY SECTION
RDBM TAG IN W CB 1FT N/O BCR
AT NW COR WOODRUFF AVE & EVEREST ST

ELEV. 100.077 ADJUSTMENT 2013

PATH/PLOT DATE:
Aug. 27, 2021 - 17:39:14 DWG Name: W:\1HUN100101\SURVEY\DESIGN\SHEETS\PL-0501.dwg Updated By: cinthya-garcia

PSOMAS
555 South Flower Street, Suite 4300
Los Angeles, CA 90071
(213) 223-1400 (213) 223-1444 fax
www.psomas.com

LIMITED DESIGN SURVEY FOR:

COLUMBUS HIGH SCHOOL
DOWNEY UNIFIED SCHOOL DISTRICT

IN THE CITY OF DOWNEY COUNTY OF LOS ANGELES STATE OF CALIFORNIA

DATE: AUGUST 30, 2020
SCALE: 1" = 10'
PROJECT NUMBER: 1DOW030100
SHEET: 1 OF 1

CONSULTANT:

SURVEY (FOR REFERENCE ONLY)
COLUMBUS WELDING PROGRAM
DOWNEY UNIFIED SCHOOL DISTRICT
12320 WOODRUFF AVENUE
DOWNEY, CA 90241

SEALS:
LICENSED ARCHITECT — SCOTT N. GRIFFITH — NO. C24897 — REN. 7-31-23 — STATE OF CALIFORNIA

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PROJECT NUMBER: 21-59101-00
PROJECT STATUS: CD
PROJECT ISSUED: 09/07/21
REVISION DATE: DESCRIPTION:

0.3

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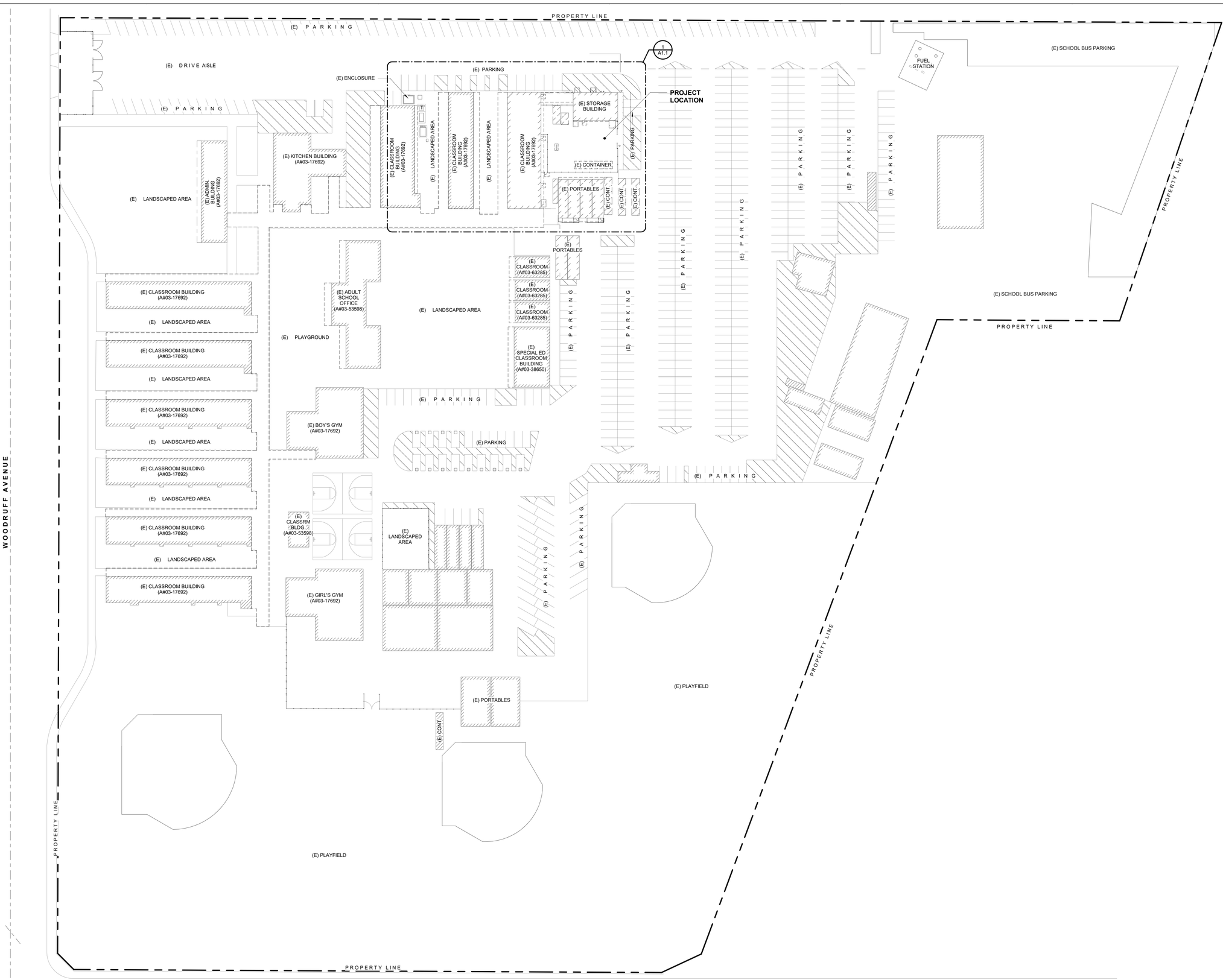

1 EXISTING SITE PLAN
1" = 40'-0"

CONSULTANT:

OVERALL EXISTING SITE PLAN

COLUMBUS WELDING PROGRAM

DOWNEY UNIFIED SCHOOL DISTRICT
12320 WOODRUFF AVENUE
DOWNEY, CA 90241

SEALS:

LICENSED ARCHITECT
SCOTT N. GRIFFITH
NO. C24897
REN. 7-31-23
STATE OF CALIFORNIA

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PROJECT NUMBER: 21-59101-00
PROJECT STATUS: CD
PROJECT ISSUED: 06/14/21
REVISION: DATE: DESCRIPTION:
A. 9/9/21 **ISSUED FOR BID**

A1.0

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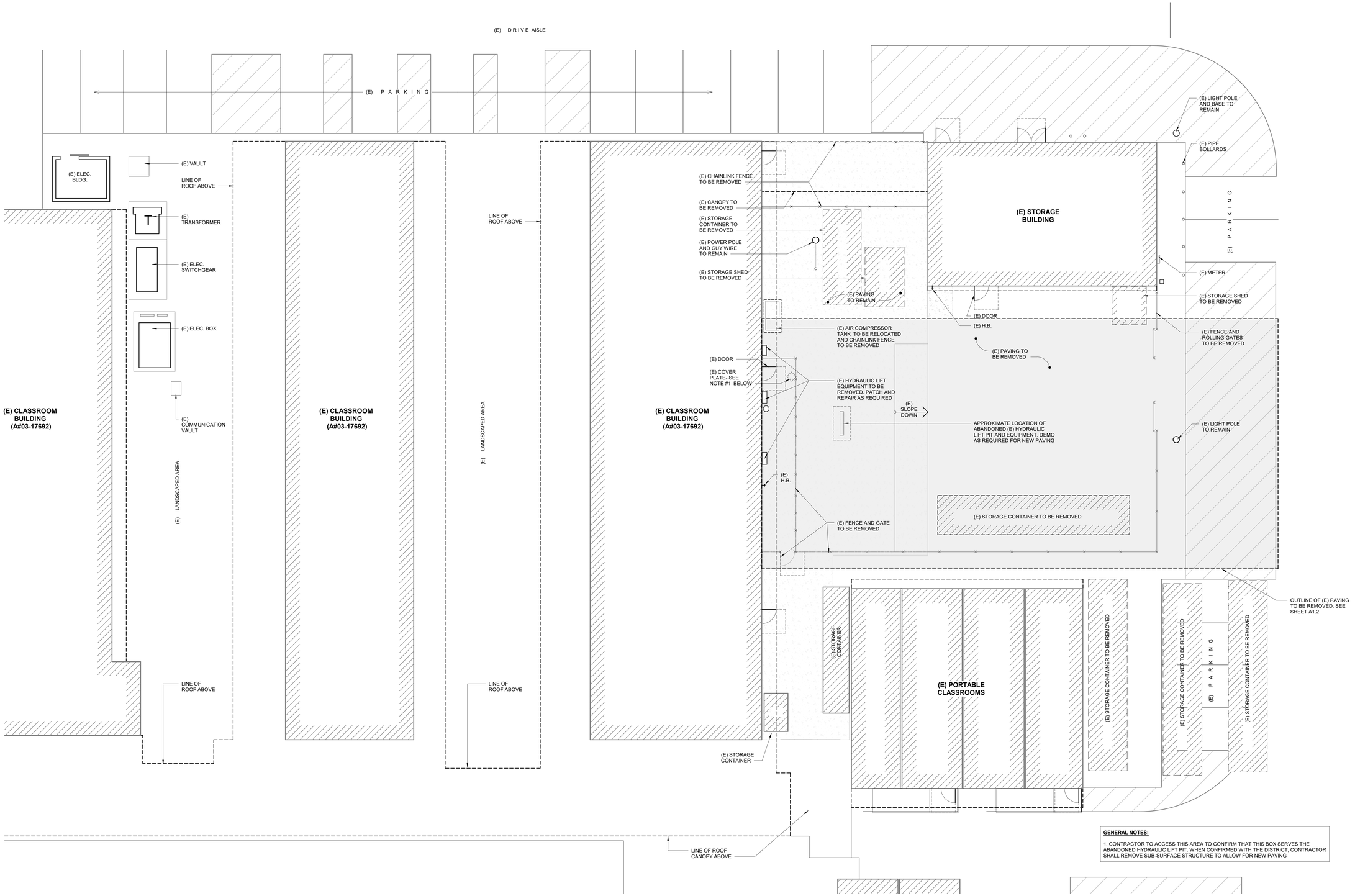
9/8/2021 3:20:23 PM



GENERAL NOTES:

1. CONTRACTOR TO ACCESS THIS AREA TO CONFIRM THAT THIS BOX SERVES THE ABANDONED HYDRAULIC LIFT PIT. WHEN CONFIRMED WITH THE DISTRICT, CONTRACTOR SHALL REMOVE SUB-SURFACE STRUCTURE TO ALLOW FOR NEW PAVING

1 / A1.1 EXISTING SITE DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

CONSULTANT:

EXISTING / DEMOLITION PLAN

COLUMBUS WELDING PROGRAM

DOWNEY UNIFIED SCHOOL DISTRICT
12320 WOODRUFF AVENUE
DOWNEY, CA 90241

SEALS:

LICENSED ARCHITECT
SCOTT N. GRIFFITH
NO. C24897
REN. 7-31-23
STATE OF CALIFORNIA

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PROJECT NUMBER: 21-59101-00
PROJECT STATUS: CD
PROJECT ISSUED: 08/08/21
REVISION: DATE: DESCRIPTION:
A 9/9/21 **ISSUED FOR BID**

A1.1

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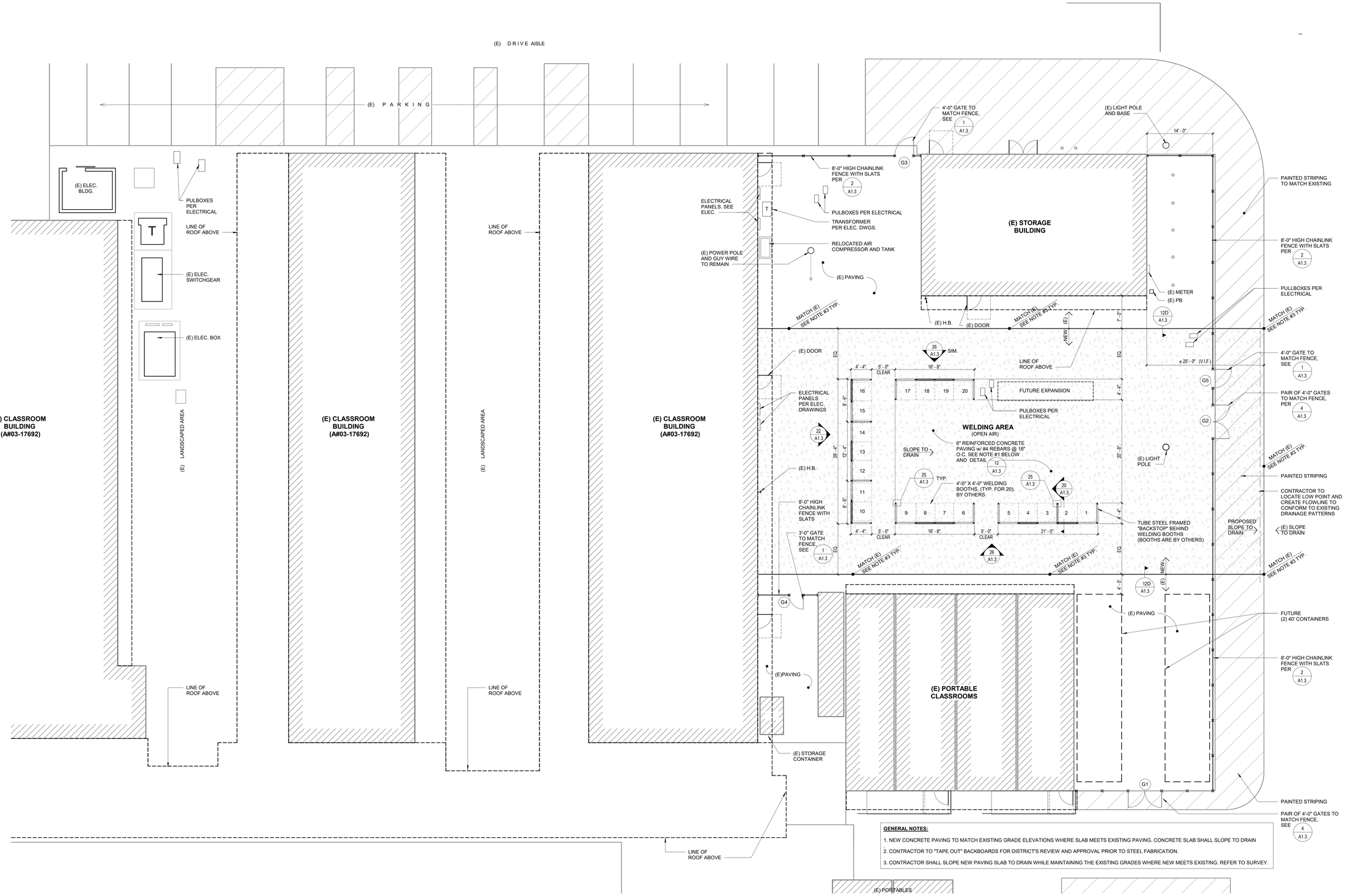

GENERAL NOTES:

1. NEW CONCRETE PAVING TO MATCH EXISTING GRADE ELEVATIONS WHERE SLAB MEETS EXISTING PAVING. CONCRETE SLAB SHALL SLOPE TO DRAIN
2. CONTRACTOR TO "TAPE OUT" BACKBOARDS FOR DISTRICT'S REVIEW AND APPROVAL PRIOR TO STEEL FABRICATION.
3. CONTRACTOR SHALL SLOPE NEW PAVING SLAB TO DRAIN WHILE MAINTAINING THE EXISTING GRADES WHERE NEW MEETS EXISTING. REFER TO SURVEY.

NORTH

1 A1.2 PROPOSED FLOOR PLAN
SCALE: 1/8" = 1'-0"

9/9/2021 4:06:32 PM

CONSULTANT:

PROPOSED FLOOR PLAN
COLUMBUS WELDING PROGRAM
DOWNEY UNIFIED SCHOOL DISTRICT
12320 WOODRUFF AVENUE
DOWNEY, CA 90241

SEALS:

LICENSED ARCHITECT
SCOTT N. GRIFFITH
NO. C-24897
REN. 7-31-23
STATE OF CALIFORNIA

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PROJECT NUMBER: 21-59101-00
PROJECT STATUS: CD
PROJECT ISSUED: 06/14/21
REVISION: DATE: DESCRIPTION:
1 9/9/21 **ISSUED FOR BID**

A1.2

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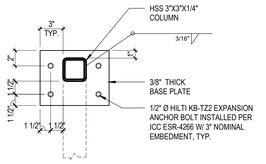
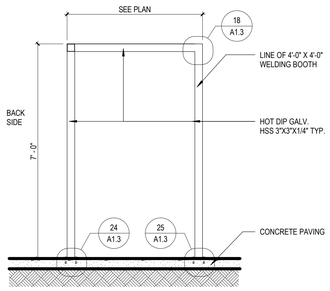
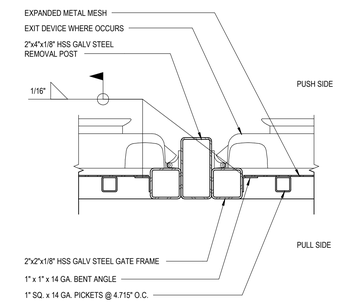


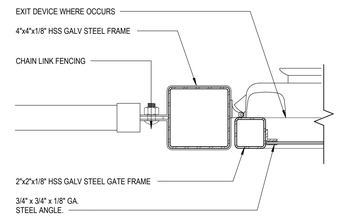
25 A1.3 BACKSTOP BRACE BASE PLATE DETAIL
SCALE: 1 1/2" = 1'-0"



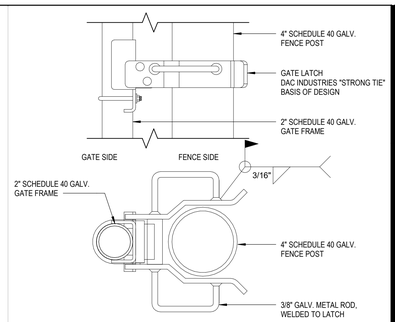
20 A1.3 BOOTH BACKSTOP FRAME - INTERMEDIATE BRACE
SCALE: 1/2" = 1'-0"



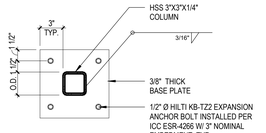
15 A1.3 GATE FRAME REMOVABLE POST
SCALE: 3" = 1'-0"



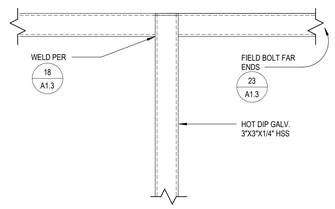
10 A1.3 GATE FRAME AT EXIT DEVICE - CHAINLINK
SCALE: 3" = 1'-0"



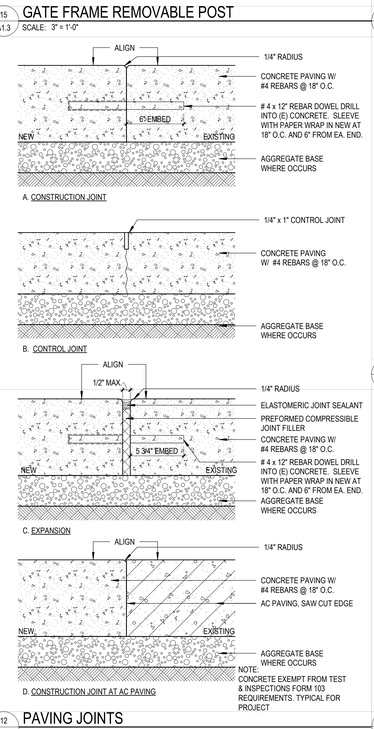
5 A1.3 GATE LATCH
SCALE: 3" = 1'-0"



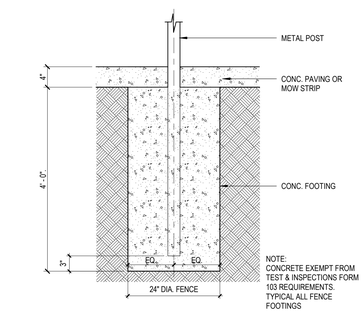
24 A1.3 BACKSTOP BASE PLATE DETAIL
SCALE: 1 1/2" = 1'-0"



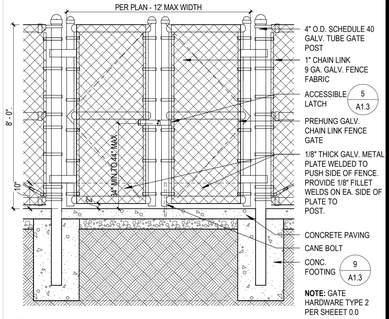
19 A1.3 BACKSTOP "T" FRAME
SCALE: 1 1/2" = 1'-0"



