

# Project Manual

For

## **Merced Community College District Los Banos Entrance Signs & Marquee Sign Los Banos Campus**

Bidding and Contract Requirements  
And  
Specifications

for the

**Merced Community College District**  
3600 M Street  
Merced, CA 95348

Date: June 6, 2024

PBK Project No.: 230444

Construction Document

# Project Manual

for:

# Merced Community College District Los Banos Entrance Signs and Marquee Sign Los Banos Campus

for the

**Merced Community College District**

Date: June 6, 2024

PBK Project No.: 230444

## Construction Document

### Consultants:

**Architect:**

PBK  
110 Iron Point Road  
Suite 200  
Folsom, CA 95630  
Phone: (916) 682-9494

**Electrical:**

LEAF Engineering  
1110 Iron Point Road  
Suite 200  
Folsom, CA 95630-8315  
Phone: (916) 355-9922

**Structural:**

Kubala Engineers  
2400 E Katella  
Suite 950  
Anaheim, CA 92806  
Phone: (949) 620-1891



*Project Manual Cover Sheet and Seal Page.*

**DOCUMENT 00 00 01 TABLE OF CONTENTS**

**BIDDING AND CONTRACT REQUIREMENTS (DISTRICT STANDARDS)**

|          |                                                                           |
|----------|---------------------------------------------------------------------------|
| 00 00 00 | Project Manual Cover and Seals                                            |
| 00 00 01 | Table of Contents                                                         |
| 00 11 13 | Notice Calling for Bids                                                   |
| 00 21 13 | Instructions to Bidders                                                   |
| 00 41 22 | Bid Proposal                                                              |
| 00 43 13 | Bid Proposal: Alternate Bid Items Proposal                                |
| 00 43 36 | Subcontractor's List                                                      |
| 00 45 10 | Verification of Contractor and Subcontractor's DIR Registration           |
| 00 45 13 | Statement of Qualifications                                               |
| 00 45 19 | Non-Collusion Affidavit                                                   |
| 00 45 23 | Certificate of Worker's Compensation Insurance                            |
| 00 45 27 | Drug-Free Workplace Certification                                         |
| 00 52 00 | Agreement                                                                 |
| 00 61 10 | Bid Bond                                                                  |
| 00 61 13 | Performance Bond                                                          |
| 00 61 14 | Labor and Material Payment Bond                                           |
| 00 62 90 | Verification of Certified Payroll Records Submittal to Labor Commissioner |
| 00 65 01 | Conditional Waiver and Release on Progress Payment                        |
| 00 65 02 | Unconditional Waiver and Release on Progress Payment                      |
| 00 65 03 | Conditional Waiver and Release on Final Payment                           |
| 00 65 04 | Unconditional Waiver and Release on Final Payment                         |
| 00 65 36 | Contractor Guarantee Form                                                 |
| 00 65 37 | Contractor Certification of Subcontractor Claim                           |
| 00 72 13 | General Conditions                                                        |
| 00 73 13 | Special Conditions                                                        |

**DIVISION 1 GENERAL REQUIREMENTS (Provided Under District's 00 72 13 - General Conditions)**

**PROJECT SPECIFICATIONS**

DIVISION 2 EXISTING CONDITIONS Not Used

**DIVISION 3 CONCRETE**

|          |                                  |
|----------|----------------------------------|
| 03 10 00 | Concrete Forming and Accessories |
| 03 20 00 | Concrete Reinforcing             |
| 03 30 00 | Cast-In-Place Concrete           |
| 03 35 00 | Concrete Finishing               |

**DIVISION 4 MASONRY**

|          |                             |
|----------|-----------------------------|
| 04 05 00 | Mortar and Grout            |
| 04 22 00 | Concrete Masonry Unit       |
| 04 73 00 | Manufactured Masonry Veneer |

**DIVISION 5 METALS**

05 12 13 Architecturally Exposed Structural Steel Framing

DIVISION 6 WOOD, PLASTICS, AND COMPOSITES Not Used

DIVISION 7 THERMAL AND MOISTURE PROTECTION Not Used

DIVISION 8 OPENINGS Not Used

**DIVISION 9 FINISHES**

09 24 00 Cement Plastering

**DIVISION 10 SPECIALTIES**

10 45 00 Graphics and Signage

10 14 25 Marquee Panel Signage

**DIVISION 26 ELECTRICAL**

26 05 00 Common Work Results for Electrical

26 05 19 Low-Voltage Electrical Power Conductors and Cables

26 05 26 Grounding and Bonding for Electrical Systems

26 05 33 Raceway and Boxes for Electrical Systems

26 05 53 Identification for Electrical Systems

DIVISION 27 COMMUNICATIONS Not Used

DIVISION 28 ELECTRONIC SAFETY AND SECURITY Not Used

**DIVISION 31 EARTHWORK**

31 00 00 Earthwork

31 11 00 Site Clearing and Grubbing

31 23 00 Excavation and Fill

31 23 16.13 Trenching

**DIVISION 32 EXTERIOR IMPROVEMENTS**

32 11 26 Aggregate Base

32 12 16 Asphalt Paving

32 17 23 Pavement Markings

**APPENDIX**

**A** GT6X SIGNAL POWER MOUNTING DETAILS, MODEL SPECIFICATION, SHOP DRAWING

**END OF SECTION 00 00 01**

**MERCED COMMUNITY COLLEGE DISTRICT**

BID #2024-06 Los Banos - Entrance Signs and Marquee Sign

**TABLE OF CONTENTS**

| <b>Section</b> | <b>Description</b>                            | <b>Section</b> | <b>Description</b>                                                        |
|----------------|-----------------------------------------------|----------------|---------------------------------------------------------------------------|
| 00 01 10       | Table of Contents                             | 00 61 10       | Bid Bond                                                                  |
| 00 11 13       | Notice Calling for Bids                       | 00 61 13       | Performance Bond                                                          |
| 00 21 13       | Instructions for Bidders                      | 00 61 14       | Labor & Materials Payment Bond                                            |
| 00 41 22       | Bid Proposal                                  | 00 62 90       | Verification of Certified Payroll Records Submittal to Labor Commissioner |
| 00 43 13       | Bid Proposal; Alternate Bid Items Proposal    | 00 65 01       | Conditional Waiver & Release on Progress Payment                          |
| 00 43 36       | Subcontractors List                           | 00 65 02       | Unconditional Waiver & Release on Progress Payment                        |
| 00 45 10       | DIR Registration Verification                 | 00 65 03       | Conditional Waiver & Release on Final Payment                             |
| 00 45 13       | Statement of Qualifications                   | 00 65 04       | Unconditional Waiver & Release on Final Payment                           |
| 00 45 19       | Non-Collusion Affidavit                       | 00 65 36       | Contractor Guarantee Form                                                 |
| 00 45 23       | Certificate of Workers Compensation Insurance | 00 65 37       | Contractor Certification of Subcontractor Claim                           |
| 00 45 27       | Drug-Free Workplace Certification             | 00 72 13       | General Conditions                                                        |
| 00 52 00       | Agreement                                     | 0073 13        | Special Conditions                                                        |

**THIS PAGE INTENTIONALLY BLANK**

**NOTICE CALLING FOR BIDS**

|                                                   |                                                                                                                                                                                       |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DISTRICT                                          | MERCED COMMUNITY COLLEGE DISTRICT                                                                                                                                                     |
| PROJECT DESCRIPTION                               | <b>BID #2024-06 Los Banos - Entrance Signs and Marquee Sign</b>                                                                                                                       |
| PROJECT BUDGET                                    |                                                                                                                                                                                       |
| LATEST TIME/DATE FOR SUBMISSION OF BID PROPOSALS  | <b>Tuesday, July 2, 2024 @ 2:00 PM</b>                                                                                                                                                |
| LOCATION FOR SUBMISSION OF BID PROPOSALS          | Merced College, Purchasing Office (Corner University Drive and West Community College Drive) 3600 M Street, Merced, California 95348                                                  |
| LOCATION FOR OBTAINING BID AND CONTRACT DOCUMENTS | <a href="https://www.mccd.edu/about-merced-college/divisions/admin-services/purchasing/bids/">https://www.mccd.edu/about-merced-college/divisions/admin-services/purchasing/bids/</a> |

**NOTICE IS HEREBY GIVEN** that the Merced Community College District (District), acting by and through its Board of Trustees, will receive up to, but not later than the above-stated date and time, sealed Bid Proposals for the Contract for the Work generally described as **BID #2024-06 Los Banos - Entrance Signs and Marquee Sign**

1. Submittal of Bid Proposals. All Bid Proposals must be submitted on forms furnished by the District prior to the last time for submission of Bid Proposals and the District’s public opening and reading of Bid Proposals.
2. Bid and Contract Documents. (Available Electronically), The Bid and Contract Documents are available at the location stated above
3. Documents Accompanying Bid Proposal. Each Bid Proposal shall be accompanied by: (i) the required Bid Security; (ii) Subcontractors List; (iii) Statement of Qualifications; (iv) Non-Collusion Affidavit; and (v) DIR Registration Verification.
4. Project Budget. The Project Budget for the Work is set forth above. If bidding for the Work includes Alternate Bid Items, the selection of Alternate Bid Items for determination of the lowest priced Bid Proposal will be by priority of Alternate Bid Items, up to but not exceeding the Project Budget. If bidding for the Work does not include Alternate Bid Items, the Project Budget set forth above is for information purposes only.
5. Pre-Bid Inquiries. Bidders may submit pre-bid inquiries or clarification requests. Bidders are solely and exclusively responsible for submitting pre-bid inquiries or clarification requests no later than **2:00 PM FIVE (5) days** before the latest date for submittal of Bid Proposals. Pre-bid inquiries or clarification requests shall be submitted to. [PurchasingBids@mccd.edu](mailto:PurchasingBids@mccd.edu)
6. Prevailing Wage Rates. The Contractor and all Subcontractors shall pay not less than the applicable prevailing wage rate for the classification of labor provided by their respective workers to execute the Work. Copies of the prevailing wage rates in the locality where the Work is to be performed, entitled PREVAILING WAGE SCALE are available to any interested party on the INTERNET at [http://www.dir.ca.gov/dlsr/statistics\\_research.html](http://www.dir.ca.gov/dlsr/statistics_research.html). In addition to compliance with prevailing wage requirements, the successful Bidder shall comply with all other applicable provisions of the Labor Code, the California Code of Regulations and rulings or determinations of the California Department

of Industrial Relations. During the Work and pursuant to Labor Code §1771.4(a)(4), the Department of Industrial Relations shall monitor compliance with prevailing wage rate requirements and enforce the Contractor's prevailing wage rate obligations.

7. Contractors' License Classification. Bidders must possess the following classification(s) of California Contractors License at the time that the Bid Proposal is submitted and at time the Contract for the Work is awarded: **B - General Building.** The Bid Proposal of a Bidder who does not possess a valid and in good standing Contractors' License in the classification(s) set forth above will be rejected for non-responsiveness. Any Bidder not duly and properly licensed is subject to all penalties imposed by law. No payment shall be made for the Work unless and until the Registrar of Contractors verifies to the District that the Bidder awarded the Contract is properly and duly licensed for the Work.
8. Contract Time. Completion of the Work shall be achieved within the time set forth in Contract Documents after the date for commencement of the Work established in the Notice to Proceed issued by the District. Failure to achieve Completion within the Contract Time will result in the assessment of Liquidated Damages as set forth in the Contract.
9. Bid Security. Each Bid Proposal shall be accompanied by Bid Security in an amount equal to TEN PERCENT (10%) of the maximum amount of the Bid Proposal, inclusive of the value of any additive Alternate Bid Item(s). A Bid Proposal not accompanied by Bid Security in the form and in the amount required is non-responsive and will be rejected by the District.
10. Payment Bond; Performance Bond. Prior to commencement of the Work, the Bidder awarded the Contract shall deliver to the District a Payment Bond and a Performance Bond issued by a California Admitted Surety in the form and content included in the Contract Documents in a penal sum equal to One Hundred Percent (100%) of the Contract Price. The Payment Bond and the Performance Bond shall be issued by a California Admitted Surety in the form and content included in the Contract Documents.
11. No Withdrawal of Bid Proposals. Bid Proposals shall not be withdrawn by any Bidder for a period of thirty (30) **days** after the opening of Bid Proposals. During this time, all Bidders shall guarantee prices quoted in their respected Bid Proposals.
12. Return of Executed Agreement. The Bidder awarded the Contract shall execute the Agreement and return the executed Agreement to the District within three (3) **calendar days** from the date of receiving notification that it is the Bidder to whom the Contract has been awarded. If the successful Bidder fails to return the executed Agreement pursuant to the foregoing, the District may declare the Bidder's Bid Security forfeited as damages caused by the failure of the Bidder to enter into the Contract and may thereupon award the Contract for the Work to the responsible Bidder submitting the next lowest Bid Proposal or may call for new bids, in its sole and exclusive discretion.
13. Job-Walk. The District will conduct a **Mandatory Job Walk on Tuesday, June 18, 2024, beginning at 9:00 AM.** Bidders are to meet at the Los Banos Campus and then continue to the Business Resource Center (BRC), for conduct of the Job Walk. If the Job Walk is mandatory, the Bid Proposal submitted by a Bidder whose representative(s) did not attend the entirety of the Mandatory Job Walk will be rejected by the District as being non-responsive. Access to the Job Walk will be available to Bidders for ten (10) minutes after the scheduled start time of the Job Walk; no access to the Job Walk will be permitted thereafter. A Bidder whose representative(s) arrive at the Job Walk location more than ten (10) minutes after the scheduled start of the Job Walk will be denied access and will not be deemed to have attended the Job Walk.

[https://www.mccd.edu/wp-content/uploads/2023/03/Los\\_Banos\\_Campus\\_Map\\_Print\\_2021\\_new\\_in\\_color\\_in\\_progress\\_2.pdf](https://www.mccd.edu/wp-content/uploads/2023/03/Los_Banos_Campus_Map_Print_2021_new_in_color_in_progress_2.pdf)

14. Waiver of Irregularities. The District reserves the right to reject any or all Bid Proposals or to waive any irregularities or informalities in any Bid Proposal or in the bidding.



15. Award of Contract. The Contract for the Work, if awarded, will be by action of the District's Board of Trustees to the responsible Bidder submitting the lowest priced responsive Bid Proposal. If the Bid Proposal requires Bidders to propose prices for Alternate Bid Items, the District's selection of Alternate Bid Items, if any, for determination of the lowest priced Bid Proposal and for inclusion in the scope of the Contract to be awarded shall be in accordance with the Instructions for Bidders.

Merced Community College District

**[END OF SECTION]**



Merced Community College District  
Purchasing Department  
3600 M Street  
Merced, CA 95348  
Phone:(209) 384-6300

## **NOTICE TO BIDDERS**

**NOTICE IS HEREBY GIVEN** that the Merced Community College District of Merced County, California, acting by and through its Governing Board, hereinafter referred to as the “District”, will receive up to, but not later than **Tuesday, July 2, 2024 @ 2:00 p.m.** sealed bid proposals for the award of a contract for:

### **Request for Bid Proposal # 2024-06 Los Banos Entrance Signs**

Such sealed bid proposals shall be received in the Purchasing Office, Merced Community College District, 3600 M Street, Merced CA, 95348, at the above stated time and place.

Any bid proposal received after the stated date and time will not be considered. Proposals submitted and participation by interested bidders in the process shall be at no cost or obligation to the District.

**The District will conduct a Mandatory Job Walk, on Tuesday, June 18, 2024 at 9:00 a.m. at the Los Banos Campus, Student Service Building, located at: 22240 CA-152, Los Banos, Ca. 93635 (Contractors must attend the Mandatory Job Walk)**

**For more information or details, please contact Chuck Hergenraeder, Director of Purchasing & Risk Management at 209-384-6300 or email: [PurchasingBids@mccd.edu](mailto:PurchasingBids@mccd.edu)**

Each bid proposal must conform and be responsive to this invitation, the Information for Bidders, the Specifications, the Plans, if any, and all other documents comprising the pertinent contract documents. Copies of the Contract Documents are now on file and may be obtained from the following District bid website (in the Purchasing Services section.)

<https://www.mccd.edu/about-merced-college/divisions/admin-services/purchasing/bids/>

The District reserves the right to reject any or all bids (proposals), to accept or to reject any one or more items on a bid (proposal), or to waive any irregularities or informalities in the bids or the bidding process.

If you have questions regarding the bid proposal requirements or timeline, please contact Chuck Hergenraeder at [PurchasingBids@mccd.edu](mailto:PurchasingBids@mccd.edu) or 209-384-6300.

**BY THE ORDER OF THE GOVERNING BOARD OF THE MERCED COMMUNITY COLLEGE DISTRICT**

Chris Vitelli President, Secretary to the Board  
Merced Community College District  
Merced County, California

Publication: Thursday, June 6, 2024  
Publication: Thursday, June 13, 2024

## INSTRUCTIONS FOR BIDDERS

1. Preparation and Submittal of Bid Proposal.
  - 1.1. Bid Proposal Preparation. All information required by the bid forms must be completely and accurately provided. Numbers shall be stated in both words and figures where required in the bid forms; conflicts between a number stated in words and in figures are governed by the words. Partially completed Bid Proposals or Bid Proposals submitted on other than the bid forms included herein are non-responsive and will be rejected. Bid Proposals not conforming to these Instructions for Bidders and the Notice to Contractors Calling for Bids (“Call for Bids”) may be deemed non-responsive and rejected.
  - 1.2. Bid Proposal Submittal. Bid Proposals shall be submitted at the place designated in the Call for Bids in sealed envelopes bearing on the outside the Bidder’s name and address along with an identification of the Work for which the Bid Proposal is submitted. Bidders are solely responsible for timely submission of Bid Proposals to the District at the place designated in the Call for Bids.
  - 1.3. Date and Time of Bid Proposal Submittal. A Bid Proposal is submitted only if the outer envelope containing the Bid Proposal is marked with the Project title and is received by a District Purchasing Department representative for logging-in at (or before) the latest date and time for submittal of Bid Proposals. The official U.S. time-clock website: <https://www.time.gov/> is controlling and determinative as to the time of the Bidder’s submittal of the Bid Proposal. The foregoing notwithstanding, whether or not Bid Proposals are opened exactly at the time fixed in the Call for Bids, no Bid Proposals shall be received or considered by the District after it has commenced the public opening and reading of Bid Proposals; Bid Proposals submitted after such time are non-responsive and will be returned to the Bidder unopened.
2. Bid Security. Each Bid Proposal shall be accompanied by Bid Security in the form of: (i) cash, (ii) a certified or cashier’s check made payable to the District or (iii) a Bid Bond, in the form and included with the Contract Documents (the “Bid Security”) in at least the amount set forth in the Call for Bids. A Bid Proposal submitted without the required Bid Security is non-responsive and will be rejected. If the Bid Security is in the form of a Bid Bond, the Bidder’s Bid Proposal is deemed responsive only if the Bid Bond is in the form and content included herein and the Surety is an Admitted Surety Insurer under Code of Civil Procedure §995.120.
3. Documents Accompanying Bid Proposal; Signatures. The Bid Proposal and all other documents required to be submitted with the Bid Proposal shall be executed by an individual duly authorized to execute the same on behalf of the Bidder; failure of a Bid Proposal to conform to the foregoing will render the Bid Proposal non-responsive and rejected.
4. Bidder and Subcontractors’ DIR Registered Contractor Status. Each Bidder must be a DIR Registered Contractor when submitting a Bid Proposal. The Bid Proposal of a Bidder who is not a DIR Registered Contractor when the Bid Proposal is submitted will be rejected for non-responsiveness. All Subcontractors identified in a Bidder’s Subcontractors’ List must be DIR Registered contractors at the time the Bid Proposal is submitted. The foregoing notwithstanding, a Bid Proposal is not subject to rejection for non-responsiveness for listing Subcontractor the Subcontractors List who is/are not DIR Registered contractor(s) if such Subcontractor(s) complete DIR Registration pursuant to Labor Code §1771.1(c)(1) or (2). Further, a Bid Proposal is not subject to rejection if the Bidder submitting the Bid Proposal lists any Subcontractor(s) who is/are not DIR Registered contractors and such Subcontractor(s) do not become DIR Registered pursuant to Labor Code §1771.1(c)(1) or (2) prior to award of the Contract, the Bidder, if awarded the Contract, must request consent of the District to substitute a DIR Registered Subcontractor for any non-DIR Registered Subcontractor(s) pursuant to Labor Code §1771.1(c)(3) without adjustment of the Contract Price or the Contract Time.
5. Modifications or Withdrawal of Bid Proposal. Changes to the bid forms which are not specifically called for or permitted may result in the District’s rejection of the Bid Proposal as being non-responsive. No oral or telephonic modification of any submitted Bid Proposal will be considered.