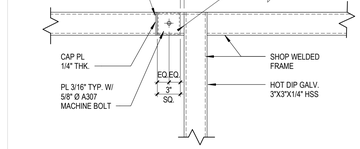
12 A1.3 PAVING JOINTS
SCALE: 3" = 1'-0"



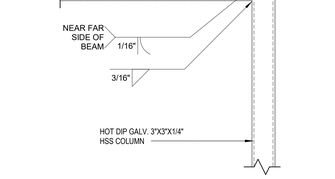
9 A1.3 CONCRETE FOOTING
SCALE: 1" = 1'-0"



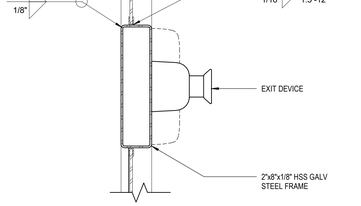
4 A1.3 CHAIN LINK FENCE DOUBLE GATE W/ LATCH
SCALE: 1/2" = 1'-0"



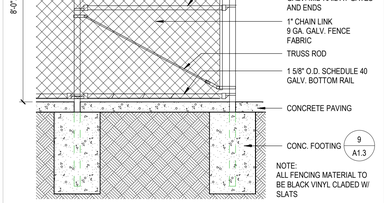
23 A1.3 BACKSTOP FRAME CONNECTION
SCALE: 1 1/2" = 1'-0"



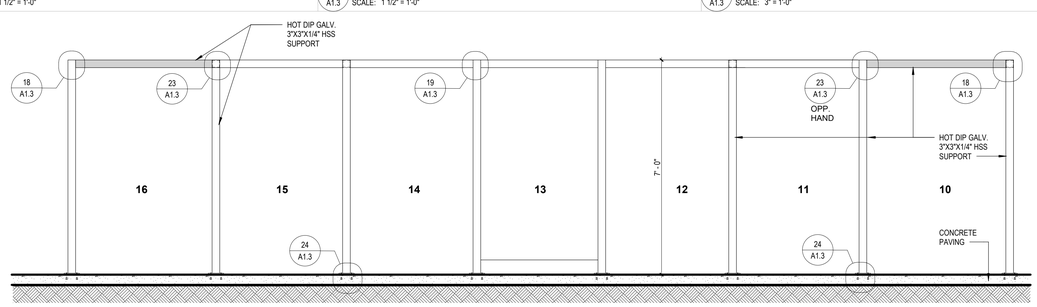
18 A1.3 BACKSTOP CONN. @ COL. / BEAM END
SCALE: 1 1/2" = 1'-0"



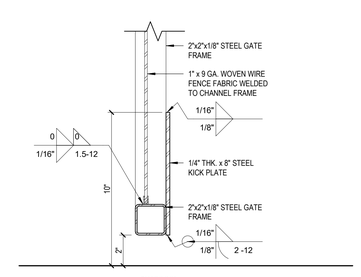
8 A1.3 GATE - EXIT DEVICE
SCALE: 3" = 1'-0"



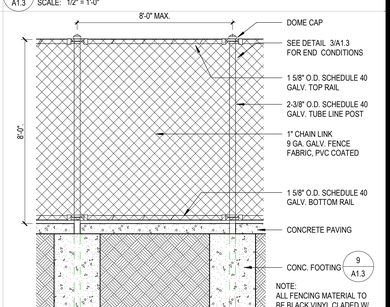
3 A1.3 CHAIN LINK FENCE END
SCALE: 1/2" = 1'-0"



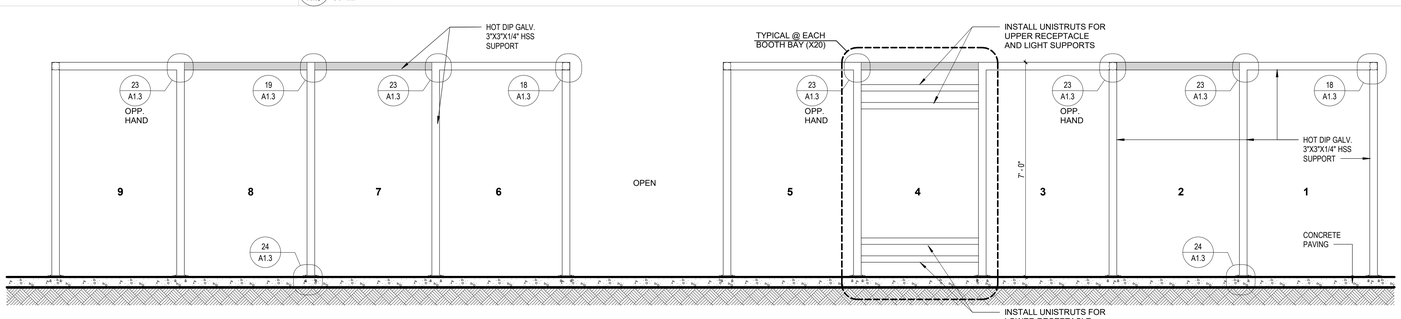
22 A1.3 WELDING BOOTH BACKSTOP FRAMING WEST ELEVATION
SCALE: 1/2" = 1'-0"



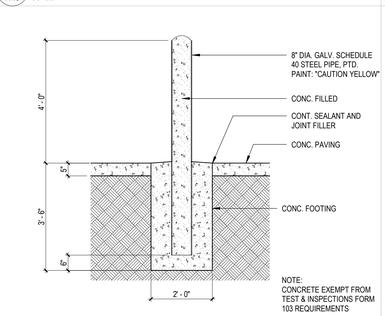
7 A1.3 GATE KICK PLATE CHAINLINK
SCALE: 3" = 1'-0"



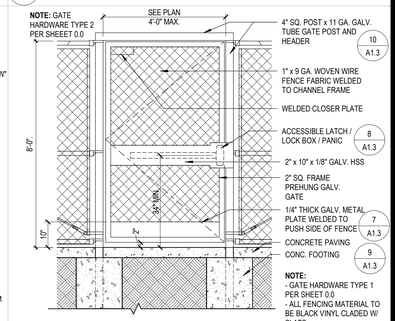
2 A1.3 CHAIN LINK FENCE
SCALE: 1/2" = 1'-0"



26 A1.3 WELDING BOOTH BACKSTOP FRAMING SOUTH ELEVATION
SCALE: 1/2" = 1'-0"



6 A1.3 PIPE BOLLARD
SCALE: 1/2" = 1'-0"



1 A1.3 CHAIN LINK FENCE EGRESS GATE
SCALE: 1/2" = 1'-0"

GATE AND FENCE DETAILS

COLUMBUS WELDING PROGRAM

DOWNEY UNIFIED SCHOOL DISTRICT
12320 WOODRUFF AVENUE
DOWNEY, CA 90241

CONSULTANT:

SEALS:

LICENSED ARCHITECT
SCOTT N. GRIFFITH
NO. C-34897
REN. 7-31-23
STATE OF CALIFORNIA

sgh ARCHITECTS

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PROJECT NUMBER: 21-59101-00
PROJECT STATUS: CD
PROJECT ISSUED: 06/14/21

REVISION	DATE	DESCRIPTION
1	9/9/21	ISSUED FOR BID

A1.3

Bid Set - NOT FOR CONSTRUCTION

9/9/2021 3:20:25 PM

GENERAL NOTES

1. PROJECT RECORD DOCUMENTS. USE A COMPUTER AIDED DRAFTING (CAD) SYSTEM IN THE PREPARATION OF RECORD DRAWINGS FOR THIS PROJECT. ACCEPTABLE CAD SYSTEMS SHALL BE CAPABLE OF PRODUCING FILES COMPATIBLE WITH THE LATEST VERSION OF AUTOCAD IN DWG OR DXF FORMAT. OWNER'S CONSULTANT WILL FURNISH CAD BACKGROUNDS FOR USE BY THE CONTRACTOR AFTER CONSTRUCTION IS 90% COMPLETE EXCEPT WHERE PROHIBITED BY CONTRACT.

2. ALL ELECTRICAL PREFABRICATED EQUIPMENT SHALL BE DESIGNED AND CONSTRUCTED IN SUCH A MANNER THAT ALL PORTIONS, ELEMENTS, SUB-ASSEMBLIES AND/OR PARTS OF SAID EQUIPMENT, AND THE EQUIPMENT AS A WHOLE INCLUDING ITS ATTACHMENTS, WILL RESIST A LOAD WHICH EXCEEDS THE FORCE LEVEL USED TO RESTRAIN AND ANCHOR THE EQUIPMENT TO THE SUPPORTING STRUCTURE.

3. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY UNDERWRITER'S LABORATORIES (UL) AND BEAR THEIR LABEL, OR LISTED AND CERTIFIED BY A NATIONALLY RECOGNIZED TESTING AUTHORITY, WHERE UL DOES NOT HAVE A LISTING. CUSTOM MADE EQUIPMENT SHALL HAVE COMPLETE TEST DATA SUBMITTED BY THE MANUFACTURER ATTESTING TO ITS SAFETY. IN ADDITION, THE MATERIALS, EQUIPMENT, AND INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING:

   AMERICAN SOCIETY OF TESTING MATERIALS (ASTM)
   INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA)
   NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
   AMERICAN STANDARD ASSOCIATION (ASA)
   NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
   AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)
   CALIFORNIA ELECTRICAL CODE (CEC) - LATEST EDITION
   CALIFORNIA CODE OF REGULATIONS TITLE 24 (CCR)
   INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
   ALL LOCAL CODES HAVING JURISDICTION.

   WHERE THE CODES HAVE DIFFERENT LEVELS OF REQUIREMENTS, THE MOST STRINGENT RULE SHALL APPLY.

4. THE CONTRACTOR SHALL VISIT THE SITE INCLUDING ALL AREAS INDICATED ON THE DRAWINGS. HE SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS AND BY SUBMITTING A BID, ACCEPTS THE CONDITIONS UNDER WHICH HE SHALL BE REQUIRED TO PERFORM HIS WORK.

5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A COMPLETE SET OF CONTRACT DOCUMENTS AND ADDENDA (DRAWINGS AND SPECIFICATIONS.) HE SHALL CHECK THE CONTRACT DOCUMENTS OF THE OTHER TRADES AND DETERMINE HIS RESPONSIBILITIES. FAILURE TO DO SO SHALL NOT RELEASE THE CONTRACTOR FROM COMPLETING ALL RESPONSIBLE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

6. SECURE AND PAY FOR ALL PERMITS, FEES, CHARGES, AND INCIDENTAL COSTS NECESSARY FOR EXECUTION AND COMPLETION OF ELECTRICAL WORK, INCLUDING ALL CHARGES BY STATE, COUNTY AND LOCAL GOVERNMENTAL AGENCIES.

7. ALL ELECTRICAL WORK REFERENCED HEREIN SHALL BE COORDINATED WITH OTHER TRADES AND SITE CONDITIONS. ANY COSTS TO INSTALL WORK TO ACCOMPLISH SAID COORDINATION WHICH DIFFERS FROM THE WORK AS SHOWN ON THE CONTRACT DOCUMENTS SHALL BE INCURRED BY THE CONTRACTOR. ANY DISCREPANCIES, AMBIGUITIES OR CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT DURING BID TIME FOR CLARIFICATION. ANY SUCH CONFLICTS NOT CLARIFIED PRIOR TO BID SHALL BE SUBJECT TO THE INTERPRETATION OF THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

8. PROVIDE TEMPORARY POWER FACILITIES AND CONNECTIONS FOR ALL FEEDERS, BRANCH CIRCUITS, OR SIGNAL AND COMMUNICATIONS SYSTEMS BEING DISCONNECTED IN ORDER TO MAINTAIN SYSTEMS IN OPERATION.

9. ALL INTERRUPTION OF ELECTRICAL POWER SHALL BE KEPT TO A MINIMUM. HOWEVER, WHEN AN INTERRUPTION IS NECESSARY, THE SHUTDOWN MUST BE COORDINATED WITH THE OWNER AND ENGINEER 14 DAYS PRIOR TO THE OUTAGE. ANY OVERTIME PAY SHALL BE INCLUDED IN THE CONTRACTOR'S BID. WORK IN EXISTING SWITCHBOARDS OR PANELBOARDS SHALL BE COORDINATED WITH THE OWNER PRIOR TO REMOVING ACCESS PANELS OR DOORS.

10. AFTER ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS HAVE BEEN FULLY COMPLETED, REPRESENTATIVES OF THE OWNERS WILL INSPECT THE WORK. THE CONTRACTOR SHALL PROVIDE COMPETENT PERSONNEL TO DEMONSTRATE THE OPERATION OF ANY ITEM OR SYSTEM TO THE FULL SATISFACTION OF EACH REPRESENTATIVE. FINAL ACCEPTANCE OF THE WORK WILL BE MADE BY THE OWNER AFTER RECEIPT OF APPROVAL AND RECOMMENDATION OF ACCEPTANCE FROM EACH REPRESENTATIVE.

11. FURNISH A ONE YEAR WRITTEN GUARANTEE OF MATERIALS AND WORKMANSHIP FROM THE DATE OF SUBSTANTIAL COMPLETION.

12. REVIEW AND COORDINATE WITH THE MECHANICAL, FIRE PROTECTION AND PLUMBING CONTRACT DOCUMENTS FOR DUCTS, LINES AND EQUIPMENT.

13. ALL FINAL CONNECTIONS TO OWNER FURNISHED EQUIPMENT SHALL BE MADE BY THE CONTRACTOR.

14. COORDINATE WITH OTHER TRADES AS TO THE EXACT LOCATION OF THEIR RESPECTIVE EQUIPMENT. SUPPLY POWER AND MAKE CONNECTION TO MOTORS AND EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS AS INDICATED ON THE SINGLE LINE DIAGRAM, ELECTRICAL DRAWINGS, AND DRAWINGS OF OTHER TRADES. REVIEW THE DRAWINGS OF OTHER TRADES FOR EXACT CONTROL DIAGRAMS, SIZE AND LOCATION OF EQUIPMENT. DISCONNECT SWITCHES, STARTERS, WIRING, CONTROLS, AND CONDUIT FOR MECHANICAL AND PLUMBING OPERATIONS SHALL BE PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING MANUFACTURER'S SHOP DRAWINGS PRIOR TO ROUGHING IN ALL CONDUIT TO THIS EQUIPMENT.

15. EXACT METHOD AND LOCATION OF CONDUIT PENETRATION AND OPENINGS IN CONCRETE OR MASONRY WALLS, GRADEBEAMS, FLOORS OR STRUCTURAL STEEL MEMBERS SHALL BE AS DIRECTED BY THE STRUCTURAL ENGINEER. PERFORM CORING, SAWCUTTING, PATCHING, AND REFINISHING OF WALLS AND SURFACES WHEREVER IT IS NECESSARY TO PENETRATE. OPENINGS SHALL BE SEALED IN AN APPROVED METHOD TO MEET THE FIRE RATING OF THE PARTICULAR WALL, FLOOR OR CEILING. EXACT METHOD AND LOCATIONS OF CONDUIT PENETRATIONS AND OPENINGS IN CONCRETE WALLS OR FLOORS SHALL BE UL APPROVED.

16. CONNECTIONS TO MECHANICAL, PLUMBING AND VIBRATING EQUIPMENT AND SEISMIC SEPARATIONS:

   LIQUID-TIGHT FLEXIBLE STEEL CONDUIT IN DRY INTERIOR LOCATIONS.

   LIQUID-TIGHT FLEXIBLE STEEL CONDUIT IN AREAS EXPOSED TO WEATHER, DAMP LOCATIONS, CONNECTIONS TO TRANSFORMER ENCLOSURES, AND FINAL CONNECTIONS TO MOTORS.

17. EQUIPMENT OUTLETS, LIGHTING FIXTURES, CONDUIT, WIRE, AND CONNECTION METHODS IN HVAC AIR-PLENUMS SHALL BE APPROVED FOR USE IN PLENUMS AND SHALL CONFORM TO THE CALIFORNIA ELECTRICAL CODE.

18. ROUTE EXPOSED CONDUIT AND CONDUIT ABOVE ACCESSIBLE CEILING SPACES PARALLEL AND PERPENDICULAR TO WALLS AND ADJACENT PIPING. ARRANGE CONDUIT TO MAINTAIN HEADROOM AND TO PRESENT A NEAT APPEARANCE.

19. CONDUIT SHALL NOT BE INSTALLED IN ANY FLOOR SLAB. CONDUIT SHALL BE INSTALLED CONCEALED IN THE CEILING SPACE, CONCEALED IN WALLS, OR 24" MINIMUM BELOW SLAB ON GRADE UNLESS NOTED OTHERWISE.

20. LOCATE ELECTRICAL EQUIPMENT AND BOXES, IN ACCESSIBLE CEILING SPACE OR PROVIDE AN ACCESS PANEL FOR INACCESSIBLE CEILING SYSTEMS. ACCESS DOORS SHALL BE A MINIMUM DIMENSION OF 24"x24". ACCESS DOOR LOCATIONS SHALL SUIT ACCESSIBILITY AND CONSTRUCTION CONDITIONS. ACCESS DOORS SHALL HAVE A FIRE RATING EQUAL TO THE CEILING ASSEMBLY IN WHICH THEY ARE INSTALLED.

21. COORDINATE REQUIRED ACCESS DOORS IN NON-ACCESSIBLE CEILINGS TO SUIT FIELD CONDITIONS. THE EXACT SIZES AND PHYSICAL LOCATIONS SHALL SUIT ACCESSIBILITY AND CONSTRUCTION CONDITIONS. ACCESS DOORS SHALL BE PROVIDED IN OTHER SECTIONS OF THE SPECIFICATIONS. ACCESS DOORS SHALL HAVE A FIRE RATING EQUAL TO THE CEILING ASSEMBLY IN WHICH THEY ARE INSTALLED

22. WHENEVER A DISCREPANCY OF ANY SYSTEM AND/OR EQUIPMENT ARISES ON THE CONTRACT DOCUMENTS OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AND SERVICES REQUIRED BY THE STRICTEST CONDITIONS NOTED ON THE DRAWINGS OR SPECIFICATIONS TO ENSURE COMPLETE AND OPERABLE SYSTEMS AS REQUIRED BY THE OWNER AND ARCHITECT/ENGINEER.

23. VERIFY TYPE OF CEILING SYSTEMS AND FURNISH APPROVED LIGHTING FIXTURES OF THE TYPE REQUIRED FOR MOUNTING IN THE SPECIFIC CEILING. WHERE FIXTURES ARE RECESSED IN PLASTER OR DRYWALL CEILINGS, THEY SHALL BE COMPLETE WITH NECESSARY MOUNTING HARDWARE AND PLASTER FRAMES.

24. ALL EQUIPMENT/DEVICES INSTALLED RECESSED IN FIRE RATED CEILINGS OR WALLS SHALL BE ENCLOSED WITH AN APPROVED UL LISTED ENCLOSURE CARRYING THE SAME FIRE RATING AS THE CEILING OR WALL.

25. UTILITY PENETRATIONS OF ANY KIND IN FIRE AND SMOKE PARTITIONS AND CEILING ASSEMBLIES, SHALL BE FIRESTOPPED AND SEALED WITH AN APPROVED UL LISTED SYSTEM OR MATERIAL.

STEEL ELECTRICAL OUTLET BOXES WHICH DO NOT EXCEED 16 SQUARE INCHES IN AREA, NEED NOT BE PROTECTED IN ONE HOUR OR TWO HOUR FIRE RATED WALLS, PARTITIONS, CEILINGS, OR AREA SEPARATION UNLESS THEY:

OCCUR ON OPPOSITE SIDES OF THE WALL WITHIN 24 INCH HORIZONTAL DISTANCE OF ONE ANOTHER. IN THIS CASE, ONLY ONE OUTLET BOX NEED TO PROTECTED BY AN APPROVED FIRESTOP MATERIAL OR DETAIL TO CORRECT THIS CONDITION.

OCCUR IN COMBINATION WITH OUTLET BOXES OF ANY SIZE SUCH THAT THE AGGREGATE AREA OF UNPROTECTED OUTLET BOXES EXCEEDS 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL AREA. IN THIS CASE, ONLY A SUFFICIENT NUMBER OF OUTLET BOXES NEED BE PROTECTED BY AN APPROVED MATERIAL OR DETAIL TO DECREASE THE AGGREGATE AREA OF UNPROTECTED UTILITY BOXES TO LESS THAN 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL.

STEEL ELECTRICAL OUTLET BOXES WHICH EXCEED 16 SQUARE INCHES IN AREA, AND ALL OTHER STEEL UTILITY OUTLET BOXES REGARDLESS OF SIZE, SHALL BE PROTECTED BY AN APPROVED FIRESTOP MATERIAL AS LISTED OR EQUAL.