After submittal of a Bid Proposal, a Bidder may modify or withdraw its Bid Proposal only by written request actually received by the District prior to the scheduled closing time for the receipt of Bid Proposals and the District's public opening and reading of Bid Proposals; written requests to withdraw or modify a submitted Bid Proposal received by the District after the scheduled closing time for receipt of Bid Proposals shall not be considered by the District, nor effective to withdraw such Bid Proposal.

6. Erasures; Inconsistent or Illegible Bid Proposals. Erasures, interlineations or other corrections to any document submitted with a Bid Proposal shall be suitably authenticated by affixing in the margin immediately opposite such erasure, interlineations or correction the surname(s) of the person(s) signing the Bid Proposal. Any Bid Proposal not conforming to the foregoing may be deemed by the District to be non-responsive. If any Bid Proposal or portions thereof, is determined by the District to be illegible, ambiguous or inconsistent, the District may reject such a Bid Proposal as being non-responsive.
7. Examination of Site and Contract Documents. Each Bidder shall, at its sole cost and expense, inspect the Site and to become fully acquainted with the Contract Documents and conditions affecting the Work. Failure of a Bidder to receive or examine any of the Contract Documents or to inspect the Site shall not relieve such Bidder from any obligation with respect to the Bid Proposal, or the Work required under the Contract Documents. The District assumes no responsibility or liability to any Bidder for, nor shall the District be bound by, any understandings, representations or agreements of the District's agents, employees or officers concerning the Contract Documents or the Work made prior to execution of the Contract which are not in the form of Bid Addenda duly issued by the District. The submission of a Bid Proposal shall be deemed prima facie evidence of the Bidder's full compliance with the requirements of this section.
8. Agreement and Bonds. The Agreement which the successful Bidder, as Contractor, will be required to execute along with the forms Payment Bond, Performance Bond and other documents and instruments which are required to be furnished are included in the Contract Documents and shall be carefully examined by the Bidder.
9. Interpretation of Drawings, Specifications or Contract Documents. The District will respond to any pre-bid inquiry submitted in accordance with requirements established in the Call for Bids. If in the sole discretion of the District, a response to a pre-bid inquiry affects or potentially affects other Bidders, the Work, the Contract Documents or other requirements, the District will issue addenda. A copy of any such addendum will be delivered by fax, email or mail to each Bidder receiving a set of the Contract Documents. No person is authorized to render an oral interpretation or correction of any portion of the Contract Documents to any Bidder, and no Bidder is authorized to rely on any such oral interpretation or correction. Failure to request interpretation or clarification of any portion of the Contract Documents pursuant to the foregoing is a waiver of any discrepancy, defect or conflict therein.
10. District's Right to Modify Contract Documents. Before the public opening and reading of Bid Proposals, the District may modify the Work, the Contract Documents, or any portion(s) thereof by the issuance of written addenda disseminated to all Bidders who have obtained a copy of the Specifications, Drawings and Contract Documents pursuant to the Call for Bids. If the District issues any addenda during the bidding, the failure of any Bidder to acknowledge such addenda in its Bid Proposal will render the Bid Proposal non-responsive and rejected.
11. Bidders Interested in More Than One Bid Proposal; Non-Collusion Affidavit. No person, firm, corporation or other entity shall submit or be interested in more than one Bid Proposal for the same Work; provided, however, that a person, firm or corporation that has submitted a sub-proposal to a Bidder or who has quoted prices for materials to a Bidder is not disqualified from submitting a sub-proposal, quoting prices to other Bidders or submitting a Bid Proposal for the proposed Work to the District. The form of Non-Collusion Affidavit included in the Contract Documents must be completed

and duly executed on behalf of the Bidder; failure of a Bidder to submit a completed and executed Non-Collusion Affidavit with its Bid Proposal will render the Bid Proposal non-responsive.

12. Award of Contract.

- 12.1. Waiver of Irregularities or Informalities. The District reserves the right to reject any and all Bid Proposals or to waive any irregularities or informalities in any Bid Proposal or in the bidding.
- 12.2. Award to Lowest Responsive Responsible Bidder. The award of the Contract, if made by the District through action of its Board of Trustees, will be to the responsible Bidder submitting the lowest responsive Bid Proposal on the basis of the Base Bid Proposal and Alternate Bid Items selected in accordance with these Instructions.
- 12.3. Selection of Alternate Bid Items. Additive Alternate Bid Items (“ALT”), if any, will be accepted by the District in the order of priority established by the District, with the highest prioritized ALT being ALT 1. The Contract for the Work will be awarded to the Bidder submitting the lowest priced responsive Bid Proposal for the Base Bid scope and the maximum number of ALTs up to but not exceeding the Project Budget set forth in the Call for Bids. In the following example, Bidder B proposes \$19,000 for the Base Bid plus ALTs 1-3, Bidder A proposes \$20,000 and Bidder C proposes for the Base Bid plus ALTs 1-3. Pricing for the Base Bid and ALT 4 to any Bidder exceeds the Project Budget. Hence: Bidder B submitted the lowest priced proposal for the Base Bid and the maximum number of ALTs within the Project Budget.

| <b>Project Budget: \$19,000 (EXAMPLE)</b> |                    |          |          |                        |          |          |
|-------------------------------------------|--------------------|----------|----------|------------------------|----------|----------|
|                                           | <b>BID PRICING</b> |          |          | <b>BASE BID + ALTS</b> |          |          |
|                                           | BIDDER A           | BIDDER B | BIDDER C | BIDDER A               | BIDDER B | BIDDER C |
| Base Bid                                  | \$5,000            | \$5,500  | \$4,800  | \$5,000                | \$5,500  | \$4,800  |
| ALT 1                                     | \$8,000            | \$7,500  | \$7,800  | \$13,000               | \$13,000 | \$12,600 |
| ALT 2                                     | \$1,000            | \$1,000  | \$1,200  | \$14,000               | \$14,000 | \$13,800 |
| ALT 3                                     | \$6,000            | \$5,000  | \$7,000  | \$20,000               | \$19,000 | \$20,800 |
| ALT 4                                     | \$150              | \$120    | \$200    | \$20,150               | \$19,150 | \$21,000 |

- 12.4. Alternate Bid Items Not Included in Award of Contract. Bidders are referred to the provisions of the Contract Documents permitting the District, during performance of the Work, to add or delete from the scope of the Work any or all of the Alternate Bid Items with the cost or credit of the same being the amount(s) set forth by in the Alternate Bid Items Bid on the Proposal.
- 12.5. Responsive Bid Proposal. A responsive Bid Proposal shall mean a Bid Proposal which conforms, in all material respects, to requirements of the Bid and Contract Documents.
- 12.6. Responsible Bidder. Determination of the responsibility of Bidders is based on the following evaluation criteria.
  - 12.6.1. Bidder Capacity. Factors affecting the Bidder’s capacity to perform and complete the Work will be assessed, including: (i) Bidder’s access to labor, materials and other resources necessary to complete the Work; (ii) Bidder’s ability to complete the Work within the time established for completion of the Work, or portions thereof; and (iii) Bidder’s ability to complete warranty obligations.
  - 12.6.2. Bidder Character, Integrity. Factors reflecting the character and integrity of the Bidder, including: (i) other public agency finding/determination, within the past five (5) years, that the Bidder is not responsible; (ii) currently debarred from bidding public works projects or

debarment from bidding within past five (5) years; and (iii) false claims liability within the past five (5) years under local, state or federal laws.

12.6.3. Bidder Financial Capability. Factors considered include: (i) sufficiency of the Bidder's financial resources; (ii) whether the Bidder is current in payment of debts and performance of other financial obligations; and (iii) bankruptcy or insolvency proceedings have been instituted within the past five (5) years.

12.6.4. Bidder Prior Performance. The Bidder's prior performance on prior public works contracts, including without limitation: (i) cost overruns; (ii) compliance with general conditions and other contractual requirements, including schedule development, schedule updates and coordination of labor, material/equipment procurements and subcontractors; (iii) completion within allocated time; (iv) submittal of unsubstantiated, unsupported or excessive cost proposals, claims or contract adjustment requests; (v) completion of a project by a surety; (vi) owner's exercise of default remedies; and (vii) finding or determination by any public agency that the Bidder is not a responsible bidder.

12.6.5. Safety. Factors include: (i) findings of serious or willful safety violations of safety laws, regulations or requirements by any local, state or federal agency within the past five (5) years; (ii) adequacy and implementation of safety plans, programs for on-site and off-site construction and construction related activities; and (iii) Workers Compensation Insurance EMR rating exceeding 1.25.

13. Subcontractors.

13.1. Designation of Subcontractors; Subcontractors List. Each Bidder shall submit a list of its proposed Subcontractors for the proposed Work as required by the Subletting and Subcontracting Fair Practices Act (California Public Contract Code §§ 4100 et seq.) on the form furnished. The failure of any Bid Proposal to include all information required by the Subcontractors List will result in rejection of the Bid Proposal for non-responsiveness.

13.2. Work of Subcontractors. All Bidders are referred to the Contract Documents and the notation therein that all Contract Documents are intended to be complimentary and that the organization or arrangements of the Specifications and Drawings shall not limit the extent of the Work of the Contract Documents. Accordingly, all Bidders are encouraged to disseminate all of the Specifications, Drawings and other Contract Documents to all persons or entities submitting sub-bids to the Bidder. The omission of any portion or item of Work from the Bid Proposal or from the sub-bidders' sub-bids which is/are necessary to produce the intended results and/or which are reasonably inerrable from the Contract Documents is not a basis for adjustment of the Contract Price or the Contract Time.

13.3 Subcontractor Bonds. In accordance with California Public Contract Code §4108, if a Bidder requires a bond or bonds of its Subcontractor(s), whether the expense of procuring such bond or bonds are to be borne by the Bidder or the Subcontractor(s), such requirements shall be specified in the Bidder's written or published request for sub-bids. Failure of the Bidder to comply with these requirements shall preclude the Bidder from imposing bonding requirements upon its Subcontractor(s) or rejection of a Subcontractor's bid under California Public Contract Code §4108(b).

14. Workers' Compensation Insurance. Pursuant to California Labor Code § 3700, the successful Bidder shall secure Workers' Compensation Insurance for its employees engaged in the Work of the Contract. The successful Bidder shall execute and deliver to the District the form of Workers Compensation Certification included in the Contract Documents concurrently with such Bidder's delivery of the executed Agreement to the District.

15. Bid Security Return. The Bid Security of the Bidders submitting the three lowest priced Bid Proposals, the number being solely at the discretion of the District, will be held by the District for

ten (10) days after the period for which Bid Proposals must be held open (which is set forth in the Call for Bids) or until posting by the successful Bidder(s) of the bonds, certificates of insurance required and return of executed copies of the Agreement, whichever first occurs, at which time the Bid Security of such other Bidders will be returned to them.

16. Contractor's License. No Bid Proposal will be considered from a Bidder who, at the time Bid Proposals are opened, is not licensed to perform the Work of the Contract Documents, in accordance with the Contractors' License Law, California Business & Professions Code §§7000 et seq. This requirement is not a mere formality and will not be waived by the District or its Board of Trustees. The required California Contractors' License classification(s) for the Work is set forth in the Call for Bids.
17. Non-Discriminatory Practices. It is the policy of the District that there be no discrimination against any prospective or active employee engaged in the Work because of race, color, ancestry, national origin, religious creed, sex, age, marital status or other legally protected classification. All Bidders agree to comply with the District's non-discrimination policy and all applicable Federal and California anti-discrimination laws including but not limited to the California Fair Employment & Housing Act beginning with California Government Code §§ 12940 et seq. and California Labor Code § 1735. In addition, all Bidders agree to require like compliance by any Subcontractor employed by them on the Work of the Contract.
18. Bidder's Qualifications. Each Bidder shall submit with its Bid Proposal the form of Statement of Bidder's Qualifications, which is included within the Contract Documents. All information required by Statement of Bidder's Qualifications shall be completely and fully provided. Any Bid Proposal not accompanied by the Statement of Bidder's Qualifications completed with all information required and bearing the signature of the Bidder's duly authorized representative under penalty of perjury will render the Bid Proposal non-responsive and rejected. If the District determines that any information provided by a Bidder in the Statement of Bidder's Qualifications is false or misleading, or is incomplete so as to be false or misleading, the District may reject the Bid Proposal submitted by such Bidder as being non-responsive.
19. Job-Walk. The District will conduct a Job-Walk at the time(s) and place(s) designated in the Call for Bids. The District may, in its sole and exclusive discretion, elect to conduct one or more Job-Walk(s) in addition to that set forth in the Call for Bids, in which event the District shall notify all Bidders who have theretofore obtained the Contract Documents pursuant to the Call for Bids of any such additional Job-Walk. If the District elects to conduct any Job-Walk in addition to that set forth in the Call for Bids, the District shall, in its notice of any such additional Job-Walk(s), indicate whether Bidders' attendance at such additional Job-Walk(s) is/are mandatory. If attendance at the Job Walk is indicated in the Call for Bids as being mandatory, the failure of any Bidder to have its authorized representative present at the entirety of the Job-Walk will render the Bid Proposal of such Bidder to be non-responsive. Where the Job-Walk is mandatory, a Bidder may have more than one authorized representative and/or representatives of its Subcontractors present at the Job-Walk; provided, however that attendance by representatives of the Bidder's Subcontractors without attendance by a representative of the Bidder shall not be sufficient to meet the Bidder's obligations hereunder and will render the Bid Proposal of such Bidder to be non-responsive. The District will reject the Bid Proposal of a Bidder who obtains the Bid and Contract Documents after the date of the Mandatory Job-Walks set forth in the Call for Bids unless a Job-Walk is requested by such Bidder and a Job-Walk is conducted by the District in accordance with the following provisions. The District may, in its sole and exclusive discretion, conduct such requested Job-Walk taking into consideration factors such as the time remaining prior to the scheduled opening of Bid Proposals. Any such requested Job Walk will be conducted only upon the requesting Bidder's agreement to reimburse the District for the actual and/or reasonable costs for the District's staff and its agents and representatives in arranging for and conducting such additional Job-Walk.

20. Public Records. Bid Proposals and other documents responding to the Call for Bids become the exclusive property of the District upon submittal to the District. At such time as the District issues the Notice of Intent to award the Contract pursuant to these Instructions for Bidders, all Bid Proposals and other documents submitted in response to the Call for Bids become a matter of public record and shall be thereupon be considered public records, except for information contained in such Bid Proposals deemed to be Trade Secrets (as defined in California Civil Code § 3426.1) and information provided in response to the Statement of Qualifications. A Bidder that indiscriminately marks all or most of its Bid Proposal as exempt from disclosure as a public record, whether by the notations of "Trade Secret," "Confidential," "Proprietary," or other similar notations, may result in, or render, the Bid Proposal non-responsive and rejected. The District is not liable or responsible for the disclosure of such records, including those exempt from disclosure if disclosure is deemed required by law, by an order of Court, or which occurs through inadvertence, mistake or negligence on the part of the District or its officers, employees or agents. At such time as Bid Proposals are deemed a matter of public record, pursuant to the above, any Bidder or other party shall be afforded access for inspection and/or copying of such Bid Proposals, by request made to the District in conformity with the California Access to Public Records Act, California Government Code §§6250, et. seq. If the District is required to defend or otherwise respond to any action or proceeding wherein request is made for the disclosure of the contents of any portion of a Bid Proposal deemed exempt from disclosure hereunder, the Bidder submitting the materials sought by such action or proceeding agrees to defend, indemnify and hold harmless the District in any action or proceeding from and against any liability, including without limitation attorneys' fees arising therefrom. The party submitting materials sought by any other party shall be solely responsible for the cost and defense in any action or proceeding seeking to compel disclosure of such materials; the District's sole involvement in any such action shall be that of a stakeholder, retaining the requested materials until otherwise ordered by a court of competent jurisdiction.
21. Drug Free Workplace Certificate. In accordance with California Government Code §§ 8350 et seq., the Drug Free Workplace Act of 1990, the successful Bidder will be required to execute a Drug Free Workplace Certificate concurrently with execution of the Agreement. The successful Bidder will be required to implement and take the affirmative measures outlined in the Drug Free Workplace Certificate and in California Government Code §§8350 et seq. Failure of the successful Bidder to comply with the measures outlined in the Drug Free Workplace Certificate and in California Government Code §§ 8350 et seq. may result in penalties, including without limitation, the termination of the Agreement, the suspension of any payment of the Contract Price otherwise due under the Contract Documents and/or debarment of the successful Bidder.
22. Notice of Intent to Award Contract. Following the public opening and reading of Bid Proposals, the District will issue a Notice of Intent to Award the Contract, identifying the Bidder to whom the District intends to award the Contract and the date/time/place of the District's Board of Trustees meeting at which award of the Contract will be considered.
23. Bid Protest.
- 23.1 Submittal of Bid Protest. Any Bidder submitting a Bid Proposal to the District may file a protest of the District's intent to award the Contract provided that all of the following are complied with: (i) the bid protest is in writing; (ii) the bid protest is filed and received by the District's Vice-President, Administrative Services not more than five (5) calendar days following the date of issuance of the District's Notice of Intent to Award the Contract; and (iii) the written bid protest sets forth, in detail, all grounds for the bid protest, including without limitation all facts, supporting documentation, legal authorities and argument in support of the grounds for the bid protest; any matters not set forth in the written bid protest shall be deemed waived. All factual contentions must be supported by competent, admissible and creditable evidence. Any bid protest not conforming to the foregoing shall be rejected by the District as invalid.



- 23.2 District Review and Disposition of Bid Protest. Provided that a bid protest is filed in strict conformity with the foregoing, the District's Vice-President, Administrative Services or such individual(s) as may be designated by him/her (Designee), shall review and evaluate the basis of the bid protest. The District's Vice-President, Administrative Services or Designee shall provide the Bidder submitting the bid protest with a written statement concurring with or denying the bid protest (Bid Protest Response). The Bid Protest Response is deemed the final action of the District and not subject to appeal or reconsideration by any other employee or officer of the District or the Board of Trustees of the District. The issuance of the Bid Protest Response by the District's Vice-President, Administrative Services or the Designee is an express condition precedent to the institution of any legal or equitable proceedings relative to the bidding process, the District's intent to award the Contract, the District's disposition of any bid protest or the District's decision to reject all Bid Proposals. If any such legal or equitable proceedings are instituted and the District is named as a party thereto, the prevailing party(ies) shall recover from the other party(ies), as costs, all attorneys' fees and costs incurred in connection with any such proceeding, including any appeal arising therefrom.

**[END OF SECTION]**

**[THIS PAGE INTENTIONALLY BLANK]**

**BID PROPOSAL**

**Project: BID #2024-06 Los Banos - Entrance Signs and Marquee Sign**

|                                              |                                             |                            |
|----------------------------------------------|---------------------------------------------|----------------------------|
| Bidder Name                                  | _____                                       |                            |
| Bidder Representative(s)                     | Name and Title _____                        |                            |
|                                              | Name and Title _____                        |                            |
| Bidder Representative(s) Contact Information | Email Address(es)                           | Phone/Fax                  |
|                                              | _____                                       | (_____) _____<br>Telephone |
|                                              | _____                                       | (_____) _____<br>Fax       |
| Bidder Mailing Address                       | Address _____                               |                            |
|                                              | City/State/Zip Code _____                   |                            |
| California Contractors' License              | Number _____                                |                            |
|                                              | Classification(s) and Expiration Date _____ |                            |

1. **Bid Proposal.**
  - 1.1 **Bid Proposal Amount.** The undersigned Bidder proposes and agrees to perform the Contract including, without limitation, providing and furnishing any and all of the labor, materials, tools, equipment and services necessary to perform all obligations under the Contract Documents and to complete the Work required for the sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_).
  - 1.2 **Acknowledgment of Bid Addenda.** The Bidder confirms that this Bid Proposal incorporates and is inclusive of, all items or other matters contained in Bid Addenda issued by or on behalf of the District.  
**Addenda Nos.** \_\_\_\_\_ received, acknowledged  
 \_\_\_\_\_ (initial) and incorporated into this Bid Proposal.
  - 1.3 **Alternate Bid Items.** The Bidder's proposed pricing for each Alternate Bid Item, if any, are set forth in the accompanying form of Alternate Bid Items Proposal. Failure of a Bidder to propose pricing for each Alternate Bid Item set forth in the accompanying Alternate Bid Items Proposal will result in the Bid Proposal being deemed non-responsive and rejected.
2. **Documents Accompanying Bid Proposal.** The Bidder has submitted with this Bid Proposal the following: (i) Bid Security; (ii) Subcontractors List; (iii) Statement of Qualifications; (iv) Non-Collusion Affidavit; and (v) DIR Registration Verification. The Bidder acknowledges that if this Bid Proposal and the foregoing documents are not fully in compliance with applicable requirements set forth in the Call for Bids, the Instructions for Bidders and in each of the foregoing documents, the Bid Proposal may be rejected as non-responsive.
3. **Award of Contract.** Concurrently with delivery of the executed Agreement to the District, the Bidder awarded the Contract shall deliver to the District: (i) Certificates of Insurance evidencing all insurance coverages required under the Contract Documents; (ii) Performance Bond; (iii)

Labor and Material Payment Bond; (ii) Certificate of Workers' Compensation Insurance; and (iv) Drug-Free Workplace Certificate. Failure of the Bidder awarded the Contract to strictly comply with the preceding may result in the District's rescinding award of the Contract and/or forfeiture of the Bidder's Bid Security.