FIRESTOPPING MATERIAL: MPP-1 MOLDABLE PUTTY PADS

3M CONTRACTOR PRODUCTS
MINNEAPOLIS, MN
3M TEST REPORT NO. 1167
DATED AUGUST 21, 1987

FSP FIRESTOP PUTTY PADS
HEVI-DUTY NELSON PRODUCTS
TULSA, OK

FLAMESAFE FSP 1077 FIRESTOP PADS
INTERNATIONAL PROTECTIVE COATINGS
OAKHURST, NJ

STEEL UTILITY BOXES WHICH EXCEED 100 SQUARE INCHES IN AREA SHALL BE PROTECTED BY ENCASEMENT.

UTILITY AND ELECTRICAL OUTLETS OR BOXES SHALL BE SECURELY FASTENED TO THE STUD FRAMING OF THE WALL, PARTITION OR CEILING ASSEMBLY. THE OPENING IN THE GYPSUM BOARD FACING SHALL BE CUT SO THAT THE CLEARANCE BETWEEN THE BOX AND THE GYPSUM BOARD DOES NOT EXCEED 1/8 INCH. IN SMOKE WALLS OR PARTITIONS, THE 1/8 INCH CLEARANCE SHALL BE FILLED WITH AN APPROVED FIRE-RATED SEALANT.

26. ARCHITECTURAL REFLECTED CEILING PLANS INDICATING THE LOCATION OF LIGHTING FIXTURES SHALL TAKE PRECEDENCE OVER THE LOCATIONS OF SAME SHOWN ON THE ELECTRICAL DRAWINGS. INSTALL THE LIGHTING FIXTURES IN ANY GIVEN AREA PER THE ARCHITECTURAL REFLECTED CEILING PLANS. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.

27. REFER TO SINGLE LINE DIAGRAM AND FEEDER SCHEDULES FOR CONDUIT AND CONDUCTOR SIZE TO PANELS, MECHANICAL AND PLUMBING EQUIPMENT, ETC. CONDUIT RUNS MAY NOT BE SHOWN ON DRAWINGS, BUT SHALL BE INCLUDED AS PART OF THIS CONTRACT.

28. STRAIGHT FEEDER, BRANCH CIRCUIT, AND CONDUIT RUNS SHALL BE PROVIDED WITH SUFFICIENT PULL BOXES OR JUNCTION BOXES TO LIMIT THE MAXIMUM LENGTH OF ANY SINGLE CABLE PULL TO 100 FEET. PULL BOXES SHALL BE SIZED PER CODE OR AS INDICATED ON DRAWINGS. LOCATIONS SHALL BE DETERMINED IN THE FIELD OR AS INDICATED ON THE DRAWINGS.

29. MAXIMUM QUANTITY OF CONDUCTORS IN AN OUTLET OR JUNCTION BOX SHALL CONFORM TO THE CALIFORNIA ELECTRICAL CODE, ARTICLE 314.16. IN NO CASE SHALL OUTLET OR JUNCTION BOXES CONTAIN MORE THAN THE FOLLOWING QUANTITY OF #12 AWG CONDUCTORS FOR THE SIZE OF BOX INDICATED. THE MINIMUM SIZE OUTLET OR JUNCTION BOX PERMITTED IN A WALL IS FOUR INCHES SQUARE BY 1-1/2 INCHES DEEP.

4" SQ. BY 1-1/2" D =	9 CONDUCTORS
4" SQ. BY 2-1/8" D =	13 CONDUCTORS
4-11/16" SQ. BY 1-1/2" D =	11 CONDUCTORS
4-11/16" SQ. BY 2-1/8" D =	18 CONDUCTORS

ALL OUTLET BOXES CONTAINING MORE THAN ONE DEVICE SHALL BE GANGED. TWO DEVICES DOUBLE GANGED, MINIMUM.

30. WHERE MULTIPLE HOMERUNS ARE INDICATED ON DRAWINGS REFERENCING THE SAME PANELBOARD CIRCUIT NUMBER, PROVIDE JUNCTION BOX ABOVE ACCESSIBLE CEILING AND ROUTE ONE SET OF WIRES TO CIRCUIT BREAKERS.

31. THE LOCATION OF ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE COORDINATED WITH THE ARCHITECTURAL ELEVATIONS, DETAILS, OR SECTIONS PRIOR TO INSTALLATION. ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE RECESSED IN WALLS UNLESS OTHERWISE NOTED. OUTLETS NOT INDICATED ON ARCHITECTURAL ELEVATIONS SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO ROUGH-IN. UNLESS OTHERWISE NOTED, ELECTRICAL DEVICES SHALL BE MOUNTED PER "ACCESSIBLE DEVICE MOUNTING HEIGHT" DETAIL.

REVIEW ARCHITECTURAL ELEVATIONS OF CASEWORK-OUTLETS MOUNTED ABOVE OR BELOW, OR ADJACENT TO CASEWORK SHALL BE COORDINATED WITH THE ARCHITECTURAL DRAWINGS, PRIOR TO FINAL ROUGH-IN. ELECTRICAL DRAWINGS SHALL COVERN NUMBER AND TYPE OF OUTLETS; HOWEVER, LOCATIONS SHALL BE AS INDICATED ON ARCHITECTURAL ELEVATIONS. PROVIDE CONDUIT, WIRES, AND OUTLETS FOR WORK REQUIRED IN CASEWORK INSTALLATIONS. REFERENCE ARCHITECTURAL DETAILS FOR METHOD OF ROUTING CONDUIT WITHIN CASEWORK CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CUT-OUTS IN TILE OR COUNTER SPLASHES WHERE RECEPTACLES, OUTLETS, ETC., OCCUR. PROVIDE BOX EXTENSIONS THROUGH ALL CASEWORK TO ENSURE FINISHED INSTALLATION IS FLUSH WITH FACE OF SPLASH, CABINET, ETC.

MOUNTING HEIGHTS OF ALL DEVICES AND EQUIPMENT ARE FROM FINISHED FLOOR TO CENTER OF DEVICES AND EQUIPMENT UNLESS OTHERWISE NOTED. BOXES INSTALLED IN LOCATIONS NOT APPROVED BY THE ARCHITECT SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

32. DRAWINGS ARE DIAGRAMMATIC AND DO NOT INDICATE DETAILED CONDUIT ROUTING OR LENGTHS REQUIRED FOR COMPLETE INSTALLATION. ROUTING OF RACEWAYS SHALL BE AT THE OPTION OF THE CONTRACTOR BUT SHALL BE IN STRICT COMPLIANCE WITH STRUCTURAL REQUIREMENTS, CONTRACT DOCUMENTS AND SPECS UNLESS OTHERWISE NOTED. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES. DO NOT SCALE THE ELECTRICAL DRAWINGS FOR LOCATIONS OF ANY ELECTRICAL, ARCHITECTURAL, STRUCTURAL AND/OR MECHANICAL ITEMS OR FEATURES. REFER TO ARCHITECTURAL AND STRUCTURAL CONTRACT DOCUMENTS FOR DIMENSIONS.

33. A PROPERLY SIZED EQUIPMENT GROUNDING CONDUCTOR, ALTHOUGH NOT SHOWN ON CONDUIT RUNS, SHALL BE INSTALLED AND RUN CONTINUOUS FROM PANEL TO THE LAST DEVICE. THIS WIRE SHALL BE PIGTAILED IN EACH OUTLET FOR CONNECTION TO BOX AND DEVICE SUCH THAT IF DEVICE IS REMOVED THE CONTINUITY OF THE GROUND WILL NOT BE COMPREMISED/INTERRUPTED. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSULATED GREEN CONDUCTORS - ALTERNATE METHODS OF IDENTIFICATION SHALL NOT BE USED. CONTRACTOR SHALL NOTIFY ELECTRICAL ENGINEER TO EXAMINE CONDUCTOR INSTALLATION PRIOR TO INSTALLATION OF DEVICES.

34. ALL CONDUCTORS SHALL BE UL LISTED COPPER #12 AWG MINIMUM SIZE, TYPE THHN/THWN THERMOPLASTIC, 600 VOLT, 75 DEGREES CELSIUS WET AND 90 DEGREES CELSIUS DRY AND UL LISTED UNLESS NOTED OTHERWISE. CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID. CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED.

35. PANEL SCHEDULES SHALL BE REVISED TO REFLECT FINAL ROOM NAMES AND NUMBERS USING OWNERS ROOM NAMES AND NUMBERS DESIGNATIONS.

36. WHERE OUTLETS OCCUR AT TACKABLE WALL PANELS OR OTHER WALL FINISHES, PROVIDE EXTENSION RINGS AS REQUIRED SO THAT NO SPACE WILL EXIST BETWEEN DEVICE PLATE AND BACKBOX, PER CALIFORNIA ELECTRICAL CODE 314.20. SEE ARCHITECTURAL ELEVATIONS FOR WALL FINISHES AND LOCATIONS.

37. COORDINATE LOCATIONS OF ALL SEISMIC SEPARATIONS.

38. REFER TO FIRE ALARM PLANS FOR ADDITIONAL POWER REQUIREMENTS REQUIRED FOR FIRE/SMOKE DAMPERS AND POWER SUPPLIES.

39. CONTRACTOR SHALL NOTE THAT INSTALLATION OF CONDUIT WILL REQUIRE CORE DRILL OF (E) CONCRETE WALLS AS IS REQUIRED AS PART OF THIS BID. PRIOR TO ANY CORE DRILL APPROVAL FROM STRUCTURAL ENGINEER IS REQUIRED.

40. ALL ELECTRICAL EQUIPMENT SHALL BE LISTED BY A CITY OF POMONA RECOGNIZED ELECTRICAL TESTING LABORATORY.

EQUIPMENT ANCHORAGE NOTES

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE AGENCY APPROVED CONSTRUCTION DOCUMENTS WHERE NO DETAIL IS INDICATED, THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC, SECTIONS 1616A.1.18 THROUGH 1616A.1.26 AND ASCE 7-10 CHAPTER 13, 26 AND 30.

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER.
3. MOVABLE EQUIPMENT WHICH IS STATIONED IN ONE PLACE FOR MORE THAN 8 HOURS AND HEAVIER THAN 400 POUNDS ARE REQUIRED TO BE ANCHORED WITH TEMPORARY ATTACHMENTS.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT THE ATTACHMENT NEED NOT BE DETAILED ON THE PLANS. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-10 SECTION 13.3 AS DEFINED IN ASCE 7-10 SECTION 13.6.8, 13.6.7, 13.6.5.6, AND 2019 CBC, SECTIONS 1616A.1.23, 1616A.1.24, 1616A.1.25 AND 1616A.1.26.

COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF HANGING AND BRACING OF THE PIPE, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS.

THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

DEMOLITION NOTES

1. IN GENERAL, THE DEMOLITION PLAN INDICATES ALL EXISTING EQUIPMENT TO BE REMOVED; HOWEVER, ELECTRICAL EQUIPMENT, WHETHER SHOWN ON THIS DRAWING OR NOT, THAT IS LOCATED IN REMOVED WALLS, FLOORS OR CEILINGS, SHALL BE REMOVED/RELOCATED UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL VISIT THE SITE AND ALL AREAS INCLUDED IN THE DRAWINGS. CONTRACTOR SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH THESE EXISTING CONDITIONS, AND BY SUBMITTING A BID ACCEPTS CONDITIONS UNDER WHICH THE CONTRACTOR WILL BE REQUIRED TO PERFORM HIS WORK.
3. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO DISCONNECT AND REMOVE ALL EXISTING LIGHTING FIXTURES, RECEPTACLES, ELECTRICAL EQUIPMENT, ETC., AFFECTED BY THE REMODELED AREA. THIS WILL INCLUDE REROUTING, OR THE EXTENSION OF EXISTING CONDUIT AND FEEDERS WHERE NECESSARY TO MAINTAIN THE CONTINUITY OF EQUIPMENT TO REMAIN.
4. ALL CIRCUIT NUMBERS AND EXISTING CONDUIT HOMERUNS SHOWN ON THESE DRAWINGS WERE TAKEN FROM EXISTING RECORD DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS OF HOMERUNS, AND ADJUST CIRCUIT NUMBERS ACCORDING TO EXISTING CONDITIONS AS REQUIRED.
5. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO MAINTAIN CONTINUITY OF ALL ELECTRICAL SYSTEMS, EQUIPMENT, ETC., REMAINING IN OPERATION WHICH ARE BEING FED BY AN ABANDONED OUTLET. MAINTAINING CONTINUITY SHALL CONSIST OF REROUTING CONDUIT, WIRING, ETC., AS REQUIRED.
6. ALL ELECTRICAL FIXTURES, OUTLETS, DEVICES, ETC., THAT ARE REMOVED SHALL BE REMOVED COMPLETELY, INCLUDING CONDUIT AND WIRING BACK TO THE LAST FIXTURE, OUTLET, DEVICE, ETC., REMAINING IN SERVICE.
7. EXISTING CIRCUITS WHICH ARE REMOVED AND NOT REUSED SHALL BE IDENTIFIED ON THE PANEL SCHEDULE AS "SPARE".
8. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO REMOVAL OF EXISTING ELECTRICAL EQUIPMENT AND CONDUCTORS. CONTRACTOR SHALL TURN OVER REMOVED EQUIPMENT THAT THE OWNER REQUESTS IN AN "AS-FOUND" CONDITION. EQUIPMENT THAT IS TO BE TURNED OVER SHALL BE BOXED AND TAGGED TO IDENTIFY THE SPECIFIC EQUIPMENT.
9. WHERE NEW CIRCUITS ARE SHOWN TO EXISTING PANELS, INSTALL NEW BREAKERS (MINIMUM 20 AMP, SINGLE POLE) AS REFERENCED ON DRAWINGS. IDENTIFY EACH NEW CIRCUIT ON THE ASSOCIATED PANEL SCHEDULE DIRECTORY.
10. EXISTING CONDUIT MAY BE REUSED IF ADEQUATELY SIZED, BUT IN NO CASE SHALL ANY EXISTING CONDUCTORS BE REUSED.
11. IN SOME INSTANCES, IT MAY BE NECESSARY FOR THE ELECTRICAL CONTRACTOR TO TEMPORARILY RELOCATE, REROUTE, ETC., EXISTING ELECTRICAL EQUIPMENT. THIS SHALL BE DONE SO THAT THE SYSTEMS IN ALL PHASES (THOSE COMPLETED AND THOSE YET TO BEGIN), ARE IN COMPLETE, OPERABLE, CONDITION AS CONSTRUCTION PROCEEDS THROUGH EACH PHASE
12. WHERE NEW CIRCUITS ARE SHOWN CROSSING PHASING BOUNDARIES THE CONTRACTOR SHALL CONNECT ALL EQUIPMENT, FIXTURES, ETC., IN THE PHASE WHICH IS THEN UNDER CONSTRUCTION. CONTRACTOR SHALL STUB-OUT ALL REQUIRED CONDUIT AND WIRING ACROSS PHASE BOUNDARIES, THEN PICK UP AND EXTEND THESE CONDUIT RUNS WHEN CONSTRUCTION BEGINS IN THE ADJACENT PHASE.
13. DURING EACH PHASE OF DEMOLITION, ALL CIRCUITS FROM EXISTING PANELS WHICH FEED AREAS OUTSIDE THE BOUNDARIES OF THAT PHASE, SHALL BE MAINTAINED.
14. ALL DEVICES REMOVED TO ACCOMPLISH DEMOLITION WORK SHALL BE REINSTALLED SIMILAR TO NEW WORK.
15. DO NOT REMOVE EXISTING FIRE ALARM DEVICES OR EQUIPMENT UNTIL NEW FIRE ALARM SYSTEM HAS BEEN, INSTALLED, TESTED, APPROVED AND ACCEPTED BY THE LOCAL FIRE AUTHORITY IN INSTANCES EXISTING FIRE ALARM DEVICES ARE REMOVED PRIOR TO ACCEPTANCE BY THE AHS(S). A FIRE WATCH IS REQUIRED WHENEVER THE BUILDING (WHOLE OR PARTIAL) IS OCCUPIED. CFC ART 87. EXISTING FIRE ALARM DEVICE SHALL NOT BE ABANDON IN PLACE PER CEC 820.53(3)(D).
16. THE CONTRACTOR SHALL PROVIDE STAINLESS STEEL COVER PLATE ON ALL BACK BOXES TO REMAIN WHERE OPENINGS HAVE BEEN CREATED BY REMOVED DEVICES TO COMPLY WITH CEC 314.25.

SHEET INDEX

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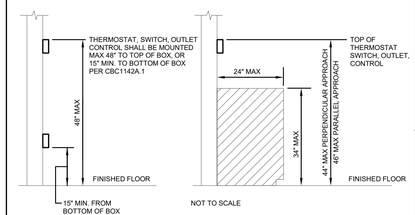
E0.3	LIGHTING FIXTURE SCHEDULE AND NOTES
E0.4	PARTIAL SINGLE LINE DIAGRAM
E1.1	ELECTRICAL SITE PLAN
E2.1	ELECTRICAL PLAN
E4.1	ELECTRICAL DETAILS
E5.1	PANEL SCHEDULES

STRUCTURAL NOTE

UNLESS SPECIFICALLY SHOWN ON THESE PLANS, STRUCTURAL MEMBERS SHALL NOT BE CUT, DRILLED, OR NOTCHED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER

ACCESSIBLE DEVICE MOUNTING HEIGHTS | 1



✱ PROVIDE MINIMUM 30"x48" CLEAR FLOOR SPACE FOR PERPENDICULAR APPROACH AT EACH CONTROL OR DEVICE.

CONSULTANT:
DCGA ENGINEERS
Consulting Mechanical and Electrical Engineers
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ELECTRICAL GENERAL NOTES
COLUMBUS WELDING PROGRAM
DOWNEY UNIFIED SCHOOL DISTRICT
12320 WOODRUFF AVENUE
DOWNEY, CA 90241

SEAL:

REGISTERED PROFESSIONAL ENGINEER ★ No. E 19592 ★ CIVIL ★ STATE OF CALIFORNIA

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PROJECT NUMBER: 21-59101-00
PROJECT STATUS: CD
PROJECT ISSUED: 06/14/21
REVISION: DATE: DESCRIPTION:
1 9/9/21 **ISSUED FOR BID**

E0.1

P:\DUSD Columbus HS – Welding Yard #21046\Dwgs\E\21046E01.dwg 9-03-21-10:34 AM

Bid Set - NOT FOR CONSTRUCTION

ELECTRICAL ABBREVIATIONS

AF	AMPERE FUSE RATING
AFF	ABOVE FINISHED FLOOR
AIC	AMPS INTERRUPTED CAPACITY RATING (RMS SYMMETRICAL MINIMUM)
AM	AMMETER
AMP, A	AMPERES
APPR	APPROVED
AS	AMPERE SWITCH RATING
AT	AMPERE TRIP RATING OR BREAKER
AUTO	AUTOMATIC
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BRD, BD	BOARD
BFC	BELOW FINISHED CEILING
BKR	BREAKER
C.	CONDUIT
CAB	CABINET
CAT	CATEGORY
CC	CENTER TO CENTER
cd	CANDELA
CHLOR	CHLORINE, CHLORINATION
CKT	CIRCUIT
CMH	COMMUNICATION MANHOLE
C.O.	CONDUIT ONLY
COMPT	COMPARTMENT
COMPR	COMPRESSOR
CPB	COMMUNICATION PULLBOX
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY (MAGNETICALLY HELD U.N.O.)
CSFM	CALIFORNIA STATE FIRE MARSHALL
CT	CURRENT TRANSFORMER
CU	COPPER
D.C.A.	DETECTOR CHECK ASSEMBLY
DISC.	DISCONNECT
DISTR	DISTRIBUTION
DWG	DRAWING
ELEV	ELEVATION
EMERG, EM	EMERGENCY
ENCL	ENCLOSURE
EQPT	EQUIPMENT
EXH	EXHAUST
E	EXISTING
FAA	FIRE ALARM ANNUNCIATOR
FDR	FEEDER
FF	FINISHED FLOOR
FG	FINISHED GRADE
FS	FLOW SWITCH
FLEX	FLEXIBLE
FLUOR	FLUORESCENT
FOC	FIBER OPTIC CABLE
FUT	FUTURE
FUP	FUSE, CPT PRIMARY
FUS	FUSE, CPT SECONDARY
GND, GRD,G	GROUND
HH	HAND HOLE
HOA	HAND-OFF-AUTOMATIC
HTR	HEATER
HZ	HERTZ
IDF	INTERMEDIATE DISTRIBUTION FRAME
ICPB	INTERCEPT COMMUNICATION PULLBOX
INC	INCANDESCENT
IND	INDICATION
INSTR	INSTRUMENT
IPPB	INTERCEPT POWER PULLBOX
ISC	SHORT CIRCUIT CURRENT
J.B.	JUNCTION BOX
K	THOUSAND (KILO)
KV	KILOVOLTS
KW	KILOWATTS
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KWH	KILOWATT HOURS
KWHD	KILOWATT HOUR DEMAND METER
LCP	LIGHTING CONTROL PANEL
LOS	PUSH BUTTON WITH "LOCK-OUT-STOP"
LS	LIMIT SWITCH
LT, LTS	LIGHT, LIGHTS
LTG	LIGHTING
LV	LOW VOLTAGE
MA	MILLIAMPS
MAN	MANUAL
MAG	MAGNETIC
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILS
MCP	MOTOR CIRCUIT PROTECTOR
MDF	MAIN DISTRIBUTION FRAME
MH	MANHOLE
MS	MANUAL MOTOR STARTER
MIN	MINUTES, MINIMUM
MOV	MOTOR OPERATED VALVE, METAL OXIDE VARISTER
MT, MTD, MTG	MOUNT, MOUNTED, MOUNTING
N.A.P.	NEUTRALIZATION ALARM PANEL
NO, NOS	NUMBER, NUMBERS
NP	NAMEPLATE
NTS	NOT TO SCALE
OC	ON CENTER
OL	OVERLOAD
PB	PULLBOX
PIV	POST INDICATOR VALVE
PMH	POWER MANHOLE
PNL	PANEL
PNLBD	PANELBOARD
POS	POSITION
PPB	POWER PULLBOX
PRI	PRIMARY
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PW	PART WINDING
PWR	POWER
REC	RECEPTACLE
RECPTS	RECEPTACLES
REQD	REQUIRED
SA	STATUS ANNUNCIATOR
SCH	SCHEDULE
SEC	SECONDS, SECONDARY
SECT	SECTION
SEL SW	SELECTOR SWITCH
SEQ	SEQUENCE
SHLD	SHIELDED
SHT	SHEET
SIG	SIGNAL
SM	START CONTACTOR COIL
SPECS	SPECIFICATIONS
SP HTR	SPACE HEATER
ST	SHUNT TRIP
STA	STATION
STD	STANDARD
STL	STEEL
STR	STARTER
SV	SOLENOID VALVE
SW	SWITCH
SYS	SYSTEM
TACH	TACHOMETER
TC	TIME-CLOCK
TDOD	TIME DELAY ON DE-ENERGIZATION
TDOE	TIME DELAY ON ENERGIZATION
TEMP	TEMPERATURE
TERM	TERMINAL
THERM	THERMOSTAT
TR	TIME DELAY RELAY
TS	TAMPER SWITCH
TSP	TWISTED SHIELDED PAIR
TSTAT	THERMOSTAT
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
UGPS	UNDERGROUND PULL SECTION
UTP	UNSHIELDED TWISTED PAIR
VFD	VARIABLE FREQUENCY DRIVE
V	VOLTS
VM	VOLTMETER
VS	VOLTMETER SWITCH
W	WATTS
WHM	WATT HOUR METER
WP	WEATHERPROOF
WPL	WEATHERPROOF LOCKING
XFMR	TRANSFORMER
XMTR	TRANSMITTER

ELECTRICAL SYMBOLS LIST

k3 Sa — SWITCH. LOWER CASE LETTER AT BOTTOM INDICATES OUTLETS CONTROLLED. CAPITAL SUPERSCRIPT INDICATES SWITCH TYPE. MOUNT PER DETAIL #1 ON E0.1 U.N.O.

NO SUPERSCRIPT	-	SINGLE POLE SWITCH
2	-	DOUBLE POLE
3	-	THREE WAY
4	-	FOUR WAY
I	-	ILLUMINATED HANDLE
K	-	KEYED SWITCH
LC	-	LOCKABLE COVER
M	-	MANUAL MOTOR STARTER WITH THERMAL OVERLOAD PROTECTION
MC	-	MOMENTARY CONTACT
P	-	PILOT LIGHT
PR	-	PRESS TYPE
TP	-	THREE POSITION
T	-	TIMER-0-4 HR ROTARY WITH HOLD-ON FEATURE
L	-	LOCKABLE POSITION TOGGLE SWITCH

MS-1 — FEEDER DESIGNATION. SEE SINGLE LINE DIAGRAM, FEEDER SCHEDULES AND ELECTRICAL SITE PLAN.

DUPLEX GROUNDING TYPE RECEPTACLE, 20 AMP, 125 VOLT, 2 POLE, 3 WIRE. MOUNT PER DETAIL #1 ON E0.1 U.N.O. "TV" ADJACENT INDICATES MOUNTING OF RECEPTACLE AT +96". COORDINATE LOCATIONS WITH SIGNAL DRAWINGS. "C" ADJACENT SYMBOL INDICATES DEVICE MOUNTED ON CEILING TYPICAL UNLESS NOTED OTHERWISE.

DUPLEX GROUNDING TYPE CONTROLLED RECEPTACLE, 20AMP, 125 VOLT, 2 POLE, 3 WIRE. MOUNT PER DETAIL #1/E0.1 U.N.O. RECEPTACLE SHALL HAVE PERMANENT IDENTIFICATION.

DUPLEX GROUND FAULT INTERRUPTING TYPE RECEPTACLE, 20 AMP, 125 VOLT, 2 POLE, 3 WIRE. MOUNT PER DETAIL #1 ON E0.1 U.N.O. "WPL" ADJACENT INDICATES WEATHER RESISTANT STAINLESS STEEL LOCKING COVER.

CEILING TYPICAL UNLESS NOTED OTHERWISE.
20 AMP, 125 VOLT, 2 POLE, 3 WIRE IN SPECIAL FLOOR BOX.

DUPLEX GROUNDING TYPE RECEPTACLE, 20 AMP, 125 VOLT, 2 POLE, 3 WIRE. MOUNT ABOVE COUNTER PER DETAIL #1 ON E0.1 U.N.O.

DUPLEX GROUND FAULT INTERRUPTING TYPE RECEPTACLE, 20 AMP, 125 VOLT, 2 POLE, 3 WIRE. MOUNT ABOVE COUNTER PER DETAIL #1 ON E0.1 U.N.O.

TWO DUPLEX GROUNDING TYPE RECEPTACLES IN 4S BOX, 20 AMP, 125 VOLT, 2 POLE, 3 WIRE. MOUNT PER DETAIL #1 ON E0.1 U.N.O.

TWO DUPLEX GROUND FAULT INTERRUPTING TYPE RECEPTACLES IN 3-GANG BOX WITH 2-GANG RING AND PLATE. 20A., 125 VOLT, 2 POLE, 3 WIRE. MOUNT PER DETAIL #1 ON E0.1 U.N.O.

TWO 20 AMP DUPLEX RECEPTACLES IN SPECIAL FLOOR BOX.

A L — SPECIAL PURPOSE OUTLET MOUNTED IN FLUSH WALL BOX. LETTER INDICATES TYPE. "L" ADJACENT INDICATES TWIST LOCK TYPE

A	-	NEMA TYPE 5-30R (125 VOLT, 1 PHASE, 30 AMP)
B	-	NEMA TYPE 5-50R (125 VOLT, 1 PHASE, 50 AMP)
C	-	NEMA TYPE 6-20R (250 VOLT, 1 PHASE, 20 AMP)
D	-	NEMA TYPE 6-30R (250 VOLT, 1 PHASE, 30 AMP)
E	-	NEMA TYPE 6-50R (250 VOLT, 1 PHASE, 50 AMP)
F	-	NEMA TYPE 11-20R (250 VOLT, 3 PHASE, 20 AMP)
G	-	NEMA TYPE 11-30R (250 VOLT, 3 PHASE, 30 AMP)
H	-	NEMA TYPE 11-50R (250 VOLT, 3 PHASE, 50 AMP)
J	-	NEMA TYPE 14-20R (125/250 VOLT, 1 PHASE, 20 AMP)
K	-	NEMA TYPE 14-30R (125/250 VOLT, 1 PHASE, 30 AMP)
M	-	NEMA TYPE L16-20R (480 VOLT, 3PHASE, 20 AMP)
N	-	NEMA TYPE L16-30R (480 VOLT, 3 PHASE 30 AMP)

100AS — NON-FUSED DISCONNECT SWITCH. "AS" INDICATES SWITCH AMPERE RATING UNLESS NOTED OTHERWISE ON DRAWINGS.

F — FUSED DISCONNECT SWITCH. "AS" INDICATES SWITCH AMPERE RATING. "AF" INDICATES FUSE AMPERE RATING.

VFD II — MAGNETIC MOTOR STARTER. ROMAN NUMERAL INDICATES NEMA STARTER SIZE. ADDITIONAL SUBSCRIPTS INDICATE STARTER TYPE AND SIZE. (TYPICAL FOR ALL MAGNETIC STARTER SYMBOLS.)

NO SUBSCRIPT	-	FULL VOLTAGE, NON REVERSING
PR	-	PRIMARY RESISTOR REDUCED VOLTAGE
AT	-	AUTOTRANSFORMER REDUCED VOLTAGE
WD	-	WYE-DELTA REDUCED VOLTAGE
PW	-	PART WINDING REDUCED VOLTAGE
SS	-	SOLID STATE REDUCED VOLTAGE
REV	-	REVERSING TYPE
2S	-	TWO SPEED
2W	-	TWO WINDINGS
CH	-	CONSTANT HORSEPOWER
CT	-	CONSTANT TORQUE
VT	-	VARIABLE TORQUE
VFD	-	VARIABLE FREQUENCY DRIVE

COMBINATION MAGNETIC MOTOR STARTER AND NON-FUSED DISCONNECT SWITCH. TYPE AS INDICATED ABOVE.

F II — COMBINATION MAGNETIC MOTOR STARTER AND FUSED DISCONNECT SWITCH. TYPE AS INDICATED ABOVE.

SINGLE PHASE FRACTIONAL OR INTEGRAL HORSEPOWER

DUPLEX ISOLATED GROUNDING TYPE RECEPTACLE, 20 AMP, 125 VOLT, 2 POLE, 3 WIRE WITH SEPARATE GROUND WIRE ROUTED TO PANEL AND CONNECTED TO ISOLATED GROUND BUS. DEVICE TO BE ORANGE IN COLOR. MOUNT PER DETAIL #1 ON E0.1 U.N.O.. COORDINATE LOCATIONS WITH SIGNAL DRAWINGS.

DUPLEX ISOLATED GROUNDING TYPE RECEPTACLE, 20 AMP, 125 VOLT, 2 POLE, 3 WIRE WITH SEPARATE GROUND WIRE ROUTED TO PANEL AND CONNECTED TO ISOLATED GROUND BUS. DEVICE TO BE ORANGE IN COLOR. MOUNT PER DETAIL #1 ON E0.1 U.N.O.. COORDINATE LOCATIONS WITH SIGNAL DRAWINGS. DEVICE IS TO BE CEILING MOUNTED.

TWO (2) DUPLEX ISOLATED GROUNDING TYPE RECEPTACLES, 20 AMP, 125 VOLT, 2 POLE, 3 WIRE WITH SEPARATE GROUND WIRE ROUTED TO PANEL AND CONNECTED TO ISOLATED GROUND BUS. DEVICE TO BE ORANGE IN COLOR. MOUNT PER DETAIL #1 ON E0.1 U.N.O.. COORDINATE LOCATIONS WITH SIGNAL DRAWINGS. DEVICE IS TO BE CEILING MOUNTED.

D 4 a — DIGITAL WALL SWITCH WITH "ON/OFF" AND DIMMING CAPABILITY. REFER TO DETAIL #6/E4.1 FOR MANUFACTURERS AND MODEL NUMBERS. NUMERAL ADJACENT INDICATES QUANTITY OF BUTTONS. LOWER CASE LETTER AT BOTTOM INDICATES FIXTURES CONTROLLER. MOUNT AT +48" PER DETAIL #1/E0.1.

S — WALL MOUNTED INFRARED/ULTRASONIC OCCUPANCY SENSOR SWITCH/DIMMER. MOUNT AT +48". SENSOR SWITCH #WSX-PDT-D OR APPROVED EQUAL.

OS — INFRARED/ULTRASONIC DUAL TECHNOLOGY TYPE DIGITAL OCCUPANCY SENSOR COMPLETE WITH ALL POWER SUPPLIES, RELAY PACKS AND CONNECTIONS. REFER TO DETAIL #6/E4.1 FOR MANUFACTURE AND MODEL NUMBER.

RL a — DIGITAL ROOM CONTROLLER/POWER PACK WITH 0-10 VOLT DIMMING AND CAT5 CABLE CONNECTIONS. REFER TO DETAIL #6/E4.1 FOR MANUFACTURERS AND MODEL NUMBERS. LOWER CASE LETTER ADJACENT INDICATES LIGHT FIXTURES CONTROLLED.

PC a — DIGITAL PHOTOCELL. REFER TO DETAIL #6/E4.1 FOR MANUFACTURE AND MODEL NUMBER. LOWER CASE LETTER ADJACENT INDICATES LIGHT FIXTURES CONTROLLED.

PL A-1 — DIGITAL RECEPTACLE CONTROLLER WITH 20AMP RATED RELAY AND CAT5 CABLE CONNECTIONS. REFER TO DETAIL #6/E4.1 FOR MANUFACTURE AND MODEL NUMBERS. CIRCUIT ADJACENT SYMBOLS INDICATES CIRCUIT TO BE CONTROLLED.

(E) — EQUIPMENT WITH "E" ADJACENT IS EXISTING TO REMAIN.

(R) — EXISTING EQUIPMENT WITH "R" ADJACENT IS TO BE COMPLETELY DISCONNECTED AND REMOVED.

(RR) — EXISTING EQUIPMENT WITH "RR" ADJACENT IS TO BE DISCONNECTED, REMOVED AND RELOCATED TO NEW LOCATION AND RECONNECTED AS REQUIRED.

(ER) — RELOCATED EQUIPMENT SHOWN IN NEW LOCATION.

—E— EXISTING CONDUIT RUN TO REMAIN. EXISTING CONDUCTORS TO REMAIN UNLESS NOTED OTHERWISE ON DRAWINGS.

—EA— EXISTING CONDUIT RUN TO BE ABANDONED. REMOVE CONDUCTORS AND CAP ENDS OF CONDUIT.

—EX— EXISTING CONDUIT RUN TO BE REWIRED. REFER TO PLANS FOR WIRING REQUIREMENTS.

—R— EXISTING CONDUIT AND WIRE RUN TO BE COMPLETELY DISCONNECTED AND REMOVED BACK TO LAST REMAINING OUTLET OR DEVICE.

—R✕E— "X" INDICATES APPROXIMATE POINT OF INTERCEPTION OF EXISTING CONDUIT RUN. CONDUIT TO BE REMOVED AT "R" SIDE OF "X". REMOVE ALL CONDUCTORS PRIOR TO CUTTING CONDUIT. EXACT LOCATION OF ALL CONDUITS SHALL BE FIELD VERIFIED.

CONDUIT RUN CONCEALED IN WALLS OR UNDER FLOORS.

CONDUIT RUN EXPOSED.

CONDUIT RUN UNDERGROUND.

CONDUIT STUBBED OUT AND CAPPED. PULL LINE IN PLACE.

CROSS LINES ON CONDUIT RUNS INDICATE NUMBER OF #12 CURRENT CARRYING CONDUCTORS CONTAINED THEREIN. TWO #12 AND MINIMUM OF ONE #12 GROUND WIRE ARE INDICATED WHEN CROSS LINES ARE NOT SHOWN. NUMERALS ADJACENT TO CROSS LINES ON CONDUIT RUNS INDICATE SIZE OF CONDUCTORS IN LIEU OF #12. ALL CONDUITS SHALL CONTAIN ONE GROUND WIRE SIZED PER C.E.C. TABLE 250.122. BUT NOT SMALLER THAN #12. WHERE ISOLATED GROUND RECEPTACLES ARE INDICATED, PROVIDE ADDITIONAL #12 GROUND WIRE IN CONDUIT RUNS, CONNECTED FROM ISOLATED GROUND BUS IN PANEL TO DEVICE.

B-1,3 — CONDUIT HOMERUN TO PANELBOARD. LETTER AND NUMERALS INDICATE ELECTRICAL PANEL AND CIRCUIT NUMBER.

SURFACE MOUNTED BRANCH CIRCUIT PANELBOARD.

RECESSED BRANCH CIRCUIT PANELBOARD.

(PNL) — PANEL DESIGNATION.

SURFACE MOUNTED COMMUNICATION TERMINAL CABINET. REFER TO DRAWINGS AND SPECIFICATIONS.

RECESSED COMMUNICATION TERMINAL CABINET. REFER TO DRAWINGS AND SPECIFICATIONS.

(J) — JUNCTION BOX IN ACCESSIBLE CEILING SPACE OR FLUSH IN WALL WITH BLANK COVER PLATE TO MATCH DEVICE PLATES.

J — JUNCTION BOX FLUSH FLOOR MOUNTED.

J — JUNCTION BOX PEDESTAL TYPE FLOOR MOUNTED.

(M) — THREE PHASE FRACTIONAL OR INTEGRAL HORSEPOWER MOTOR. NUMERAL IN PLACE OF "M" INDICATES HORSEPOWER. (SINGLE LINE DIAGRAM ONLY).

100AF 100AT 3P — MOLDED CASE CIRCUIT BREAKER AND NUMBER OF POLES AS INDICATED. "AT" INDICATES TRIP RATING. "AF" INDICATES AMPERE FRAME SIZE. SUBSCRIPT INDICATES TYPE.

NO SUBSCRIPT	THERMAL MAGNETIC
NA	NON-AUTOMATIC
MO	MAGNETIC ONLY
CL	CURRENT LIMITING
SS	SOLID STATE

100AS 90AF 3P — FUSED SWITCH. "AS" INDICATES AMPERE SWITCH RATING, "AF" INDICATES AMPERE FUSE RATING, NUMBER OF POLES AS INDICATED.

ENCLOSED VOLTAGE TRANSFORMER PER SPEC'S. COPPER WOUND, DRY TYPE, U.N.O.

(M) — UTILITY METER SOCKET, WITH C.T.'S, CLIPS, ETC., PER SERVING UTILITY COMPANY.

GROUND, "GRD", "GND".

GF — BREAKER EQUIPPED WITH THE GROUND FAULT PROTECTION

GFI — "GROUND FAULT INTERRUPTER"

1a — CEILING LIGHT FIXTURE AND OUTLET. LOWER CASE LETTER INDICATES CONTROLLING SWITCH, NUMERAL INDICATES CIRCUIT. SHADED SYMBOL INDICATES FIXTURE WITH EMERGENCY POWER PROVISIONS.

1a — LIGHT FIXTURE OUTLET. LOWER CASE LETTER INDICATES CONTROLLING SWITCH, NUMERAL INDICATES CIRCUIT. SHADED CIRCLE DENOTES FIXTURE WITH EMERGENCY POWER PROVISIONS.

1a — STRIP FIXTURE. LOWER CASE LETTER INDICATES CONTROLLING SWITCH. NUMERAL INDICATES CIRCUIT. SHADED CIRCLE DENOTES FIXTURE WITH EMERGENCY POWER PROVISIONS.

1a — BRACKET OR WALL MOUNTED SURFACE OR RECESSED LIGHT FIXTURE AND OUTLET, HID, FLUORESCENT OR INCANDESCENT. LOWER CASE LETTER INDICATES CONTROLLING SWITCH, NUMERAL INDICATES CIRCUIT. SHADED CIRCLE DENOTES FIXTURE WITH EMERGENCY POWER PROVISIONS.

ILLUMINATED EXIT LIGHT FIXTURE. SIDE, BACK, CEILING, OR PENDANT MOUNTED, SINGLE OR DOUBLE FACED AS NOTED BY SHADED ARC, WITH OR WITHOUT DIRECTIONAL ARROW AS NOTED ON THE DRAWINGS. EXIT SIGN SHALL NOT BE USED AS JUNCTION BOX OR "THROUGH-WIRE"

L — LOW LEVEL EXIT LIGHT FIXTURE, WALL MOUNTED WITH OR WITHOUT DIRECTIONAL ARROW AS NOTED ON THE DRAWINGS. BOTTOM OF FIXTURE AT +10" ABOVE FINISHED FLOOR AND WITHIN FOUR INCHES OF DOOR FRAME WHERE APPLICABLE.