4. Bidder Certifications. The Bidder certifies the following to the District:

4.1 Contractor License. The Bidder certifies that: (i) it possesses a valid and in good standing Contractors' License, in the necessary class(es), for performing the Work as set for in the Call for Bids; (ii) that such license shall be in full force and effect throughout the duration of the performance of the Work; and (ii) that all Subcontractors providing or performing any portion of the Work are properly licensed to perform their respective portions of the Work at the time of submitting this Bid Proposal and at all times during their performance of the Work.

4.2 DIR Registration. The Bidder certifies to the District that the Bidder is a DIR Registered contractor and that during the Work, the Bidder will verify that all subcontractors, of any tier performing any portion of the Work are DIR Registered contractors. All Work will be performed and completed by DIR Registered contractors.

5. Agreement to Bidding Requirements and Attorneys' Fees. The undersigned Bidder acknowledges and confirms its receipt, review and agreement with, the contractual requirements set forth in this Bid Proposal and the Contract Documents. By executing this Bid Proposal hereinbelow, the Bidder expressly acknowledges and agrees that if the Bidder institutes any legal or equitable proceedings in connection with this Bid Proposal and the District is named as a party thereto, the prevailing party(ies) shall recover from the other party(ies), as costs, all attorneys' fees and costs incurred in connection with any such proceeding, including any appeal arising therefrom. This provision shall constitute a binding attorneys' fee agreement in accordance with and pursuant to California Civil Code §1717 which shall be enforceable against the Bidder and the District. This attorneys fee provision shall be solely limited to legal or equitable proceedings arising out of a bid protest or the bidding process and shall not extend to or have any force and effect on the Contract for the Work or to modify the terms of the Contract Documents for the Work.

6. Acknowledgment and Confirmation. The undersigned Bidder acknowledges its receipt, review and understanding of the Drawings, the Specifications and other Contract Documents pertaining to the proposed Work. The undersigned Bidder certifies that the Contract Documents are, in its opinion, adequate, feasible and complete for providing, performing and constructing the Work in a sound and suitable manner for the use specified and intended by the Contract Documents. The undersigned Bidder certifies that it has, or has available, all necessary equipment, personnel, materials, facilities and technical and financial ability to complete the Work for the amount bid herein within the Contract Time and in accordance with the Contract Documents.

By: \_\_\_\_\_  
(Signature of Bidder's Authorized Officer  
or Representative)

\_\_\_\_\_  
(Typed or Printed Name)

Title: \_\_\_\_\_

**ALTERNATE BID ITEMS PROPOSAL**

**Bidder Name:** \_\_\_\_\_

**Project** **BID #2024-06 Los Banos - Entrance Signs and Marquee Sign**

Bidders must provide a proposal price for each Alternate Bid Item set forth herein; failure to do so will result in rejection of the Bid Proposal for non-responsiveness. The amount proposed for each Alternate Bid Item by the above-identified Bidder is set forth hereinbelow:

**Alternate Item No. 1. [DESCRIPTION]**

Add \_\_\_\_\_ Dollars (\$) to Base Bid Proposal Amount.

**Alternate Item No. 2. [DESCRIPTION]**

Check one of the following and indicate the additive or deductive proposed price for the foregoing Alternate Bid Item.

Add \_\_\_\_\_ Dollars (\$) to Base Bid Proposal Amount.

Dated \_\_\_\_\_

By: \_\_\_\_\_

(Signature of Bidder's Authorized Officer or Representative)

\_\_\_\_\_

(Typed or Printed Name)

Title: \_\_\_\_\_

**THIS PAGE INTENTIONALLY BLANK**

**SUBCONTRACTORS LIST**

|                                   |                                                          |
|-----------------------------------|----------------------------------------------------------|
| Project ("the Work")              | BID #2024-06 Los Banos - Entrance Signs and Marquee Sign |
| Bidder Name                       | _____                                                    |
| Bidder's Representative Signature | _____                                                    |
|                                   | (Signature)                                              |
|                                   | (Typed or Printed Name)                                  |

| Licensed Name of Subcontractor | Trade or Portion of Work | Address of Office, Mill or Shop | Subcontractor CSLB License No. | DIR Registration No. |
|--------------------------------|--------------------------|---------------------------------|--------------------------------|----------------------|
|                                |                          |                                 |                                |                      |
|                                |                          |                                 |                                |                      |
|                                |                          |                                 |                                |                      |
|                                |                          |                                 |                                |                      |
|                                |                          |                                 |                                |                      |
|                                |                          |                                 |                                |                      |
|                                |                          |                                 |                                |                      |

DUPLICATE THIS PAGE AS NECESSARY FOR LISTING ADDITIONAL SUBCONTRACTORS

**THIS PAGE INTENTIONALLY BLANK**



**VERIFICATION OF CONTRACTOR AND  
SUBCONTRACTORS' DIR REGISTRATION**

I am the \_\_\_\_\_ of \_\_\_\_\_ (“Bidder”)  
(Title/Position) (Bidder Name)  
submitting the accompanying Bid Proposal for the Work described as:

**BID #2024-06 Los Banos - Entrance Signs and Marquee Sign**

1. The Bidder is currently registered as a contractor with the Department of Industrial Relations (“DIR”).
2. The Bidder’s DIR Registration Number is: \_\_\_\_\_. The expiration date of the Bidder’s DIR Registration is June 30, 20\_\_\_\_\_.
3. If the expiration date of the Bidder’s DIR Registration will occur prior to expiration of the Contract Time for the Work and the Bidder is awarded the Contract for the Work, prior to the Bidder’s DIR Registration expiration, the Bidder will take all measures necessary to renew the Bidder’s DIR Registration so that there is no lapse in the Bidder’s DIR Registration.
4. The Bidder, if awarded the Contract for the Work will remain a DIR registered contractor for the entire duration of the Work.
5. The Bidder has independently verified that each Subcontractor identified in the Subcontractors List is currently a DIR registered contractor.
6. The Bidder’s solicitation of subcontractor bids included notice to prospective subcontractors that: (i) all sub-tier subcontractors must be DIR registered contractors at all times during performance of the Work; and (ii) prospective subcontractors may only solicit sub-bids from and contract with lower-tier subcontractors who are DIR registered contractors.
7. If any of the statements herein are false or omit material facts rendering a statement to be false or misleading, the Bidder’s Bid Proposal is subject to rejection for non-responsiveness.
8. I have personal first hand-knowledge of all of the foregoing.

I declare under penalty of perjury under California law that the foregoing is true and correct.

Executed this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ at \_\_\_\_\_  
(City and State)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Name, typed or printed)

**THIS PAGE INTENTIONALLY BLANK**

**STATEMENT OF QUALIFICATIONS**

**1. Bidder Information.**

**1.1. Contact Information**

|                                                          |                       |
|----------------------------------------------------------|-----------------------|
| Mailing Address                                          | _____                 |
|                                                          | Street Address        |
|                                                          | _____                 |
|                                                          | City, State, Zip Code |
| Physical Location<br>(if different from mailing address) | _____                 |
|                                                          | Street Address        |
|                                                          | _____                 |
|                                                          | City, State, Zip Code |
| Telephone/Fax                                            | (____) _____          |
|                                                          | Telephone             |
|                                                          | (____) _____          |
|                                                          | Fax                   |

**1.2. Bidder Contacts.**

|                     |                         |
|---------------------|-------------------------|
| Name                | _____                   |
| Contact Information | Telephone: (____) _____ |
|                     | Fax (____) _____        |
|                     | Email _____             |

**1.3. California Contractors' License.**

|                                                             |       |
|-------------------------------------------------------------|-------|
| License Number(s)                                           | _____ |
| License Classification(s)                                   | _____ |
| Responsible Managing Employee; Responsible Managing Officer | _____ |
| Expiration Date(s)                                          | _____ |

**1.4. Bidder Form of Entity.**

- |                             |                                 |
|-----------------------------|---------------------------------|
| € Corporation               | € Limited Liability Partnership |
| € General Partnership       | € Joint Venture                 |
| € Limited Partnership       | € Sole Proprietorship           |
| € Limited Liability Company |                                 |

**[CONTINUED NEXT PAGE]**

2. Revenue. Complete the following for the Applicant’s construction operations; if any portion of the revenue disclosed is generated by non-construction operations or activities, the Applicant must identify the portion of revenue attributed to construction operations and generally describe business activities of the Applicant that generates non-construction operations related revenue.

| <b>Calendar Year/ Fiscal Year</b> | <b>Annual Gross Revenue</b> | <b>Average Dollar Value of all Contracts</b> | <b>Dollar Value of Largest Contract</b> |
|-----------------------------------|-----------------------------|----------------------------------------------|-----------------------------------------|
| Choose an item.                   |                             |                                              |                                         |
| Choose an item.                   |                             |                                              |                                         |
| Choose an item.                   |                             |                                              |                                         |

3. References.

| <b>DSA Project Inspectors</b>                                         |         |               |              |
|-----------------------------------------------------------------------|---------|---------------|--------------|
| Firm Name                                                             | Address | Telephone No. | Contact Name |
|                                                                       |         |               |              |
|                                                                       |         |               |              |
|                                                                       |         |               |              |
| <b>Owners (K-12 school districts or community colleges preferred)</b> |         |               |              |
| Owner Name                                                            | Address | Telephone No. | Contact Name |
|                                                                       |         |               |              |
|                                                                       |         |               |              |
|                                                                       |         |               |              |
| <b>Architects (K-12 or Community College Projects)</b>                |         |               |              |
| Architect Firm Name & Architect Firm Contact Name                     | Address | Telephone No. | Contact Name |
|                                                                       |         |               |              |
|                                                                       |         |               |              |
|                                                                       |         |               |              |

**[CONTINUED NEXT PAGE]**

**4. Insurance.**

|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Commercial General Liability Insurance</p>                         | <p>Insurer: _____<br/>                 Policy No. _____<br/>                 Broker _____</p>                                                                                                                                                                                                                                                                                                                                                                           |
| <p>Commercial General Liability Insurance Broker</p>                  | <p>(Contact Name) _____<br/>                 _____<br/>                 (Street Address)<br/>                 _____<br/>                 (City, State &amp; Zip Code)<br/>                 _____<br/>                 (_____) _____ (_____) _____<br/>                 Telephone Fax<br/>                 _____<br/>                 (Email address)</p>                                                                                                                |
| <p>Bid, Performance and Labor &amp; Materials Payment Bond Surety</p> | <p>Surety: _____<br/>                 Surety Broker _____<br/>                 _____<br/>                 (Surety Broker Contact Name)<br/>                 _____<br/>                 (Street Address)<br/>                 _____<br/>                 (City, State &amp; Zip Code)<br/>                 _____<br/>                 (_____) _____ (_____) _____<br/>                 Telephone Fax<br/>                 _____<br/>                 (Email address)</p> |
| <p>Workers Compensation Insurance</p>                                 | <p>Insurer: _____<br/>                 Policy No. _____<br/>                 Broker _____</p>                                                                                                                                                                                                                                                                                                                                                                           |
| <p>Workers Compensation Insurance Broker</p>                          | <p>(Contact Name) _____<br/>                 _____<br/>                 (Street Address)<br/>                 _____<br/>                 (City, State &amp; Zip Code)<br/>                 _____<br/>                 (_____) _____ (_____) _____<br/>                 Telephone Fax<br/>                 _____<br/>                 (Email address)</p>                                                                                                                |

**[CONTINUED NEXT PAGE]**

5. **Essential Requirements.** A Bidder will not be deemed qualified if the answer to any of the following questions results in a “not qualified” response and the Bid Proposal submitted by such a Bidder will be rejected for non-responsiveness.
- 5.1. Bidder possesses a valid and currently in good standing California Contractors’ license for the Classification(s) of Contractors’ License required by the Call for Bids.  
 Yes       No (Not Qualified)
  - 5.2. Bidder is currently a DIR Registered contractor.  
 Yes       No (Not Qualified)
  - 5.3. Bidder has a current commercial general liability insurance policy with coverage limits which are equal to or greater than minimum coverage limits set forth in the Special Conditions.  
 Yes       No (Not Qualified)
  - 5.4. Bidder has a current workers’ compensation insurance policy as required by the Labor Code or is legally self-insured pursuant to Labor Code §3700.  
 Yes       No (Not Qualified)  
 Bidder is exempt from this requirement, because it has no employees
  - 5.5. The Bidder ineligible or debarred from submitting Bid Proposals for public works projects or public works contracts pursuant Labor Code §1777.1 or Labor Code §1777.7.  
 Yes (Not Qualified)       No
  - 5.6. A public agency, within the past five (5) years conducted proceedings that resulted in a finding that the Bidder, or any predecessor to the Bidder, is not a “responsible” bidder for a public works project or a public works contract.  
 Yes (Not Qualified)       No
  - 5.7. During the last five (5) years, the Bidder or any predecessor to the Bidder, or any of the equity owners of the Bidder has been convicted of a federal or state crime involving fraud, theft, or any other act of dishonesty?  
 Yes (Not Qualified)       No
  - 5.8. During the past five (5) years a Surety has completed any project or the Bidder’s obligations under a construction contract.  
 Yes (Not Qualified)       No
  - 5.9. During the past five (5) years the Bidder has been declared in default under any construction contract to which the Bidder was a party.  
 Yes (Not Qualified)       No
  - 5.10. The Bidder’s Worker’s Compensation Insurance average Experience Modification Rating (“EMR”) rating over the past five (5) years is more than 1.25.  
 Yes (Not Qualified)       No
  - 5.11. The Bidder’s Workers Compensation Insurance EMR for the current policy term is more than 1.25.  
 Yes (Not Qualified)       No
6. **Accuracy and Authority.** The undersigned is duly authorized to execute this Statement of Qualifications under penalty of perjury on behalf of the above-identified Bidder. The undersigned warrants and represents that he/she has personal knowledge of each of the responses to this Statement of Qualifications and/or that he/she has conducted all necessary and appropriate inquiries to determine the truth, completeness and accuracy of responses to this Statement of Qualifications. The undersigned declares and certifies that the responses to this Statement of Qualifications are complete and accurate; there are no omissions of material fact or information that render any response to be false or misleading and there are no misstatements of fact in any of the responses. The above-identified Bidder acknowledges and agrees that if the District determines that any response herein is false or

misleading or contains misstatements of fact so as to be false or misleading, the Bidder's Bid Proposal may be rejected by the District for non-responsiveness.

Executed this \_\_\_ day of \_\_\_\_\_ 20\_\_ at \_\_\_\_\_  
(City and State)

I declare under penalty of perjury under California law that the foregoing is true and correct.

By: \_\_\_\_\_  
(Signature of Bidder's Authorized Officer or Representative)

\_\_\_\_\_

Title: \_\_\_\_\_  
(Typed or Printed Name)

**[THIS PAGE INTENTIONALLY BLANK]**



**NON-COLLUSION AFFIDAVIT**

**STATE OF CALIFORNIA**  
**COUNTY OF \_\_\_\_\_**

I, \_\_\_\_\_, being first duly sworn, deposes and says that I am  
(Typed or Printed Name)

the \_\_\_\_\_ of \_\_\_\_\_, the party submitting  
(Title) (Bidder Name)

the foregoing Bid Proposal ("the Bidder"). In connection with the foregoing Bid Proposal, the undersigned declares, states and certifies that:

1. The Bid Proposal is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization or corporation.

2. The Bid Proposal is genuine and not collusive or sham.

3. The Bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any other bidder or anyone else to put in sham bid, or to refrain from bidding.

4. The Bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price, or that of any other bidder, or to fix any overhead, profit or cost element of the bid price or that of any other bidder, or to secure any advantage against the public body awarding the contract or of anyone interested in the proposed contract.

5. All statements contained in the Bid Proposal and related documents are true.

6. The bidder has not, directly or indirectly, submitted the bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any person, corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Executed this \_\_\_\_ day of \_\_\_\_\_, 20\_\_ at \_\_\_\_\_.  
(City, County and State)

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

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name Printed or Typed

(\_\_\_\_\_) \_\_\_\_\_  
(Area Code and Telephone Number)

**[THIS PAGE INTENTIONALLY BLANK]**

**CERTIFICATE OF WORKERS' COMPENSATION INSURANCE**

I, \_\_\_\_\_ the \_\_\_\_\_ of  
(Name) (Title)

\_\_\_\_\_, declare, state and certify that:  
(Contractor Name)

1. I am aware that California Labor Code § 3700(a) and (b) 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 in one or more insurers duly authorized to write compensation insurance in this state.

(b) By securing from the Director of Industrial Relations a certificate of consent to self-insure either as an individual employer, or one employer in a group of employers, 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 or her employees.”

2. I am aware that the provisions of California Labor Code §3700 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 this Contract.

\_\_\_\_\_  
(Contractor Name)

By: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Typed or printed name)

## DRUG-FREE WORKPLACE CERTIFICATION

I, \_\_\_\_\_, am the \_\_\_\_\_ of  
(Print Name) (Title)

\_\_\_\_\_  
(Contractor Name)

I declare, state and certify to all of the following:

1. I am aware of the provisions and requirements of California Government Code §§8350 et seq., the Drug Free Workplace Act of 1990.
2. I am authorized to certify, and do certify, on behalf of Contractor that a drug free workplace will be provided by Contractor by doing all of the following:
  - A. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession or use of a controlled substance is prohibited in Contractor's workplace and specifying actions which will be taken against employees for violation of the prohibition;
  - B. Establishing a drug-free awareness program to inform employees about all of the following:
    - i. The dangers of drug abuse in the workplace;
    - ii. Contractor's policy of maintaining a drug-free workplace;
    - iii. The availability of drug counseling, rehabilitation and employee-assistance programs; and
    - iv. The penalties that may be imposed upon employees for drug abuse violations;
  - C. Requiring that each employee engaged in the performance of the Contract be given a copy of the statement required by subdivision (A), above, and that as a condition of employment by Contractor in connection with the Work of the Contract, the employee agrees to abide by the terms of the statement.
  - D. Contractor agrees to fulfill and discharge all of Contractor's obligations under the terms and requirements of California Government Code §8355 by, inter alia, publishing a statement notifying employees concerning: (i) the prohibition of any controlled substance in the workplace, (ii) establishing a drug-free awareness program, and (iii) requiring that each employee engaged in the performance of the Work of the Contract be given a copy of the statement required by California Government Code §8355(a) and requiring that the employee agree to abide by the terms of that statement.

3. Contractor and I understand that if the District determines that Contractor has either: (i) made a false certification herein, or (ii) violated this certification by failing to carry out and to implement the requirements of California Government Code §§8355, the Contract awarded herein is subject to termination, suspension of payments, or both. Contractor and I further understand that, should Contractor violate the terms of the Drug-Free Workplace Act of 1990, Contractor may be subject to debarment in accordance with the provisions of California Government Code §§8350, et seq.
4. Contractor and I acknowledge that Contractor and I are aware of the provisions of California Government Code §§8350, et seq. and hereby certify that Contractor and I will adhere to, fulfill, satisfy and discharge all provisions of and obligations under the Drug-Free Workplace Act of 1990.