O 72 16 +12'-0" — LIGHTING FIXTURE IDENTIFICATION SYMBOL. LETTER INDICATES FIXTURE TYPE. NUMERALS IN LOWER HALF OF HEXAGON INDICATE FIXTURE WATTAGE (INCLUDING BALLAST WHERE APPLICABLE). NUMERAL OUTSIDE TOP OF HEXAGON INDICATES NUMBER OF FIXTURES USED FOR LOAD CALCULATIONS. NUMERAL OUTSIDE BOTTOM OF HEXAGON INDICATES MOUNTING HEIGHT FROM FLOOR TO BOTTOM OF FIXTURE. OMISSION OF MOUNTING HEIGHT INDICATES CEILING MOUNTING.

WALL MOUNTED DUAL HEAD EMERGENCY LIGHTING FIXTURE UNIT.

W — TELEPHONE OUTLET, 4S DEEP BACKBOX & SINGLE GANG RING. MOUNT PER DETAIL #1 ON E0.1 U.N.O. "W" ADJACENT INDICATES WALL MOUNTED AT SWITCH HEIGHT PER DETAIL #1 ON E0.1 U.N.O. PROVIDE 1"CONDUIT MINIMUM STUBBED UP INTO CEILING SPACE.

DATA OUTLET, 4S DEEP BACKBOX & SINGLE GANG RING. MOUNT PER DETAIL #1 ON E0.1 U.N.O. PROVIDE 1"CONDUIT MINIMUM STUBBED UP INTO CEILING SPACE.

CONSULTANT:
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ELECTRICAL SYMBOLS LIST AND ABBREVIATIONS
COLUMBUS WELDING PROGRAM

DOWNEY UNIFIED SCHOOL DISTRICT
12320 WOODRUFF AVENUE
DOWNEY, CA 90241

SEALS:
REGISTERED PROFESSIONAL ENGINEER — CHEN HSING FANG — No. E 16592 — ELECTRICAL — STATE OF CALIFORNIA

sgh ARCHITECTS

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PROJECT NUMBER: 21-59101-00
PROJECT STATUS: CD
PROJECT ISSUED: 06/14/21
REVISION: DATE: DESCRIPTION:
9/9/21 ISSUED FOR BID

E0.2

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	FINISH	LAMP(S)	REMARKS	MANUFACTURER & NO.
A / 20	WALL MOUNTED LED DOCK LIGHT WITH MOUNTING KIT, 40"ARM, 9' POWER CORD, AND INTEGRAL ON/OFF SWITCH	YELLOW	LED 5000K 1800 LUMEN MINIMUM		GLOBAL INDUSTRIAL #423250

ACCEPTANCE TESTING

MANDATORY ACCEPTANCE TESTING PER TITLE 24, PART 6 SECTION 130.4 SHALL BE AS FOLLOWS:

THE CONTRACTOR SHALL PROVIDE THE ACCEPTANCE TESTING AGENT. THE ACCEPTANCE TESTING AGENT SHALL BE A CERTIFIED LIGHTING CONTROLS ACCEPTANCE TEST TECHNICIAN (CLCATT). THE CLCATT SHALL PERFORM ALL LIGHTING CONTROL INSTALLATION CERTIFICATION AS REQUIRED BY TITLE 24, PART 6 SECTION 130.4 (a) AND 130.4 (b). THIS SHALL INCLUDE, BUT NOT LIMITED TO, FILLING OUT, SIGNING AND SUBMITTING ALL REQUIRED DOCUMENTATION,

THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE LIGHTING CONTROL SYSTEMS WITH THE CLCATT PRIOR TO INSTALLATION.

LIGHTING CONTROL SYSTEM SEQUENCE OF OPERATIONS

REFER TO LIGHTING PLANS FOR QUANTITY AND LOCATION OF ALL LIGHTING CONTROL COMPONENTS AND LIGHT FIXTURES; IDENTIFICATION OF LIGHT FIXTURE AND DEVICE SWITCH LEG IDENTIFICATION. REFER TO THE LIGHTING CONTROL WIRING DIAGRAMS FOR ADDITIONAL INFORMATION. LIGHTING CONTROLS SHALL BE INSTALLED IN COMPLIANCE WITH 2016 CALIFORNIA ENERGY CODE (CEC) SECTION 130.1 MINIMUM.

OFFICE/WORKROOMS/RECEPTION AREAS/LIBRARIES (GENERAL LIGHTING) - ROOM OCCUPANCY SENSOR(S) SHALL TURN LIGHT FIXTURES OFF WHEN ROOM HAS BEEN UNOCCUPIED FOR 20 MINUTES. LIGHT FIXTURES SHALL BE TURNED ON TO 50 PERCENT WHEN ROOM BECOMES OCCUPIED. WHEN LIGHT FIXTURES ARE TURNED ON AT WALL SWITCH, THEY SHALL BE SET OR COME ON TO FULL BRIGHTNESS OR PRESET FOOT CANDLE LEVELS.

WALL DIMMERS SHALL BE USED FOR MANUAL CONTROL OF LIGHT FIXTURES AND SHALL BE EQUIPPED WITH AN ON/OFF SWITCH.

LIGHT FIXTURES WHICH ARE REQUIRED TO HAVE AUTOMATIC "DAYLIGHTING" CONTROLS SHALL ALSO BE CONTROLLED WITH A PHOTOCELL IN ADDITION TO OCCUPANCY SENSORS AND WALL DIMMERS. THE PHOTOCELL SHALL MEASURE THE AMOUNT OF DAYLIGHT ENTERING THE SPACE AND REDUCE THE LIGHT OUTPUT OF THE LIGHT FIXTURES TO MAINTAIN THE DESIGNED FOOT CANDLE LEVELS IN THE ROOM. WALL DIMMERS SHALL ALLOW THE LIGHT FIXTURES TO DIM LOWER THAN THE LIGHT BEING MEASURED IN THE ROOM, BUT NOT HIGHER.

WHERE CONTROLLED RECEPTACLES ARE SHOWN, THEY SHALL BE CONTROLLED BY THE ROOM OCCUPANCY SENSOR AND LIGHTING CONTROL SYSTEM. OCCUPANCY SENSOR SETTINGS USED FOR CONTROLLING LIGHT FIXTURES SHALL BE USED FOR CONTROLLING THE RECEPTACLES.

CLASSROOMS/MULTI-PURPOSE ROOMS/GYMNASIUMS - ROOM OCCUPANCY SENSOR(S) SHALL TURN LIGHT FIXTURES OFF WHEN ROOM HAS BEEN UNOCCUPIED FOR 20 MINUTES. LIGHT FIXTURES SHALL BE TURNED ON TO 50 PERCENT WHEN ROOM BECOMES OCCUPIED. WHEN LIGHT FIXTURES ARE TURNED ON AT WALL SWITCH, THEY SHALL BE SET OR COME ON TO FULL BRIGHTNESS OR PRESET FOOT CANDLE LEVELS.

WALL DIMMERS SHALL BE USED FOR MANUAL CONTROL OF LIGHT FIXTURES AND SHALL BE EQUIPPED WITH AN ON/OFF SWITCH. WHERE MULTI-BUTTON SWITCH(S)/DIMMER(S) ARE USED, EACH BUTTON SHALL BE PROGRAMMED FOR A SPECIFIC LIGHTING SCENE. ACTIVATION OF A SPECIFIC BUTTON SHALL AUTOMATICALLY RECALL THE LIGHTING SCENE. "ON/OFF" AND MANUAL DIMMING CONTROL FUNCTIONS SHALL OVERRIDE PRESET SCENES. REFER TO LIGHTING CONTROL WIRING DIAGRAMS FOR SCENE SETTINGS AND SWITCH BUTTON IDENTIFICATION WHERE REQUIRED.

LIGHT FIXTURES WHICH ARE REQUIRED TO HAVE AUTOMATIC "DAYLIGHTING" CONTROLS SHALL ALSO BE CONTROLLED WITH A PHOTOCELL IN ADDITION TO OCCUPANCY SENSORS AND WALL DIMMERS. THE PHOTOCELL SHALL MEASURE THE AMOUNT OF DAYLIGHT ENTERING THE SPACE AND REDUCE THE LIGHT OUTPUT OF THE LIGHT FIXTURES TO MAINTAIN THE DESIGNED FOOT CANDLE LEVELS IN THE ROOM. WALL DIMMERS SHALL ALLOW THE LIGHT FIXTURES TO DIM LOWER THAN THE LIGHT BEING MEASURED IN THE ROOM, BUT NOT HIGHER.

CORRIDORS - CORRIDOR OCCUPANCY SENSORS SHALL REDUCE THE LIGHTING POWER BY 50% WHEN CORRIDOR HAS BEEN UNOCCUPIED FOR 5 MINUTES. LIGHT FIXTURES SHALL BE COMPLETELY TURNED OFF WHEN SPACE HAS BEEN UNOCCUPIED FOR 20 MINUTES. LIGHT FIXTURES SHALL BE AUTOMATICALLY TURNED ON WHEN SPACE IS OCCUPIED. WHEN LIGHT FIXTURES ARE TURNED ON, THEY SHALL BE SET TO FULL BRIGHTNESS OR PRESET FOOT CANDLE LEVELS.

WALL SWITCHES SHALL BE USED FOR MANUAL "ON/OFF" CONTROL OF LIGHT FIXTURES.

RESTROOMS - ROOM OCCUPANCY SENSOR(S) SHALL TURN LIGHT FIXTURES OFF WHEN ROOM HAS BEEN UNOCCUPIED FOR 15 MINUTES. LIGHT FIXTURES SHALL BE AUTOMATICALLY TURNED ON WHEN ROOM BECOMES OCCUPIED. WHEN LIGHT FIXTURES ARE TURNED ON, THEY SHALL BE SET TO FULL BRIGHTNESS OR PRESET FOOT CANDLE LEVELS.

WALL SWITCHES SHALL BE USED FOR MANUAL "ON/OFF" CONTROL OF LIGHT FIXTURES.

WHERE SHOWN ON PLANS, WALL DIMMERS SHALL BE USED FOR MANUAL CONTROL OF LIGHT FIXTURES AND SHALL BE EQUIPPED WITH AN "ON/OFF" SWITCH.

STORAGE ROOMS - ROOM OCCUPANCY WALL SENSOR(S) SHALL TURN LIGHT FIXTURES OFF WHEN ROOM HAS BEEN UNOCCUPIED FOR 15 MINUTES. LIGHT FIXTURES SHALL BE MANUALLY TURNED ON WHEN ROOM IS OCCUPIED. WHEN LIGHT FIXTURES ARE TURNED ON, THEY SHALL BE SET TO FULL BRIGHTNESS OR PRESET FOOT CANDLE LEVELS.

WALL SWITCHES SHALL BE USED FOR MANUAL "ON/OFF" CONTROL OF LIGHT FIXTURES.

WHERE SHOWN ON PLANS, WALL DIMMERS SHALL BE USED FOR MANUAL CONTROL OF LIGHT FIXTURES AND SHALL BE EQUIPPED WITH AN "ON/OFF" SWITCH.

LIBRARY STACK AISLE - OCCUPANCY SENSORS CONTROLLING LIGHT FIXTURES ILLUMINATING BOOK STACK AISLES MATCHING THE REQUIREMENTS OF CEC 131(C),6,B SHALL REDUCE THE LIGHTING POWER BY 50% WHEN THE BOOK STACK AISLE IS UNOCCUPIED FOR 5 MINUTES. LIGHT FIXTURES SHALL BE COMPLETELY TURNED OFF WHEN BOOK STACK AISLES HAVE BEEN UNOCCUPIED FOR 20 MINUTES. LIGHT FIXTURES SHALL AUTOMATICALLY COME ON WHEN BOOK STACK AISLES ARE OCCUPIED. WHEN LIGHT FIXTURES ARE TURNED ON, THEY SHALL BE SET TO FULL BRIGHTNESS OR PRESET FOOT CANDLE LEVELS.

LIGHT LEVELS:
LIGHTING LEVELS (FOOTCANDLES) WILL BE DESIGNED IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY (IES) GUIDELINES. THE FOLLOWING LIGHTING LEVELS WILL BE PROVIDED:

AREA	MAINTAINED LIGHTING LEVEL AT THE WORK PLANE
OFFICES	40-50
LOBBY	20-30
CORRIDORS	10-20
STORAGE/JANITOR'S ROOM	10-20
TOILETS	20-30
ELECTRICAL/MECHANICAL ROOMS	20-30
COMMUNICATIONS EQUIPMENT ROOMS	50-70
CLASSROOMS	40-50
KITCHENS	40-50
GYMNASIUM	50-100
LIBRARY	40-50

LIGHTING FIXTURE NOTES

1. EXIT SIGNS WITH THROUGH WIRING SHALL BE EQUIPPED WITH A SEPARATE JUNCTION BOX FOR TERMINATION OF CONDUITS. FURNISH A SEPARATE BOX FOR EACH CIRCUIT.
2. CONTRACTOR SHALL VERIFY ALL MOUNTING REQUIREMENTS FOR ALL RECESSED LIGHTING FIXTURES, PRIOR TO SHOP DRAWINGS SUBMITTALS. IT IS THE CONTRACTORS RESPONSIBILITY TO SECURE THE MOUNTING HARDWARE THAT IS COMPATIBLE WITH THE CEILING AND THE CONFIGURATION OF THE LIGHTING LAYOUT.
3. FOR LIGHTING FIXTURE VOLTAGE RATINGS, THE CONTRACTOR IS RESPONSIBLE TO VERIFY FIXTURE AND DRIVER VOLTAGES WITH BRANCH CIRCUIT WIRING.
4. LAMP COLOR FOR LED FIXTURES SHALL BE 4000°K U.N.O.
5. LENSES OF ALL LED LIGHTING FIXTURES SHALL NOT BE LESS THAN 0.125" THICK, EQUAL TO KSH-K12 WHERE APPLICABLE.
6. FOR FIXTURES RECESSED INTO NON-COMBUSTIBLE CEILINGS, PROVIDE YOKE MOUNTED OUTLET BOXES, ACCESSIBLE FROM INSIDE FIXTURE.
7. FIXTURES SHALL BE U.L. LISTED FOR INTENDED LOCATION.
8. FINISH OF FIXTURES SHALL BE AS SELECTED BY ARCHITECT.
9. LIGHTING FIXTURES IN MECHANICAL SPACES ARE SHOWN IN THEIR APPROXIMATE LOCATION ONLY. DO NOT INSTALL LIGHT OUTLETS FOR FIXTURES UNTIL MECHANICAL PIPING AND DUCTWORK ARE INSTALLED; THEN LIGHTING FIXTURES SHALL BE INSTALLED IN LOCATIONS BEST SUITED FOR EQUIPMENT ARRANGEMENT AND AS APPROVED BY THE PROJECT MANAGER.
10. THE CONTRACTOR SHALL VERIFY ALL WINDOW HEIGHTS AND DAYLIT ZONES PRIOR TO INSTALLATION OF LIGHTING CONTROLS.
11. ALL LED LIGHT FIXTURES SHALL BE TESTED TO LM-79 AND LM-80 IES STANDARDS.

SUSPENDED ACOUSTICAL CEILINGS:

HEAVY DUTY GRID SYSTEM:
FLUSH OR RECESSED LIGHT FIXTURES WEIGHING LESS THAN 56 POUNDS MAY BE SUPPORTED DIRECTLY ON THE RUNNERS OF A HEAVY DUTY GRID SYSTEM. IN ADDITION, THEY SHALL HAVE A MINIMUM OF TWO 12 GAUGE SLACK SAFETY WIRES ATTACHED TO THE FIXTURE AT DIAGONAL CORNERS AND ANCHORED TO THE STRUCTURE ABOVE. ALL 4 FOOT BY 4 FOOT LIGHT FIXTURES SHALL HAVE SLACK SAFETY WIRES AT EACH CORNER. ALL FLUSH OR RECESSED LIGHT FIXTURES WEIGHING 56 POUNDS OR MORE SHALL BE INDEPENDENTLY SUPPORTED BY NOT LESS THAN 4 TAUT 12 GAUGE WIRES EACH ATTACHED TO THE FIXTURE AND TO THE STRUCTURE ABOVE. REGARDLESS OF THE TYPE OF CEILING GRID SYSTEM USED. THE 4 TAUT 12 GAUGE WIRES INCLUDING THEIR ATTACHMENT TO THE STRUCTURE ABOVE SHALL BE CAPABLE OF SUPPORTING 4 TIMES THE WEIGHT OF THE UNIT.

SURFACE MOUNTED FIXTURES:
SUPPORT SURFACE MOUNTED LIGHT FIXTURES BY AT LEAST TWO POSITIVE DEVICES WHICH SURROUND THE CEILING RUNNER AND WHICH ARE EACH SUPPORTED FROM THE STRUCTURE ABOVE BY A 12 GAUGE WIRE. SPRING CLIPS OR CLAMPS THAT CONNECT ONLY TO THE RUNNER ARE NOT ACCEPTABLE. PROVIDE ADDITIONAL SUPPORTS WHEN LIGHT FIXTURES ARE EIGHT FEET OR LONGER.

SUSPENDED DRYWALL CEILINGS:
ALL RECESSED OR DROP-IN LIGHT FIXTURES SHALL BE SUPPORTED DIRECTLY BY MAIN RUNNERS OR BY SUPPLEMENTAL FRAMING WHICH IS SUPPORTED BY MAIN RUNNERS. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE CEILING CONTRACTOR TO PROVIDE APPROPRIATE FRAMING AND LOCATION FOR FIXTURES. SURFACE MOUNTED FIXTURES SHALL BE ATTACHED TO A MAIN RUNNER WITH A POSITIVE CLAMPING DEVICE MADE OF MATERIAL WITH A MINIMUM OF 14 GAUGE. ROTATIONAL SPRING CATCHES SHALL NOT BE ALLOWED.

PENDANT MOUNTED FIXTURES:
PENDANT MOUNTED FIXTURES SHALL BE SUPPORTED BY A WIRE OR (SAFETY) CABLE PASSING THROUGH EACH PENDANT HANGER AND CAPABLE OF SUPPORTING 4 TIMES THE WEIGHT OF THE FIXTURE. WHERE PENDANT MOUNTED FIXTURES ARE INSTALLED ON A GRID CEILING OR WHERE THE FIXTURE WEIGHS 50 POUNDS OR MORE, THE WIRE OR CABLE PASSING THROUGH THE PENDANT HANGER SHALL BE SUPPORTED DIRECTLY FROM THE STRUCTURE.

PENDANT MOUNTED FIXTURES SHALL BE SUPPLIED WITH SWIVEL HANGERS AND SHALL BE CAPABLE OF SWINGING 45 DEGREES IN ANY DIRECTION FROM PLUMB WITHOUT OBSTRUCTION. FIXTURES SHALL HAVE STEMS WHICH ARE ONE PIECE WITHOUT COUPLING AND ARE TO HAVE THE SAME FINISH AS THE FIXTURE AND SWIVEL HANGER CANOPY. INDUSTRIAL TYPE FLUORESCENT FIXTURES INSTALLED IN AREAS OR ROOMS WITH EXPOSED STRUCTURE (NO CEILING) MAY BE CHAIN HUNG IN LIEU OF PROVIDING A STEM AND CANOPY. WHERE FIXTURES CAN NOT SWING UNOBSTRUCTED 45 DEGREES IN ANY DIRECTION, ADDITIONAL GUY WIRES OR SOLID BRACING IS REQUIRED. THE CONTRACTOR SHALL SUBMIT THE METHOD OF BRACING TO THE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION.