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

Executed at \_\_\_\_\_ this \_\_\_\_ day of

1. (City and State)

\_\_\_\_\_, 20 \_\_\_\_.

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Printed or Typed Name)

**AGREEMENT**

**THIS AGREEMENT** is entered into [Click here to enter a date.](#) in the City of Merced, County of Merced, State of California, by and between **MERCED COMMUNITY COLLEGE DISTRICT**, a California Community College District hereinafter “District” and \_\_\_\_\_ (“Contractor”).

**WITNESSETH**, that the District and the Contractor in consideration of the mutual covenants contained herein agree as follows:

1. **The Work.** Within the Contract Time and for the Contract Price, subject to adjustments thereto pursuant to the Contract Documents, the Contractor shall perform and provide all necessary labor, materials, tools, equipment, utilities, services and transportation to complete in a workmanlike manner all of the Work required in connection with the work of improvement commonly referred to as BID #2024-06 Los Banos - Entrance Signs and Marquee Sign. Contractor shall complete all Work covered by the Contract Documents, including without limitation, the Drawings and Specifications prepared by the Architect, \_\_\_\_\_ and other Contract Documents enumerated in Article 5 below, along with all modifications and addenda thereto issued in accordance with the Contract Documents.
2. **Contract Time.** The Work shall be commenced on the date stated in the District’s Notice to Proceed; the Contractor shall achieve Completion of the Work within the Contract Time set forth in the Contract Documents.
3. **Contract Price.** The District shall pay the Contractor as full consideration for the Contractor’s full, complete and faithful performance of the Contractor’s obligations under the Contract Documents, subject to adjustments of the Contract Price in accordance with the Contract Documents, the Contract Price of \_\_\_\_\_ **Dollars** (\$ \_\_\_\_\_). The District’s payment of the Contract Price shall be in accordance with the Contract Documents. The Contract Price is based upon the Contractor’s Base Bid Proposal and the following Alternate Bid Items, if any: \_\_\_\_\_.
4. **Liquidated Damages.** If the Contractor fails to achieve Completion of the Work within the Contract Time, including adjustments thereto authorized by the Contract Documents, the Contractor shall be subject to assessment of Liquidated Damages in accordance with the Contract Documents. Failure of the Contractor to complete Punchlist items noted upon Completion within the time established to complete the Punchlist items will result in the District’s assessment of Liquidated Damages in accordance with the Contract Documents.
5. **The Contract Documents.** The documents forming a part of the Contract Documents consist of the following, all of which are component parts of the Contract Documents.

| Section  | Description                                   | Section  | Description                                                               |
|----------|-----------------------------------------------|----------|---------------------------------------------------------------------------|
| 00 01 10 | Table of Contents                             | 00 61 10 | Bid Bond                                                                  |
| 00 11 13 | Notice Calling for Bids                       | 00 61 13 | Performance Bond                                                          |
| 00 21 13 | Instructions for Bidders                      | 00 61 14 | Labor & Materials Payment Bond                                            |
| 00 41 22 | Bid Proposal                                  | 00 62 90 | Verification of Certified Payroll Records Submittal to Labor Commissioner |
| 00 43 13 | Bid Proposal; Alternate Bid Items Proposal    | 00 65 01 | Conditional Waiver & Release on Progress Payment                          |
| 00 43 36 | Subcontractors List                           | 00 65 02 | Unconditional Waiver & Release on Progress Payment                        |
| 00 45 10 | DIR Registration Verification                 | 00 65 03 | Conditional Waiver & Release on Final Payment                             |
| 00 45 13 | Statement of Qualifications                   | 00 65 04 | Unconditional Waiver & Release on Final Payment                           |
| 00 45 19 | Non-Collusion Affidavit                       | 00 65 36 | Contractor Guarantee Form                                                 |
| 00 45 23 | Certificate of Workers Compensation Insurance | 00 65 37 | Contractor Certification of Subcontractor Claim                           |
| 00 45 27 | Drug-Free Workplace Certification             | 00 72 13 | General Conditions                                                        |

| Section  | Description | Section  | Description        |
|----------|-------------|----------|--------------------|
| 00 52 00 | Agreement   | 00 73 13 | Special Conditions |

6. Authority to Execute. The individual(s) executing this Agreement on behalf of the Contractor is/are duly and fully authorized to execute this Agreement on behalf of Contractor and to bind the Contractor to each and every term, condition and covenant of the Contract Documents.

**CONTRACTORS ARE REQUIRED BY LAW TO BE LICENSED AND REGULATED BY THE CONTRACTORS' STATE LICENSE BOARD. ANY QUESTIONS CONCERNING A CONTRACTOR MAY BE REFERRED TO THE REGISTRAR, CONTRACTORS' STATE LICENSE BOARD, P.O. BOX 2600, SACRAMENTO, CALIFORNIA 95826**

**IN WITNESS WHEREOF**, this Agreement has been duly executed by the District and the Contractor as of the date set forth above.

**District**  
**Merced Community College District**

By: \_\_\_\_\_

Title: \_\_\_\_\_

**Contractor**  
**[Contractor Name]**

By: \_\_\_\_\_

Title: \_\_\_\_\_

**BID BOND**

KNOW ALL MEN BY THESE PRESENTS that we, \_\_\_\_\_, as Surety and \_\_\_\_\_, as Principal, are jointly and severally, along with their respective heirs, executors, administrators, successors and assigns, held and firmly bound unto **MERCED COMMUNITY COLLEGE DISTRICT** ("the Obligee") for payment of the penal sum hereof in lawful money of the United States, as more particularly set forth herein.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT:

WHEREAS, the Principal has submitted the accompanying Bid Proposal to the Obligee for the Work commonly described as **BID #2024-06 Los Banos - Entrance Signs and Marquee Sign.**

WHEREAS, subject to the terms of this Bond, the Surety and the Principal are jointly and severally firmly bound unto the Obligee in the penal sum equal to Ten Percent (10%) of the maximum amount of the Bid Proposal submitted by the Principal to the Obligee, inclusive of amounts proposed for Alternate Bid Items, if any.

NOW THEREFORE, if the Principal shall not withdraw said Bid Proposal within the period specified therein after the opening of the same, or, if no period be specified, for sixty (60) days after opening of said Bid Proposal; and if the Principal is awarded the Contract, and shall within the period specified therefore, or if no period be specified, within five (5) days after the prescribed forms are presented to him for signature, enter into a written contract with the Obligee, in accordance with the Bid Proposal as accepted and give such bond(s) with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such Contract and for the payment for labor and materials used for the performance of the Contract, or in the event of the withdrawal of said Bid Proposal within the period specified for the holding open of the Bid Proposal or the failure of the Principal to enter into such Contract and give such bonds within the time specified, if the Principal shall pay the Obligee the difference between the amount specified in said Bid Proposal and the amount for which the Obligee may procure the required Work and/or supplies, if the latter amount be in excess of the former, together with all costs incurred by the Obligee in again calling for Bids, then the above obligation shall be void and of no effect, otherwise to remain in full force and effect.

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, the Work to be performed there under, the Drawings or the Specifications accompanying the same, or any other portion of the Contract Documents shall in no way affect its obligations under this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of said Contract, the Call for Bids, the Work, the Drawings or the Specifications, or any other portion of the Contract Documents.

If suit or other proceeding is brought upon this Bond by the Obligee, the Surety and Principal shall be jointly and severally liable for payment to the Obligee all costs, expenses and fees

**[CONTINUED NEXT PAGE]**



incurred by the Obligee in connection therewith, including without limitation, attorneys' fees.

IN WITNESS WHEREOF, the Principal and Surety have executed this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ by their duly authorized agents or representatives.

\_\_\_\_\_  
**(Bidder/Principal Name)**

By: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Typed or Printed Name)

Title: \_\_\_\_\_

**(Attach Notary Public Acknowledgement of Principal's Signature)**

\_\_\_\_\_  
**(Surety Name)**

By: \_\_\_\_\_  
(Signature of Attorney-In-Fact for Surety)

\_\_\_\_\_  
(Typed or Printed Name of Attorney-In-Fact)

**(Attach: (i) Attorney-In-Fact Certification; (ii) Notary Public Acknowledgment of Authorizing Signature on Attorney-Fact Certification; and (iii) Notary Public Acknowledgement of Attorney-In-Fact's Signature.)**

**Contact name, address, telephone number and email address for notices to the Surety**

\_\_\_\_\_  
(Contact Name)

\_\_\_\_\_  
(Street Address)

\_\_\_\_\_  
(City, State & Zip Code)

(\_\_\_\_\_) \_\_\_\_\_ (\_\_\_\_\_) \_\_\_\_\_  
Telephone Fax

\_\_\_\_\_  
(Email address)

**PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS that we, \_\_\_\_\_, as Surety and \_\_\_\_\_, as Principal, are jointly and severally, along with their respective heirs, executors, administrators, successors and assigns, held and firmly bound unto **MERCED COMMUNITY COLLEGE DISTRICT** ("the Obligee") for payment of the penal sum the penal sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT:

WHEREAS, the Obligee, by resolution of its Board of Trustees has awarded to the Principal a Contract for the Work described as **BID #2024-06 Los Banos - Entrance Signs and Marquee Sign**

WHEREAS, the Principal, has entered into an agreement with the Obligee for performance of the Work; the Agreement and all other Contract Documents set forth therein are incorporated herein and made a part hereof by this reference.

WHEREAS, by the terms of the Contract Documents, the Principal is required to furnish a bond ensuring the Principal's prompt, full and faithful performance of the Work of the Contract Documents.

NOW THEREFORE, if the Principal promptly, fully and faithfully performs each and all of the obligations and things to be done and performed by the Principal in strict accordance with the terms of the Contract Documents as they may be modified or amended from time to time; and if the Principal shall indemnify, defend and hold harmless the Obligee and all of its officers, agents and employees from any and all losses, liability and damages, claims, judgments, liens, costs, and fees of every description, which may be incurred by the Obligee by reason of the failure or default on the part of the Principal in the performance of any or all of the terms or the obligations of the Contract Documents, including all modifications, and amendments, thereto, and any warranties or guarantees required thereunder; then this obligation shall be void; otherwise, it shall be, and remain, in full force and effect.