CONSULTANT:
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LIGHTING FIXTURE SCHEDULE AND NOTES

COLUMBUS WELDING PROGRAM

DOWNEY UNIFIED SCHOOL DISTRICT
12320 WOODRUFF AVENUE
DOWNEY, CA 90241

SEALS:

sgh ARCHITECTS

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PROJECT NUMBER: 21-59101-00
PROJECT STATUS: CD
PROJECT ISSUED: 06/14/21
REVISION: DATE: DESCRIPTION:
△ 9/9/21 **ISSUED FOR BID**

E0.3

P:\DUSD Columbus HS – Welding Yard #21046\Dwgs\E\21046E03.dwg 9-03-21-10:34 AM

Bid Set - NOT FOR CONSTRUCTION

Size-Ampacity	Copper AWG 12 (Max ampacity - 25 amps 60°)															
Strands	7	1	7	1	7	1	7	1	7	1	7	1	7	1	7	1
Phase	1	1	1	1	3	3	1	1	3	3	1	1	1	1	3	3
Voltage	120	120	208	208	208	208	240	240	240	240	277	277	480	480	480	480
Amps	Maximum lenghts of wire at 3% voltage drop in feet															
1	909.1	932.6	1575.8	1616.6	1819.5	1866.7	1818.2	1865.3	2099.5	2153.8	2098.5	2152.8	3636.4	3730.6	4198.9	4307.7
2	454.5	466.3	787.9	808.3	909.8	933.3	909.1	932.6	1049.7	1076.9	1049.2	1076.4	1818.2	1865.3	2099.5	2153.8
3	303.0	310.9	525.3	538.9	606.5	622.2	606.1	621.8	699.8	717.9	699.5	717.6	1212.1	1243.5	1399.6	1435.9
4	227.3	233.2	393.9	404.1	454.9	466.7	454.5	466.3	524.9	538.5	524.6	538.2	909.1	932.6	1049.7	1076.9
5	181.8	186.5	315.2	323.3	363.9	373.3	363.6	373.1	419.9	430.8	419.7	430.6	727.3	746.1	839.8	861.5
6	151.5	155.4	262.6	269.4	303.3	311.1	303.0	310.9	349.9	359.0	349.7	358.8	606.1	621.8	699.8	717.9
7	129.9	133.2	225.1	230.9	259.9	266.7	259.7	266.5	299.9	307.7	299.8	307.5	519.5	532.9	599.8	615.4
8	113.6	116.6	197.0	202.1	227.4	233.3	227.3	233.2	262.4	269.2	262.3	269.1	454.5	466.3	524.9	538.5
9	101.0	103.6	175.1	179.6	202.2	207.4	202.0	207.3	233.3	239.3	233.2	239.2	404.0	414.5	466.5	478.6
10	90.9	93.3	157.6	161.7	182.0	186.7	181.8	186.5	209.9	215.4	209.8	215.3	363.6	373.1	419.9	430.8
15	60.6	62.2	105.1	107.8	121.3	124.4	121.2	124.4	140.0	143.6	139.9	143.5	242.4	248.7	279.9	287.2
16	56.8	58.3	98.5	101.0	113.7	116.7	113.6	116.6	131.2	134.6	131.2	134.6	227.3	233.2	262.4	269.2
17	53.5	54.9	92.7	95.1	107.0	109.8	107.0	109.7	123.5	126.7	123.4	126.6	213.9	219.4	247.0	253.4
18	50.5	51.8	87.5	89.8	101.1	103.7	101.0	103.6	116.6	119.7	116.6	119.6	202.0	207.3	233.3	239.3
19	47.8	49.1	82.9	85.1	95.8	98.2	95.7	98.2	110.5	113.4	110.4	113.3	191.4	196.3	221.0	226.7
20	45.5	46.6	78.8	80.8	91.0	93.3	90.9	93.3	105.0	107.7	104.9	107.6	181.8	186.5	209.9	215.4
25	36.4	37.3	63.0	64.7	72.8	74.7	72.7	74.6	84.0	86.2	83.9	86.1	145.5	149.2	168.0	172.3
30																
35																
40																
45																
50																
60																
70																
80																
90																
100																

Size-Ampacity	Copper AWG 10 (Max ampacity - 30 amps 60°)															
Strands	7	1	7	1	7	1	7	1	7	1	7	1	7	1	7	1
Phase	1	1	1	1	3	3	1	1	3	3	1	1	1	1	3	3
Voltage	120	120	208	208	208	208	240	240	240	240	277	277	480	480	480	480
Amps	Maximum lenghts of wire at 3% voltage drop in feet															
1	1451.6	1487.6	2516.1	2578.5	2905.4	2977.4	2903.2	2975.2	3352.4	3435.5	3350.8	3433.9	5806.5	5950.4	6704.7	6870.9
2	725.8	743.8	1258.1	1289.3	1452.7	1488.7	1451.6	1487.6	1676.2	1717.7	1675.4	1716.9	2903.2	2975.2	3352.4	3435.5
3	483.9	495.9	838.7	859.5	968.5	992.5	967.7	991.7	1117.5	1145.2	1116.9	1144.6	1935.5	1983.5	2234.9	2290.3
4	362.9	371.9	629.0	644.6	726.3	744.4	725.8	743.8	838.1	858.9	837.7	858.5	1451.6	1487.6	1676.2	1717.7
5	290.3	297.5	503.2	515.7	581.1	595.5	580.6	595.0	670.5	687.1	670.2	686.8	1161.3	1190.1	1340.9	1374.2
6	241.9	247.9	419.4	429.8	484.2	496.2	483.9	495.9	558.7	572.6	558.5	572.3	967.7	991.7	1117.5	1145.2
7	207.4	212.5	359.4	368.4	415.1	425.3	414.7	425.0	478.9	490.8	478.7	490.6	829.5	850.1	957.8	981.6
8	181.5	186.0	314.5	322.3	363.2	372.2	362.9	371.9	419.0	429.4	418.9	429.2	725.8	743.8	838.1	858.9
9	161.3	165.3	279.6	286.5	322.8	330.8	322.6	330.6	372.5	381.7	372.3	381.5	645.2	661.2	745.0	763.4
10	145.2	148.8	251.6	257.9	290.5	297.7	290.3	297.5	335.2	343.5	335.1	343.4	580.6	595.0	670.5	687.1
15	96.8	99.2	167.7	171.9	193.7	198.5	193.5	198.3	223.5	229.0	223.4	228.9	387.1	396.7	447.0	458.1
16	90.7	93.0	157.3	161.2	181.6	186.1	181.5	186.0	209.5	214.7	209.4	214.6	362.9	371.9	419.0	429.4
17	85.4	87.5	148.0	151.7	170.9	175.1	170.8	175.0	197.2	202.1	197.1	202.0	341.6	350.0	394.4	404.2
18	80.6	82.6	139.8	143.3	161.4	165.4	161.3	165.3	186.2	190.9	186.2	190.8	322.6	330.6	372.5	381.7
19	76.4	78.3	132.4	135.7	152.9	156.7	152.8	156.6	176.4	180.8	176.4	180.7	305.6	313.2	352.9	361.6
20	72.6	74.4	125.8	128.9	145.3	148.9	145.2	148.8	167.6	171.8	167.5	171.7	290.3	297.5	335.2	343.5
25	58.1	59.5	100.6	103.1	116.2	119.1	116.1	119.0	134.1	137.4	134.0	137.4	232.3	238.0	268.2	274.8
30	48.4	49.6	83.9	86.0	96.8	99.2	96.8	99.2	111.7	114.5	111.7	114.5	193.5	198.3	223.5	229.0
35																
40																
45																
50																
60																
70																
80																
90																
100																

BRANCH CIRCUIT VOLTAGE DROP CALCULATION

$$VD = \frac{2 \times L \times R \times I}{1000}$$

VD = VOLTAGE DROP
V = VOLTAGE
L = ONE WAY LENGTH OF CONDUCTOR
R = CONDUCTOR RESISTANCE IN OHMS PER THOUSAND FEET
I = LOAD CURRENT (AMPERES)

SHEET NOTES

1. PROVIDE NEW BREAKER SIZE AS INDICATED (TO MATCH EXISTING AIC RATING)
2. INSTALL 1 INCH CONDUIT WITH #4/0 GROUNDING ELECTRODE CONDUCTOR TO UFER GROUND SYSTEM CABLE. UFER GROUND SYSTEM SHALL BE 40 FEET OF #4/0 BARE COPPER GROUND.
3. FURNISH GROUND BUS IN EACH TRANSFORMER. CONNECT PRIMARY FEEDER EQUIPMENT GROUNDING CONDUCTORS, SECONDARY NEUTRAL, SECONDARY FEEDER EQUIPMENT GROUNDING CONDUCTOR, GROUNDING ELECTRODE CONDUCTOR, AND TRANSFORMER FRAME TO GROUND BUS. CONNECT GROUND BUS TO BUILDING STEEL OR CENTRAL GROUND POINT AS APPLICABLE. CONNECTIONS TO BUILDING STEEL SHALL BE WITH EXOTHERMIC WELDS. TYPICAL ALL TRANSFORMERS.
4. FURNISH GROUND BUS IN EACH BRANCH CIRCUIT PANEL, ALL PANELS 480/277 VOLT AND 208/120 VOLT, SHALL HAVE THE FEEDER EQUIPMENT GROUNDING CONDUCTOR CONNECTED TO GROUND BUS. FURNISH EQUIPMENT GROUNDING CONDUCTOR IN EVERY FEEDER AND BRANCH CIRCUIT, RUN TO LAST OUTLET AND CONNECT TO BUS. CONDUIT GROUND IS NOT ACCEPTABLE AS A SUBSTITUTE. TYPICAL ALL PANELS, SWITCHBOARDS, DISTRIBUTION PANELBOARDS, AND SWITCHGEAR.
5. CONNECT TO BUILDING STEEL OR CENTRAL GROUND POINT AS APPLICABLE. SEE TRANSFORMER GROUND SIZING TABLE ON THIS SHEET FOR GROUNDING ELECTRODE CONDUCTOR AND CABLE SIZE.
6. PANELBOARDS SHALL BE PROVIDED WITH BRANCH METERING CAPABILITIES AND ALL REQUIRED ACCESSORIES.
7. ALL CIRCUIT BREAKERS SHALL BE FULLY RATED; NO SERIES RATED CIRCUIT BREAKERS ALLOWED, TYPICAL.
8. PROVIDE MICARTA NAMEPLATE ON PANELBOARD TO INDICATE PANEL NAME, VOLTAGE AND BUS AMPERAGE.

LOAD SUMMARY "MS"

SCE HIGH DEMAND (8/13/2019 - 9/12/2019)	=	348 KW
348 KW @ 80% PF	=	435 KVA
REMOVED LOAD	=	<0.0 KVA>
NEW LOAD	=	257.2 KVA
TOTAL LOAD	=	692.2 KVA
TOTAL LOAD @ 125%	=	865.3 KVA
865.3 KVA @ 480V 3Ø	=	1,041.2 AMPERES

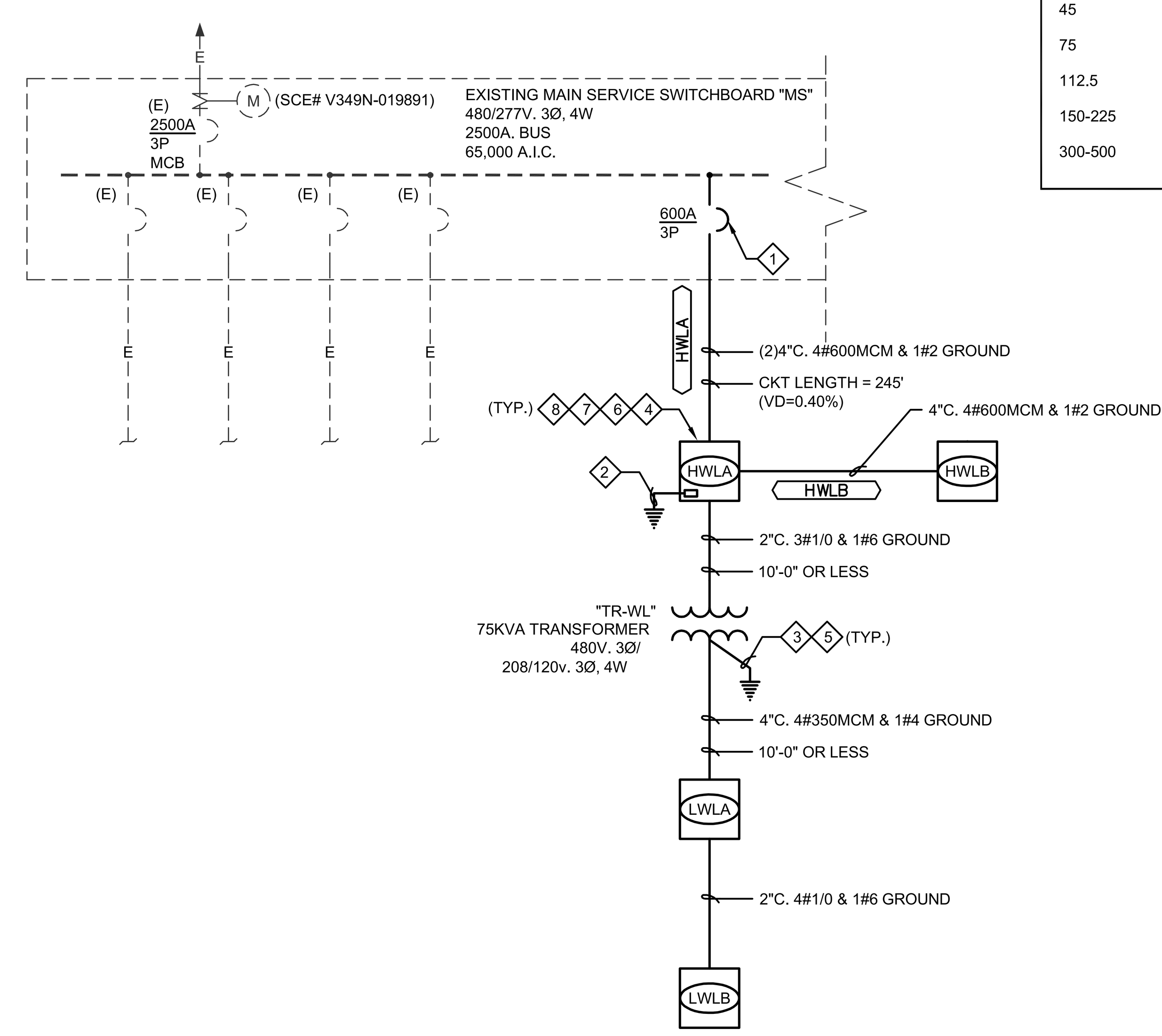
EXISTING 2500A PANEL IS ADEQUATE.

TRANSFORMER GROUND SIZING TABLE		
KVA	208/120 VOLT	
	AWG (CU)	CONDUIT SIZE
30 AND LESS	8	3/4"
45	4	3/4"
75	2	3/4"
112.5	1/0	1"
150-225	2/0	1"
300-500	4/0	1"

Size-Ampacity	Copper AWG 8 (Max ampacity - 40 amps 60°)															
Strands	7	1	7	1	7	1	7	1	7	1	7	1	7	1	7	1
Phase	1	1	1	1	3	3	1	1	3	3	1	1	1	1	3	3
Voltage	120	120	208	208	208	208	240	240	240	240	277	277	480	480	480	480
Amps	Maximum lenghts of wire at 3% voltage drop in feet															
1	2313.6	2356.0	4010.3	4083.8	4630.7	4715.5	4627.2	4712.0	5343.1	5441.0	5340.6	5438.5	9254.5	9424.1	10686.2	10882.0
2	1156.8	1178.0	2005.1	2041.9	2315.3	2357.8	2313.6	2356.0	2671.5	2720.5	2670.3	2719.2	4627.2	4712.0	5343.1	5441.0
3	771.2	785.3	1336.8	1361.3	1543.6	1571.8	1542.4	1570.7	1781.0	1813.7	1780.2	1812.8	3084.8	3141.4	3562.1	3627.3
4	578.4	589.0	1002.6	1020.9	1157.7	1178.9	1156.8	1178.0	1335.8	1360.2	1335.2	1359.6	2313.6	2356.0	2671.5	2720.5
5	462.7	471.2	802.1	816.8	926.1	943.1	925.4	942.4	1068.6	1088.2	1068.1	1087.7	1850.9	1884.8	2137.2	2176.4
6	385.6	392.7	668.4	680.6	771.8	785.9	771.2	785.3	890.5	906.8	890.1	906.4	1542.4	1570.7	1781.0	1813.7
7	330.5	336.6	572.9	583.4	661.5	673.6	661.0	673.1	763.3	777.3	762.9	776.9	1322.1	1346.3	1526.6	1554.6
8	289.2	294.5	501.3	510.5	578.8	589.4	578.4	589.0	667.9	680.1	667.6	679.8	1156.8	1178.0	1335.8	1360.2
9	257.1	261.8	445.6	453.8	514.5	523.9	514.1	523.6	593.7	604.6	593.4	604.3	1028.3	1047.1	1187.4	1209.1
10	231.4	235.6	401.0	408.4	463.1	471.6	462.7	471.2	534.3	544.1	534.1	543.8	925.4	942.4	1068.6	1088.2
15	154.2	157.1	267.4	272.3	308.7	314.4	308.5	314.1	356.2	362.7	356.0	362.6	617.0	628.3	712.4	725.5
16	144.6	147.3	250.6	255.2	289.4	294.7	289.2	294.5	333.9	340.1	333.8	339.9	578.4	589.0	667.9	680.1
17	136.1	138.6	235.9	240.2	272.4	277.4	272.2	277.2	314.3	320.1	314.2	319.9	544.4	554.4	628.6	640.1
18	128.5	130.9	222.8	226.9	257.3	262.0	257.1	261.8	296.8	302.3	296.7	302.1	514.1	523.6	593.7	604.6
19	121.8	124.0	211.1	214.9	243.7	248.2	243.5	248.0	281.2	286.4	281.1	286.2	487.1	496.0	562.4	572.7
20	115.7	117.8	200.5	204.2	231.5	235.8	231.4	235.6	267.2	272.0	267.0	271.9	462.7	471.2	534.3	544.1
25	92.5	94.2	160.4	163.4	185.2	188.6	185.1	188.5	213.7	217.6	213.6	217.5	370.2	377.0	427.4	435.3
30	77.1	78.5	133.7	136.1	154.4	157.2	154.2	157.1	178.1	181.4	178.0	181.3	308.5	314.1	356.2	362.7
35	66.1	67.3	114.6	116.7	132.3	134.7	132.2	134.6	152.7	155.5	152.6	155.4	264.4	269.3	305.3	310.9
40	57.8	58.9	100.3	102.1	115.8	117.9	115.7	117.8	133.6	136.0	133.5	136.0	231.4	235.6	267.2	272.0
45	51.4	52.4	89.1	90.8	102.9	104.8	102.8	104.7	118.7	120.9	118.7	120.9	205.7	209.4	237.5	241.8
50	46.3	47.1	80.2	81.7	92.6	94.3	92.5	94.2	106.9	108.8	106.8	108.8	185.1	188.5	213.7	217.6
60	38.6	39.3	66.8	68.1	77.2	78.6	77.1	78.5	89.1	90.7	89.0	90.6	154.2	157.1	178.1	181.4
70																
80																
90																
100																

Size-Ampacity	Copper AWG 6 (Max ampacity - 55 amps 60°)								
Strands	7	7	7	7	7	7	7	7	7
Phase	1	1	3	1	3	1	3	1	3
Voltage	120	208	208	240	240	277	277	480	480
Amps	Maximum lenghts of wire at 3% voltage drop in feet								
1	3666.0	6354.4	7337.4	7332.0	8466.2	8462.3	9771.4	14664.0	16932.5
2	1833.0	3177.2	3668.7	3666.0	4233.1	4231.2	4885.7	7332.0	8466.2
3	1222.0	2118.1	2445.8	2444.0	2822.1	2820.8	3257.1	4888.0	5644.2
4	916.5	1588.6	1834.4	1833.0	2116.6	2115.6	2442.9	3666.0	4233.1
5	733.2	1270.9	1467.5	1466.4	1693.2	1692.5	1954.3	2932.8	3386.5
6	611.0	1059.1	1222.9	1222.0	1411.0	1410.4	1628.6	2444.0	2822.1
7	523.7	907.8	1048.2	1047.4	1209.5	1208.9	1395.9	2094.9	2418.9
8	458.2	794.3	917.2	916.5	1058.3	1057.8	1221.4	1833.0	2116.6
9	407.3	706.0	815.3	814.7	940.7	940.3	1085.7	1629.3	1881.4
10	366.6	635.4	733.7	733.2	846.6	846.2	977.1	1466.4	1693.2
15	244.4	423.6	489.2	488.8	564.4	564.2	651.4	977.6	1128.8
16	229.1	397.1	458.6	458.2	529.1	528.9	610.7	916.5	1058.3
17	215.6	373.8	431.6	431.3	498.0	497.8	574.8	862.6	996.0
18	203.7	353.0	407.6	407.3	470.3	470.1	542.9	814.7	940.7
19	192.9	334.4	386.2	385.9	445.6	445.4	514.3	771.8	891.2
20	183.3	317.7	366.9	366.6	423.3	423.1	488.6	733.2	846.6
25	146.6	254.2	293.5	293.3	338.6	338.5	390.9	586.6	677.3
30	122.2	211.8	244.6	244.4	282.2	282.1	325.7	488.8	564.4
35	104.7	181.6	209.6	209.5	241.9	241.8	279.2	419.0	483.8
40	91.6	158.9	183.4	183.3	211.7	211.6	244.3	366.6	423.3
45	81.5	141.2	163.1	162.9	188.1	188.1	217.1	325.9	376.3
50	73.3	127.1	146.7	146.6	169.3	169.2	195.4	293.3	338.6
60	61.1	105.9	122.3	122.2	141.1	141.0	162.9	244.4	282.2
70	52.4	90.8	104.8	104.7	120.9	120.9	139.6	209.5	241.9
80	45.8	79.4	91.7	91.6	105.8	105.8	122.1	183.3	211.7
90									
100									

Size-Ampacity	Copper AWG 4 (Max ampacity - 70 amps 60°)							
Strands	7	7	7	7	7	7	7	7
Phase	1	1	3	1	3	1	1	3
Voltage	120	208	208	240	240	277	480	480
Amps								
1	5844.2	10129.9	11697.0	11688.3	13496.5	13490.3	23376.6	26993.0
2	2922.1	5064.9	5848.5	5844.2	6748.2	6745.1	11688.3	13496.5
3	1948.1	3376.6	3899.0	3896.1	4498.8	4496.8	7792.2	8997.7
4	1461.0	2532.5	2924.2	2922.1	3374.1	3372.6	5844.2	6748.2
5	1168.8	2026.0	2339.4	2337.7	2699.3	2698.1	4675.3	5398.6
6	974.0	1688.3	1949.5	1948.1	2249.4	2248.4	3896.1	4498.8
7	834.9	1447.1	1671.0	1669.8	1928.1	1927.2	3339.5	3856.1
8	730.5	1266.2	1462.1	1461.0	1687.1	1686.3	2922.1	3374.1
9	649.4	1125.5	1299.7	1298.7	1499.6	1498.9	2597.4	2999.2
10	584.4	1013.0	1169.7	1168.8	1349.6	1349.0	2337.7	2699.3
15	389.6	675.3	779.8	779.2	899.8	899.4	1558.4	1799.5
16	365.3	633.1	731.1	730.5	843.5	843.1	1461.0	1687.1
17	343.8	595.9	688.1	687.5	793.9	793.5	1375.1	1587.8
18	324.7	562.8	649.8	649.4	749.8	749.5	1298.7	1499.6
19	307.6	533.2	615.6	615.2	710.3	710.0	1230.3	1420.7
20	292.2	506.5	584.8	584.4	674.8	674.5	1168.8	1349.6
25	233.8	405.2	467.9	467.5	539.9	539.6	935.1	1079.7
30	194.8	337.7	389.9	389.6	449.9	449.7	779.2	899.8
35	167.0	289.4	334.2	334.0	385.6	385.4	667.9	771.2
40	146.1	253.2	292.4	292.2	337.4	337.3	584.4	674.8
45	129.9	225.1	259.9	259.7	299.9	299.8	519.5	599.8
50	116.9	202.6	233.9	233.8	269.9	269.8	467.5	539.9
60	97.4	168.8	194.9	194.8	224.9	224.8	389.6	449.9
70	83.5	144.7	167.1	167.0	192.8	192.7	334.0	385.6
80	73.1	126.6	146.2	146.1	168.7	168.6	292.2	337.4
90	64.9	112.6	130.0	129.9	150.0	149.9	259.7	299.9
100	58.4	101.3	117.0	116.9	135.0	134.9	233.8	269.9



SINGLE LINE DIAGRAM LEGEND

NEW WORK
EXISTING

NOTICE TO CONTRACTOR:
THIS BRANCH CIRCUIT VOLTAGE DROP SCHEDULE IS TO BE USED WHEN SIZING CONDUCTORS FOR ACTUAL INSTALLED FIELD CONDITION CIRCUIT LENGTHS. SPECIFIC CONDUCTOR SIZING ON PLANS SHALL BE THE MINIMUM SIZE CONDUCTOR USED FOR INSTALLATION UNLESS INSTALLED CONDITION EXCEEDS CIRCUIT LENGTH ALLOWED ON TABLE AND SHALL BE INCREASED TO THE NEXT SIZE CONDUCTOR SCHEDULED. ALL CONDUCTORS AS DESIGNED OR AS REQUIRED PER INSTALLED CONDITION IS PART OF THE CONTRACTORS BASE BID.

CONSULTANT:
DCGA ENGINEERS
Consulting Mechanical and Electrical Engineers
4750 E. Ontario Mills Pkwy
Ontario, Ca. 91764
Ph.909.987.0017
Fax 909.980.7023

PARTIAL SINGLE LINE DIAGRAM

COLUMBUS WELDING PROGRAM

DOWNEY UNIFIED SCHOOL DISTRICT
12320 WOODRUFF AVENUE
DOWNEY, CA 90241

SEALS:
PROFESSIONAL ENGINEER CHEN HSING FANG No. E 16592 ELECTRICAL REGISTERED STATE OF CALIFORNIA

sgh ARCHITECTS

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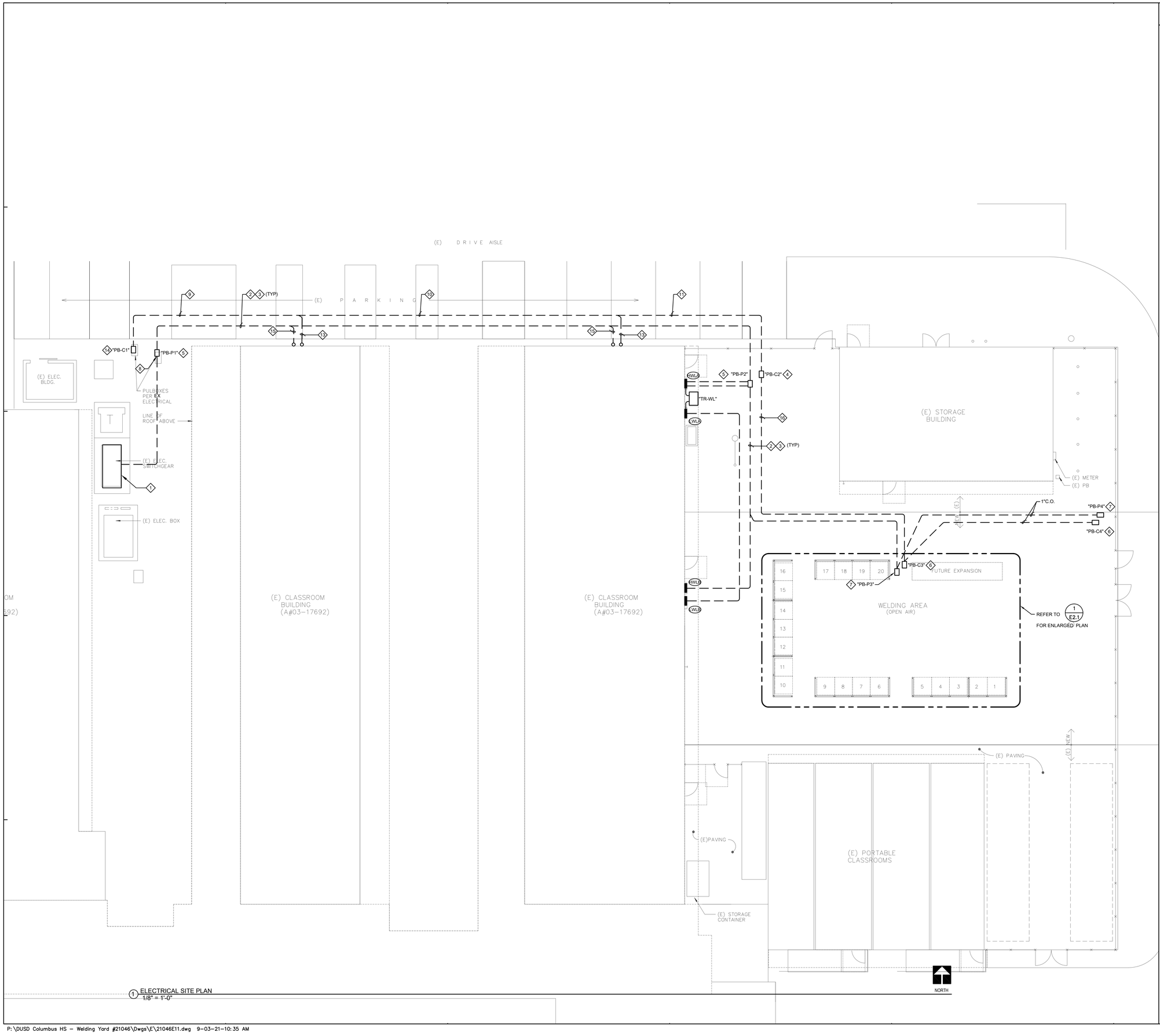
PROJECT NUMBER: 21-59101-00
PROJECT STATUS: CD
PROJECT ISSUED: 06/14/21
REVISION: DATE: DESCRIPTION:
9/9/21 ISSUED FOR BID

E0.4

P:\DUSD Columbus HS – Welding Yard #21046\Dwgs\E\21046E04.dwg 9-03-21-10:35 AM

Bid Set - NOT FOR CONSTRUCTION



1 ELECTRICAL SITE PLAN
1/8" = 1'-0"

SHEET NOTES

1. EXISTING MAIN SWITCHBOARD "MS".
2. SAWCUT, TRENCH AND EXCAVATE AS REQUIRED TO INSTALL CONDUITS AND FEEDERS AS INDICATED. BACKFILL, TAMP AND RESURFACE TO ORIGINAL CONDITION.
3. REFER TO SINGLE LINE DIAGRAM SHEET E0.4 FOR CONDUIT AND WIRING SIZES.
4. 2'X3'XDEPTH AS REQUIRED PRECAST CONCRETE PULLBOX WITH BOLT-DOWN HINGED METAL TRAFFIC RATED COVER ENGRAVED "COMMUNICATION" AND SET FLUSH WITH GRADE ON 6" COMPACTED CRUSHED ROCK.
5. 3'X5'XDEPTH AS REQUIRED PRECAST CONCRETE PULLBOX WITH BOLT-DOWN HINGED METAL TRAFFIC RATED COVER ENGRAVED "POWER" AND SET FLUSH WITH GRADE ON 6" COMPACTED CRUSHED ROCK.
6. 1'X2'XDEPTH AS REQUIRED PRECAST CONCRETE PULLBOX WITH BOLT-DOWN METAL TRAFFIC RATED COVER ENGRAVED "COMMUNICATION" AND SET FLUSH WITH GRADE ON 6" COMPACTED CRUSHED ROCK.
7. 1'X2'XDEPTH AS REQUIRED PRECAST CONCRETE PULLBOX WITH BOLT-DOWN METAL TRAFFIC RATED COVER ENGRAVED "POWER" AND SET FLUSH WITH GRADE ON 6" COMPACTED CRUSHED ROCK.
8. INTERCEPT EXISTING CONDUIT STUB OUTS, (8)4"C.O. AND (3)3"C.O., AND PROVIDE PULLBOX AT POINT OF INTERCEPTION. POTHOLE AREA TO LOCATE CONDUITS.
9. (3) 4"C.O. WITH PULL ROPE AND (10) 2"C.O. WITH PULL ROPE FOR FUTURE COMMUNICATION SYSTEMS.
11. (2) 4"C.O. WITH PULL ROPE AND (7) 2"C.O. WITH PULL ROPE FOR FUTURE COMMUNICATION SYSTEMS.
12. (1) 4"C.O. WITH PULL ROPE AND (4) 2"C.O. WITH PULL ROPE FOR FUTURE COMMUNICATION SYSTEMS.
13. (1) 4"C.O. WITH PULL ROPE AND (3) 2"C.O. WITH PULL ROPE FOR FUTURE COMMUNICATION SYSTEMS AND STUB OUT 12" ABOVE FINISHED GRADE.
14. 3'X5'XDEPTH AS REQUIRED PRECAST CONCRETE PULLBOX WITH BOLT-DOWN HINGED METAL TRAFFIC RATED COVER ENGRAVED "COMMUNICATION" AND SET FLUSH WITH GRADE ON 6" COMPACTED CRUSHED ROCK.
15. (1)4"C.O. WITH PULL ROPE AND (1)3"C.O. FOR FUTURE POWER AND STUB OUT 12" ABOVE FINISHED GRADE.
16. (2) 2"C.O. WITH PULL ROPE AND (1) 2"C.O. WITH PULL ROPE FOR FUTURE COMMUNICATION SYSTEMS.

CONSULTANT:

DCGA ENGINEERS
Consulting Mechanical and Electrical Engineers
17051 Cornell Ave, Suite 200
Cornell, CA 91754
Tel: 909.563.7017
Fax: 909.563.7023

ELECTRICAL SITE PLAN
COLUMBUS WELDING PROGRAM

DOWNEY UNIFIED SCHOOL DISTRICT
12320 WOODRUFF AVENUE
DOWNEY, CA 90241

SEALS:

sgh ARCHITECTS

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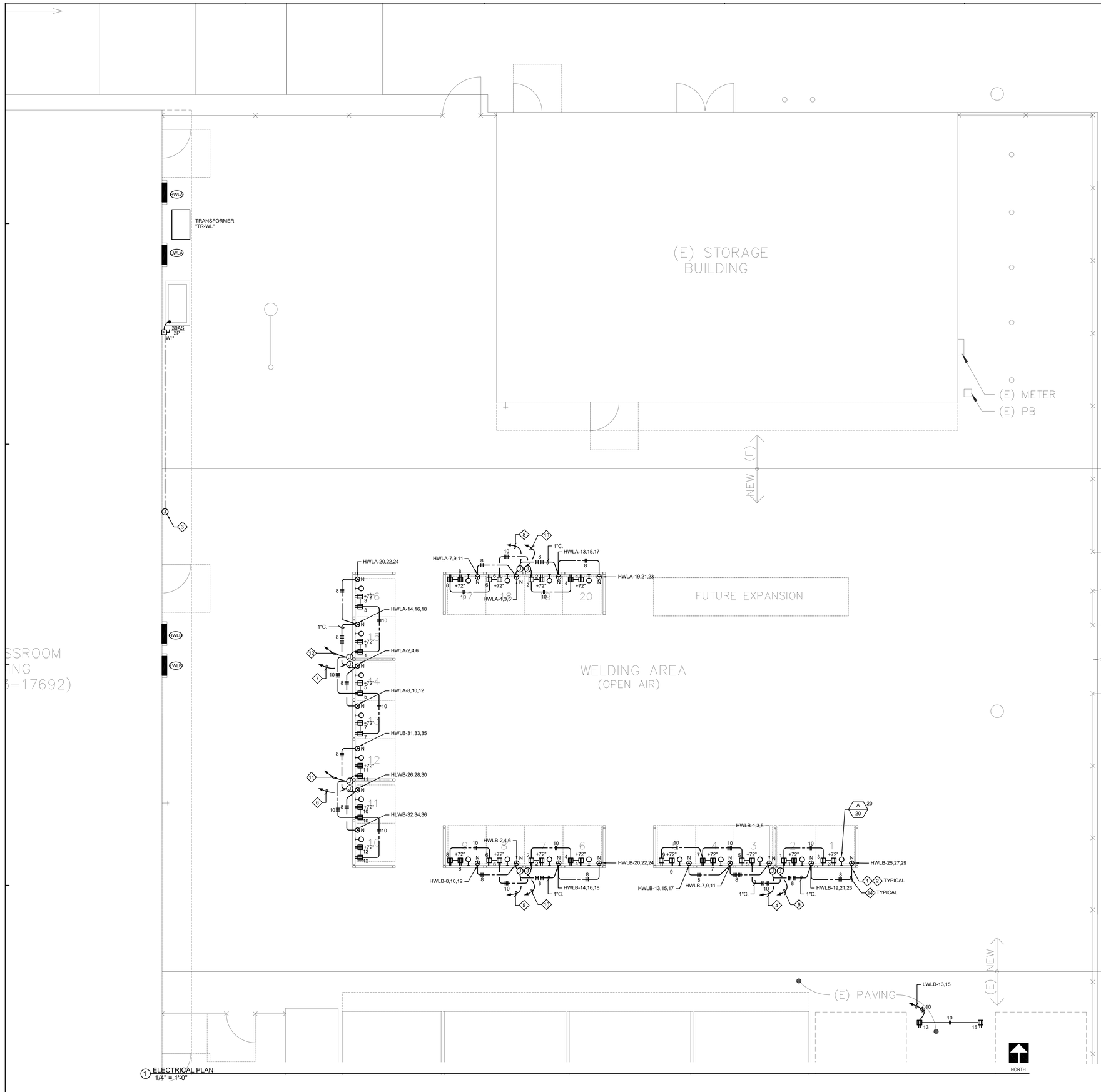
PROJECT NUMBER:	21-59101-00
PROJECT STATUS:	CD
PROJECT ISSUED:	06/14/21
REVISION: DATE:	DESCRIPTION:
9/9/21	ISSUED FOR BID

E1.1

P:\DUSD Columbus HS - Welding Yard #21046\Dwgs\E\21046E11.dwg 9-03-21-10:35 AM

Bid Set - NOT FOR CONSTRUCTION



1 ELECTRICAL PLAN
1/4" = 1'-0"

SHEET NOTES

1. ALL EQUIPMENT SHALL BE WEATHERPROOF, ALL BOXES, CONDUIT, SWITCHES, RECEPTACLES, ETC., SHALL BE WEATHERPROOF. SEAL ALL OPENINGS.
2. PROVIDE UNI-STRUT SUPPORT SYSTEM FOR MOUNTING OF DEVICES AND CONDUIT AS REQUIRED.
3. INTERCEPT AND EXTEND EXISTING FEEDER FOR AIR COMPRESSOR. PROVIDE A JUNCTION BOX AT THE POINT OF INTERCEPTION.
4. PROVIDE AND INSTALL 2" CONDUIT UNDERGROUND WITH 15#4 AND 1#8 GROUND. TERMINATE CONDUCTORS AT HWLB-1,3,5,7,9,11,13,15,17,19,21,23,25,27,29.
5. PROVIDE AND INSTALL 2" CONDUIT UNDERGROUND WITH 12#4 AND 1#8 GROUND. TERMINATE CONDUCTORS AT HWLB-2,4,6,8,10,12,14,16,18,20,22,24.
6. PROVIDE AND INSTALL 2" CONDUIT UNDERGROUND WITH 9#4 AND 1#8 GROUND. TERMINATE CONDUCTORS AT HWLB-26,28,30,32,34,36,31,33,35.
7. PROVIDE AND INSTALL 2" CONDUIT UNDERGROUND WITH 12#4 AND 1#8 GROUND. TERMINATE CONDUCTORS AT HWLA-1,3,5,7,9,11,13,15,17,19,21,23.
8. PROVIDE AND INSTALL 2" CONDUIT UNDERGROUND WITH 12#4 AND 1#8 GROUND. TERMINATE CONDUCTORS AT HWLA-2,4,6,8,10,12,14,16,18,20,22,24.
9. PROVIDE AND INSTALL 1 1/2" CONDUIT UNDERGROUND WITH 10#8 AND 1#10 GROUND. TERMINATE CONDUCTORS AT LWLB-1,3,5,7,9.
10. PROVIDE AND INSTALL 1" CONDUIT UNDERGROUND WITH 8#10 AND 1#10 GROUND. TERMINATE CONDUCTORS AT LWLB-2,4,6,8.
11. PROVIDE AND INSTALL 1" CONDUIT UNDERGROUND WITH 6#10 AND 1#10 GROUND. TERMINATE CONDUCTORS AT LWLB-10,11,12.
12. PROVIDE AND INSTALL 1" CONDUIT UNDERGROUND WITH 8#10 AND 1#10 GROUND. TERMINATE CONDUCTORS AT LWLA-1,3,5,7.
13. PROVIDE AND INSTALL 1" CONDUIT UNDERGROUND WITH 8#10 AND 1#10 GROUND. TERMINATE CONDUCTORS AT LWLA-2,4,6,8.
14. CONDUIT ABOVEGROUND SHALL BE GRC.

CONSULTANT:
DCCA ENGINEERS
Consulting Mechanical and Electrical Engineers
1500 Kettner Blvd., Suite 200
Oceanside, CA 92054
Tel: 760.967.7000
Fax 909.980.7003

ELECTRICAL PLAN
COLUMBUS WELDING PROGRAM
DOWNEY UNIFIED SCHOOL DISTRICT
12320 WOODRUFF AVENUE
DOWNEY, CA 90241

SEAL:
REGISTERED PROFESSIONAL ENGINEER ★ KENNETH J. FRANZ ★ No. E 16992 ★ ELECTRICAL ★ STATE OF CALIFORNIA

sgh ARCHITECTS

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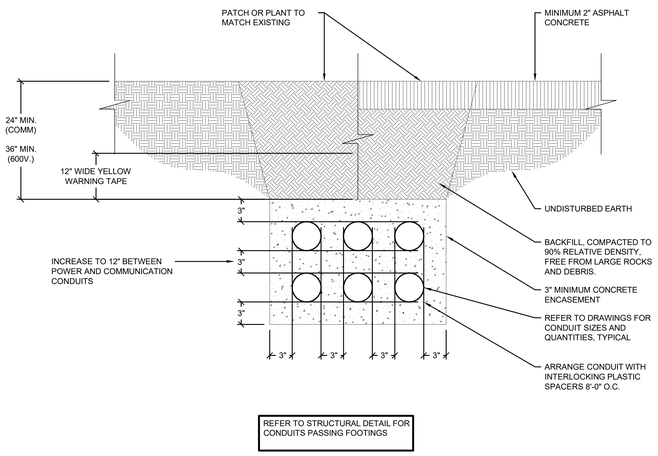
PROJECT NUMBER: 21-39101-00
PROJECT STATUS: CD
PROJECT ISSUED: 06/14/21
REVISION: DATE: DESCRIPTION:
1 9/9/21 **ISSUED FOR BID**

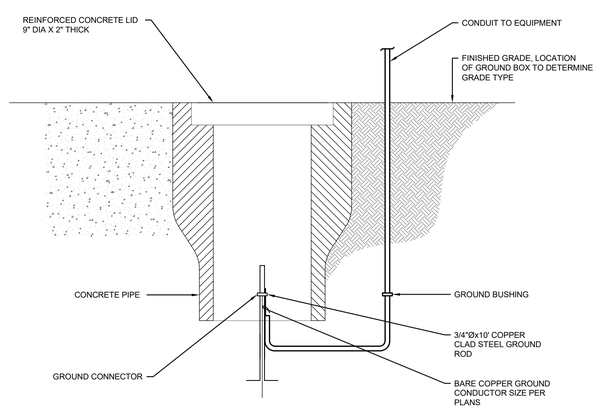
E2.1

P:\DUSD Columbus HS – Welding Yard #21046\Dwgs\E\21046E21.dwg 9-03-21-10:35 AM

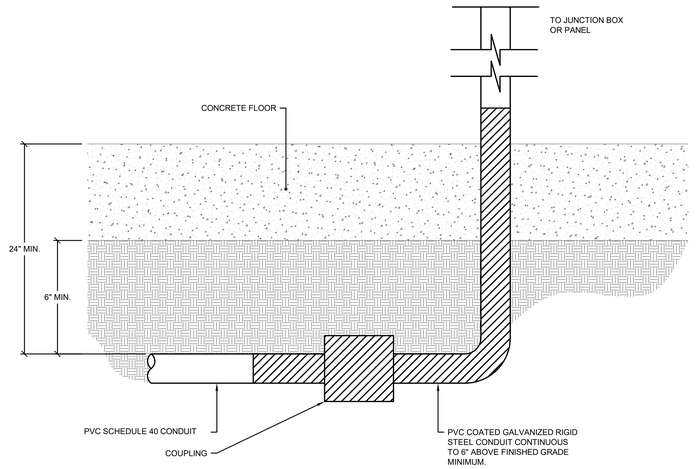
Bid Set - NOT FOR CONSTRUCTION



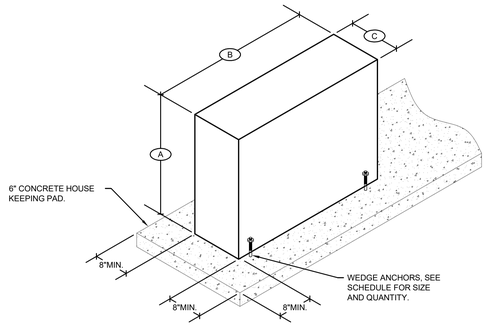
TYPICAL MULTI-CONDUIT PLACEMENT DETAIL | NOT TO SCALE | 1

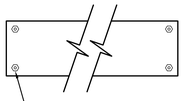


GROUND ROD DETAIL | NOT TO SCALE | 2



CONDUIT RISER INSTALLATION DETAIL | NOT TO SCALE | 3





✱ ALL WEDGE ANCHORS SHALL BE HILTI-KWIK BOLT KB-TZ-ICC (ESR-1917) OR EQUAL

SYMBOL	(A)	(B)	(C)	WEIGHT	MIN. NO. ANCHORS	SIZE OF ANCHORS	MINIMUM EMBEDMENT	LOCATION
XFMR "TR-WL"	51"	34.5"	31.5"	1125 lbs	4	1/2" DIA	4"	SHEET E2.1

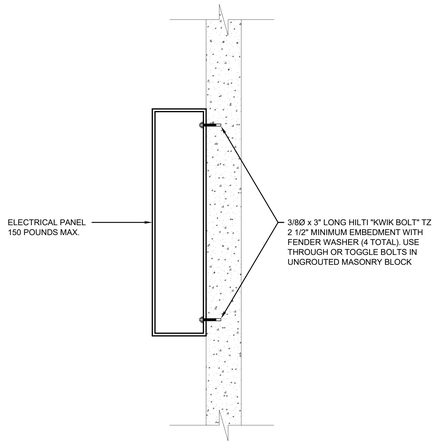
TRANSFORMER MOUNTING DETAIL | NOT TO SCALE | 4

-

NOT TO SCALE | 5

-

NOT TO SCALE | 6



SURFACE MOUNTED PANEL AT MASONRY WALL | NOT TO SCALE | 7

-

NOT TO SCALE | 8

-

NOT TO SCALE | 9

CONSULTANT:
DCCA ENGINEERS
Consulting Mechanical and Electrical Engineers
7000 Stanford Ave. Suite 204
Garden Grove, CA 92841
Tel 714.890.1000
Fax 909.980.1933

ELECTRICAL DETAILS

COLUMBUS WELDING PROGRAM

DOWNEY UNIFIED SCHOOL DISTRICT
12320 WOODRUFF AVENUE
DOWNEY, CA 90241

SEAL:

REGISTERED PROFESSIONAL ENGINEER ✱ DANIEL CHRISTOPHER DIXON ✱ No. E 18592 ✱ STATE OF CALIFORNIA

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PROJECT NUMBER: 21-39101-00
PROJECT STATUS: CD
PROJECT ISSUED: 06/14/21
REVISION: DATE: DESCRIPTION:
1 9/9/21 **ISSUED FOR BID**

E4.1

P:\DUSD Columbus HS – Welding Yard #21046\Dwgs\E\21046E41.dwg 9-03-21-10:35 AM

Bid Set - NOT FOR CONSTRUCTION

PANEL: "HWLA" | BRANCH: NORMAL
LOCATION: | VOLTAGE: 480/277V | CKT CODE: 1=(CONTINUOUS LOAD)
FED FROM: MSDP | PHASE & WIRE: 3PH,4W | 2=(NON-CONTINUOUS)
MOUNTING: SURFACE NEMA-3R | MIN. BUS: 600 AMPS | 3=(RECEPTACLES)
AIC RATING: 30000 | MCB: 600 AMPS | 4=(KITCHEN) | NO. OF EQUIP=

CIRCUIT		CKT BKR		LOAD TYPE & DESIGNATION				LOAD		PHASES		LOAD	LOAD TYPE & DESIGNATION				CKT BKR		CIRCUIT	
NO	CODE	TRIP	POLE	DESCRIPTION	MISC	REC	LTG	VA	A	B	C	VA	LTG	REC	MISC	DESCRIPTION	POLE	TRIP	CODE	NO
1	3	30	3	WELDING BOOTH #18		1		4733	9466	----	----	4733		1		WELDING BOOTH #14	3	30	3	2
3	3	-	-	-				4733	----	9466	----	4733				-	-	-	3	4
5	3	-	-	-				4733	----	----	9466	4733				-	-	-	3	6
7	3	30	3	WELDING BOOTH #17		1		4733	9466	----	----	4733		1		WELDING BOOTH #13	3	30	3	8
9	3	-	-	-				4733	----	9466	----	4733				-	-	-	3	10
11	3	-	-	-				4733	----	----	9466	4733				-	-	-	3	12
13	3	30	3	WELDING BOOTH #19		1		4733	9466	----	----	4733		1		WELDING BOOTH #15	3	30	3	14
15	3	-	-	-				4733	----	9466	----	4733				-	-	-	3	16
17	3	-	-	-				4733	----	----	9466	4733				-	-	-	3	18
19	3	30	3	WELDING BOOTH #20		1		4733	9466	----	----	4733		1		WELDING BOOTH #16	3	30	3	20
21	3	-	-	-				4733	----	9466	----	4733				-	-	-	3	22
23	3	-	-	-				4733	----	----	9466	4733				-	-	-	3	24
25	3	30	3	SPARE					0	----	----					SPARE	3	30	3	26
27	3	-	-	-					----	0	----					-	-	-	3	28
29	3	-	-	-					----	----	0					-	-	-	3	30
31				SPACE					0	----	----					SPACE			3	32
33				SPACE					----	0	----					SPACE			3	34
35				SPACE					----	----	0					SPACE			3	36
37				SPACE					0	----	----					SPACE			3	38
39				SPACE					----	0	----					SPACE			3	40
41				SPACE					----	----	0					SPACE			3	42
43				SPACE					0	----	----					SPACE			3	44
45				SPACE					----	0	----					SPACE			3	46
47				SPACE					----	----	0					SPACE			3	48
49	2	400	3	"HWLB"				56796	66896	----	----	10100				"TR-WL"	3	125	2	50
51	2	-		-				56796	----	64496	----	7700				-	-	-	2	52
53	2	-	-	-				56796	----	----	63996	7200				-	-	-	2	54
NOTES:								TOTAL	104760	102360	101860									

CONN.KVA (CODE 1)	0.0
CONN.KVA (CODE 2)	195.4
CONN.KVA (CODE 3)	113.6
CONN.KVA (CODE 4)	0.0
CONNECTED KVA	309.0
CONNECTED AMPS	371.6
FEEDER DEMAND KVA	257.2
FEEDER DEMAND AMPS	309.3

MCB = MAIN CIRCUIT BREAKER MLO = MAIN LUGS ONLY

PANEL: "HWLB" | BRANCH: NORMAL
LOCATION: | VOLTAGE: 480/277V | CKT CODE: 1=(CONTINUOUS LOAD)
FED FROM: "HWLA" | PHASE & WIRE: 3PH,4W | 2=(NON-CONTINUOUS)
MOUNTING: SURFACE NEMA-3R | MIN. BUS: 400 AMPS | 3=(RECEPTACLES)
AIC RATING: 30000 | MLO | 4=(KITCHEN) | NO. OF EQUIP=

CIRCUIT		CKT BKR		LOAD TYPE & DESIGNATION				LOAD		PHASES		LOAD	LOAD TYPE & DESIGNATION				CKT BKR		CIRCUIT	
NO	CODE	TRIP	POLE	DESCRIPTION	MISC	REC	LTG	VA	A	B	C	VA	LTG	REC	MISC	DESCRIPTION	POLE	TRIP	CODE	NO
1	3	30	3	WELDING BOOTH #3		1		4733	9466	----	----	4733		1		WELDING BOOTH #8	3	30	3	2
3	3	-	-	-				4733	----	9466	----	4733				-	-	-	3	4
5	3	-	-	-				4733	----	----	9466	4733				-	-	-	3	6
7	3	30	3	WELDING BOOTH #4		1		4733	9466	----	----	4733		1		WELDING BOOTH #9	3	30	3	8
9	3	-	-	-				4733	----	9466	----	4733				-	-	-	3	10
11	3	-	-	-				4733	----	----	9466	4733				-	-	-	3	12
13	3	30	3	WELDING BOOTH #5		1		4733	9466	----	----	4733		1		WELDING BOOTH #7	3	30	3	14
15	3	-	-	-				4733	----	9466	----	4733				-	-	-	3	16
17	3	-	-	-				4733	----	----	9466	4733				-	-	-	3	18
19	3	30	3	WELDING BOOTH #2		1		4733	9466	----	----	4733		1		WELDING BOOTH #6	3	30	3	20
21	3	-	-	-				4733	----	9466	----	4733				-	-	-	3	22
23	3	-	-	-				4733	----	----	9466	4733				-	-	-	3	24
25	3	30	3	WELDING BOOTH #1		1		4733	9466	----	----	4733		1		WELDING BOOTH #11	3	30	3	26
27	3	-	-	-				4733	----	9466	----	4733				-	-	-	3	28
29	3	-	-	-				4733	----	----	9466	4733				-	-	-	3	30
31	3	30	3	WELDING BOOTH #12		1		4733	9466	----	----	4733		1		WELDING BOOTH #10	3	30	3	32
33	3	-	-	-				4733	----	9466	----	4733				-	-	-	3	34
35	3	-	-	-				4733	----	----	9466	4733				-	-	-	3	36
37		30	3	SPARE					0	----	----					SPARE	3	30		38
39		-	-	-					----	0	----					-	-	-		40
41		-	-	-					----	----	0					-	-	-		42
43		20	1	SPARE					0	----	----					SPARE	1	20		44
45		20	1	SPARE					----	0	----					SPARE	1	20		46
47		20	1	SPARE					----	----	0					SPARE	1	20		48
49				SPACE					0	----	----					SPACE				50
51				SPACE					----	0	----					SPACE				52
53				SPACE					----	----	0					SPACE				54
NOTES:								TOTAL	56796	56796	56796									

CONN.KVA (CODE 1)	0.0
CONN.KVA (CODE 2)	0.0
CONN.KVA (CODE 3)	170.4
CONN.KVA (CODE 4)	0.0
CONNECTED KVA	170.4
CONNECTED AMPS	204.9
FEEDER DEMAND KVA	90.2
FEEDER DEMAND AMPS	108.5

MCB = MAIN CIRCUIT BREAKER MLO = MAIN LUGS ONLY

PANEL: "LWLA" | BRANCH: NORMAL
LOCATION: | VOLTAGE: 208/120V | CKT CODE: 1=(CONTINUOUS LOAD)
FED FROM: "TR-WL" | PHASE & WIRE: 3PH,4W | 2=(NON-CONTINUOUS)
MOUNTING: SURFACE NEMA-3R | MIN. BUS: 400 AMPS | 3=(RECEPTACLES)
AIC RATING: 30000 | MCB: 400 AMPS | 4=(KITCHEN) | NO. OF EQUIP=

CIRCUIT		CKT BKR		LOAD TYPE & DESIGNATION				LOAD		PHASES		LOAD	LOAD TYPE & DESIGNATION				CKT BKR		CIRCUIT	
NO	CODE	TRIP	POLE	DESCRIPTION	MISC	REC	LTG	VA	A	B	C	VA	LTG	REC	MISC	DESCRIPTION	POLE	TRIP	CODE	NO
1	3	1	20	WELDING BOOTH #15		2		1200	2400	----	----	1200		2		WELDING BOOTH #19	1	20	3	2
3	3	1	20	WELDING BOOTH #16		2		1200	----	2400	----	1200		2		WELDING BOOTH #20	1	20	3	4
5	3	1	20	WELDING BOOTH #14		2		1200	----	----	2400	1200		2		WELDING BOOTH #18	1	20	3	6
7	3	1	20	WELDING BOOTH #13		2		1200	2400	----	----	1200		2		WELDING BOOTH #17	1	20	3	8
9		1	20	SPARE					----	0	----					SPARE	1	20		10
11		1	20	SPARE					----	----	0					SPARE	1	20		12
13		1	20	SPARE					0	----	----					SPARE	1	20		14
15		1	20	SPARE					----	0	----					SPARE	1	20		16
17				SPACE					----	----	0					SPACE				18
19				SPACE					0	----	----					SPACE				20
21				SPACE					----	0	----					SPACE				22
23				SPACE					----	----	0					SPACE				24
25				SPACE					0	----	----					SPACE				26
27				SPACE					----	0	----					SPACE				28
29				SPACE					----	----	0					SPACE				30
31				SPACE					0	----	----					SPACE				32
33				SPACE					----	0	----					SPACE				34
35				SPACE					----	----	0					SPACE				36
37	2	150	3	"LWLB"				5300	5300	----	----					SPACE				38
39	2	-	-	-				5300	----	5300	----					SPACE				40
41	2	-	-	-				4800	----	----	4800					SPACE				42
NOTES:								TOTAL	10100	7700	7200									

CONN.KVA (CODE 1)	0.0
CONN.KVA (CODE 2)	15.4
CONN.KVA (CODE 3)	9.6
CONN.KVA (CODE 4)	0.0
CONNECTED KVA	25.0
CONNECTED AMPS	69.4
FEEDER DEMAND KVA	25.0
FEEDER DEMAND AMPS	69.4

MCB = MAIN CIRCUIT BREAKER MLO = MAIN LUGS ONLY

PANEL: "LWLB" | BRANCH: NORMAL
LOCATION: | VOLTAGE: 208/120V | CKT CODE: 1=(CONTINUOUS LOAD)
FED FROM: "LWLA" | PHASE & WIRE: 3PH,4W | 2=(NON-CONTINUOUS)
MOUNTING: SURFACE NEMA-3R | MIN. BUS: 225 AMPS | 3=(RECEPTACLES)
AIC RATING: 30000 | MLO | 4=(KITCHEN) | NO. OF EQUIP=

CIRCUIT		CKT BKR		LOAD TYPE & DESIGNATION				LOAD		PHASES		LOAD	LOAD TYPE & DESIGNATION				CKT BKR		CIRCUIT	
NO	CODE	TRIP	POLE	DESCRIPTION	MISC	REC	LTG	VA	A	B	C	VA	LTG	REC	MISC	DESCRIPTION	POLE	TRIP	CODE	NO
1	3	20	1	WELDING BOOTH#2		2		1200	2400	----	----	1200		2		WELDING BOOTH#7	1	20	3	2
3	3	20	1	WELDING BOOTH#1		2		1200	----	2400	----	1200		2		WELDING BOOTH#6	1	20	3	4
5	3	20	1	WELDING BOOTH#5		2		1200	----	----	2400	1200		2		WELDING BOOTH#8	1	20	3	6
7	3	20	1	WELDING BOOTH#7		2		1200	2400	----	----	1200		2		WELDING BOOTH#9	1	20	3	8
9	3	20	1	WELDING BOOTH#9		2		1200	----	2400	----	1200		2		WELDING BOOTH#11	1	20	3	10
11	3	20	1	WELDING BOOTH#12		2		1200	----	----	2400	1200		2		WELDING BOOTH#10	1	20	3	12
13	3	20	1	REC - CONTAINER		1		500	500	----	----					SPARE	1	20		14
15	3	20	1	REC - CONTAINER		1		500	----	500	----					SPARE	1	20		16
17		20	1	SPARE					----	----	0					SPARE	1	20		18
19		20	1	SPARE					0	----	----					SPARE	1	20		20
21		20	1	SPARE					----	0	----					SPACE				22
23		20	1	SPARE					----	----	0					SPACE				24
25				SPACE					0	----	----					SPACE				26
27				SPACE					----	0	----					SPACE				28
29				SPACE					----	----	0					SPACE				30
31				SPACE					0	----	----					SPACE				32
33				SPACE					----	0	----					SPACE				34
35				SPACE					----	----	0					SPACE				36
37				SPACE					0	----	----					SPACE				38
39				SPACE					----	0	----					SPACE				40
41				SPACE					----	----	0					SPACE				42
NOTES:								TOTAL	5300	5300	4800									

CONN.KVA (CODE 1)	0.0
CONN.KVA (CODE 2)	0.0
CONN.KVA (CODE 3)	15.4
CONN.KVA (CODE 4)	0.0
CONNECTED KVA	15.4
CONNECTED AMPS	42.7
FEEDER DEMAND KVA	12.7
FEEDER DEMAND AMPS	35.3

MCB = MAIN CIRCUIT BREAKER MLO = MAIN LUGS ONLY

CONSULTANT:
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Consulting Mechanical and Electrical Engineers
4750 E. Ontario Mills Pkwy
Ontario, Ca. 91764
Ph.909.987.0017
Fax 909.980.7023

PANEL SCHEDULES

COLUMBUS WELDING PROGRAM

DOWNEY UNIFIED SCHOOL DISTRICT
12320 WOODRUFF AVENUE
DOWNEY, CA 90241

SEALS:
REGISTERED PROFESSIONAL ENGINEER ★ CHEN HSING FANG No. E 16592 ELECTRICAL ★ STATE OF CALIFORNIA

sgh ARCHITECTS

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PROJECT NUMBER: 21-59101-00
PROJECT STATUS: CD
PROJECT ISSUED: 06/14/21
REVISION: DATE: DESCRIPTION:
△ 9/9/21 **ISSUED FOR BID**

E5.1

Bid Set - NOT FOR CONSTRUCTION