The Surety, for value received, stipulates and agrees that no change, adjustment of the Contract Time, adjustment of the Contract Price, alterations, deletions, additions, or any other modifications to the terms of the Contract Documents, the Work, or to the Specifications or the Drawings shall limit, restrict or otherwise impair Surety's obligations or Obligee's rights hereunder; Surety waives notice from the Obligee of any such changes, adjustments of Contract Time, adjustments of Contract Price, alterations, deletions, additions or other modifications to the Contract Documents, the Work, or the Drawings or the Specifications.

In the event of the Obligee's termination of the Contract due to the Principal's breach or default of the Principal's obligations thereunder, within twenty (20) days after written notice from the Obligee to the Surety of the Principal's breach or default of the Contract Documents and Obligee's termination of the Contract, the Surety shall notify Obligee in writing of Surety's assumption of obligations hereunder by its election to either remedy the default or breach of the Principal or to take charge of the Work of the Contract Documents and complete the Work at its own expense ("the Notice of Election"); provided, however, that the procedure by which the Surety undertakes to discharge its obligations under this

**[CONTINUED NEXT PAGE]**

Bond shall be subject to the advance written approval of the Obligee, which approval shall not be unreasonably withheld, limited or restricted. The insolvency of the Principal or the Principal's denial of a failure of performance or default under the Contract Documents shall not by itself, without the Surety's prompt, diligent inquiry and investigation of such denial, be justification for Surety's failure to give the Notice of Election or for its failure to promptly remedy the failure of performance or default of the Principal or to complete the Work.

If the Surety fails to issue its Notice of Election to Obligee within the time provided for hereinabove, the Obligee may thereafter cause the cure or remedy of the Principal's failure of performance or default or to complete the Work. The Principal and the Surety are jointly and severally liable to the Obligee for all damages and costs sustained by the Obligee as a result of the Principal's failure of performance under the Contract Documents or default in its performance of obligations thereunder, including without limitation the costs of cure or completion of the Work exceeding the then remaining balance of the Contract Price; provided that the Surety's liability hereunder for the costs of performance, damages and other costs sustained by the Obligee upon the Principal's failure of performance or default under the Contract Documents is limited to the penal sum hereof, which includes the costs or value of any Changes to the Work which increases the Contract Price.

If suit or other proceeding is brought upon this Bond by the Obligee, the Surety and Principal are jointly and severally liable for payment to the Obligee of all costs, expenses and fees incurred by the Obligee therewith, including without limitation, attorneys' fees.

IN WITNESS WHEREOF, the Principal and Surety have executed this instrument this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ by their duly authorized agent or representative.

\_\_\_\_\_  
**(Contractor-Principal Name)**

By: \_\_\_\_\_  
 (Signature)

\_\_\_\_\_  
 (Typed or Printed Name)

Title: \_\_\_\_\_

**(Attach Notary Public Acknowledgement of Principal's Signature)**

**Contact name, address, telephone number and email address for notices to the Surety**

\_\_\_\_\_  
 (Contact Name)

\_\_\_\_\_  
 (Street Address)

\_\_\_\_\_  
 (City, State & Zip Code)

(\_\_\_\_\_) \_\_\_\_\_ (\_\_\_\_\_) \_\_\_\_\_  
 Telephone Fax

\_\_\_\_\_  
 (Email address)

\_\_\_\_\_  
**(Surety Name)**

By: \_\_\_\_\_  
 (Signature of Attorney-In-Fact for Surety)

\_\_\_\_\_  
 (Typed or Printed Name of Attorney-In-Fact)

**(Attach: (i) Attorney-In-Fact Certification; (ii) Notary Public Acknowledgment of Authorizing Signature on Attorney-Fact Certification; and (iii) Notary Public Acknowledgement of Attorney-In-Fact's Signature.)**

**LABOR AND MATERIAL PAYMENT BOND**

KNOW ALL MEN BY THESE PRESENTS that we, \_\_\_\_\_, as Surety and \_\_\_\_\_, as Principal, are jointly and severally, along with their respective heirs, executors, administrators, successors and assigns, held and firmly bound unto **MERCED COMMUNITY COLLEGE DISTRICT** ("the Obligee") for payment of the penal sum the penal sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT:

WHEREAS, the Obligee, by resolution of its Board of Trustees has awarded to the Principal a Contract for the Work described as **BID #2024-06 Los Banos - Entrance Signs and Marquee Sign.**

WHEREAS, the Principal, has entered into an Agreement with the Obligee for performance of the Work, the Agreement and all other Contract Documents set forth therein are incorporated herein by this reference and made a part hereof.

WHEREAS, by the terms of the Contract Documents, the Principal is required to furnish a bond for the prompt, full and faithful payment to any Claimant, as hereinafter defined, for all labor materials or services used, or reasonably required for use, in the performance of the Work.

NOW THEREFORE, if the Principal shall promptly, fully and faithfully make payment: (i) to any Claimant for all labor, materials or services used or reasonably required for use in the performance of the Work; (ii) of amounts due under the Unemployment Insurance Code for work or labor performed under the Contract; and (iii) of amounts required to be deducted, withheld and paid to the Employment Development Department from wages of the employees of the Principal and its Subcontractors under Section 13020 of the Unemployment Insurance Code with respect to work and labor under the Contract then this obligation shall be void; otherwise, it shall be, and remain, in full force and effect.

The term "Claimant" shall refer to any person, corporation, partnership, proprietorship or other entity including without limitation, all persons and entities described in California Civil Code §9100, providing or furnishing labor, materials or services used or reasonably required for use in the performance of the Work under the Contract Documents, without regard for whether such labor, materials or services were sold, leased or rented. This Bond shall inure to the benefit of all Claimants so as to give them, or their assigns and successors, a right of action upon this Bond.

If suit is brought on this Bond by any Claimant for amounts due such Claimant for labor, materials or services provided or furnished by such Claimant, the Surety shall pay for the same and reasonable attorneys' fees pursuant to California Civil Code §9554.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, deletion, addition, or any other modification to the terms of the Contract Documents, the Work to be performed thereunder, the Specifications or the Drawings, or any other portion of the Contract Documents, shall in any way limit, restrict or otherwise affect its obligations under this Bond; the Surety hereby waives notice from the Obligee of any such change, extension of time, alteration

**[CONTINUED NEXT PAGE]**

deletion, addition or other modification to the Contract Documents, the Work to be performed under the Contract Documents, the Drawings or the Specifications of any other portion of the Contract Documents.

IN WITNESS WHEREOF, the Principal and Surety have executed this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ by their duly authorized agent or representative.

\_\_\_\_\_  
**(Contractor-Principal Name)**

By: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Typed or Printed Name)

Title: \_\_\_\_\_

**(Attach Notary Public Acknowledgement of Principal's Signature)**

\_\_\_\_\_  
**(Surety Name)**

By: \_\_\_\_\_  
(Signature of Attorney-In-Fact for Surety)

\_\_\_\_\_  
(Typed or Printed Name of Attorney-In-Fact)

**(Attach: (i) Attorney-In-Fact Certification; (ii) Notary Public Acknowledgment of Authorizing Signature on Attorney-Fact Certification; and (iii) Notary Public Acknowledgement of Attorney-In-Fact's Signature)**

**Contact name, address, telephone number and email address for notices to the Surety**

\_\_\_\_\_  
(Contact Name)

\_\_\_\_\_  
(Street Address)

\_\_\_\_\_  
(City, State & Zip Code)

(\_\_\_\_\_) \_\_\_\_\_ (\_\_\_\_\_) \_\_\_\_\_  
Telephone Fax

\_\_\_\_\_  
(Email address)

**VERIFICATION OF CERTIFIED PAYROLL RECORDS SUBMITTAL  
TO LABOR COMMISSIONER**

I am the \_\_\_\_\_ for \_\_\_\_\_ in  
(Superintendent/Project Manager) (Contractor)

connection with **BID #2024-06 Los Banos - Entrance Signs and Marquee Sign.**

1. This Verification is submitted to Merced Community College District concurrently with the Contractor’s submittal of an Application for Progress Payment to the District, identified as Application For Progress Payment No. \_\_\_\_\_ (“the Pay Application”).
2. The Pay Application requests the District’s disbursement of a Progress Payment for the value of Work performed between \_\_\_\_\_, 20\_\_ and \_\_\_\_\_, 20\_\_.
3. The Contractor has submitted Certified Payroll Records (“CPR”) to the Labor Commissioner for all employees of the Contractor engaged in performance of Work subject to prevailing wage rate requirements for the period of time covered by the Pay Application.
4. All Subcontractors who are entitled to any portion of payment to be disbursed pursuant to the Pay Application have submitted their CPRs to the Labor Commissioner for all of their employees performing Work subject to prevailing wage rate requirements for the period of time covered by the Pay Application.
5. I have reviewed the Contractor’s CPRs submitted to the Labor Commissioner. The CPRs submitted to the Labor Commissioner by the Contractor are complete and accurate for the period of time covered by the Pay Application.
6. I have reviewed the Subcontractors’ CPRs submitted to the Labor Commissioner. The CPRs submitted to the Labor Commissioner by the Subcontractors are complete and accurate for the period of time covered by the Pay Application.

I declare under penalty of perjury under California law that the foregoing is true and correct. I executed

this Certification on the \_\_\_\_ day of \_\_\_\_\_, 20\_\_ at \_\_\_\_\_

\_\_\_\_\_  
(City) and State)

By: \_\_\_\_\_

\_\_\_\_\_  
(Typed or Printed Name)

**[THIS PAGE INTENTIONALLY BLANK]**

**CONDITIONAL WAIVER AND RELEASE  
ON PROGRESS PAYMENT  
(Civil Code §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.**

**Identifying Information**

|                  |  |
|------------------|--|
| 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 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 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.

**Signature**

Claimant's Signature: \_\_\_\_\_

Claimant's Title: \_\_\_\_\_

Date of Signature: \_\_\_\_\_



**[THIS PAGE INTENTIONALLY BLANK]**

**UNCONDITIONAL WAIVER AND RELEASE  
ON PROGRESS PAYMENT  
(Civil Code §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.**

**Identifying Information**

|                  |  |
|------------------|--|
| 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.
2. Extras for which the claimant has not received payment.
3. 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.

**Signature**

Claimant's Signature: \_\_\_\_\_

Claimant's Title: \_\_\_\_\_

Date of Signature: \_\_\_\_\_

**[THIS PAGE INTENTIONALLY BLANK]**

**CONDITIONAL WAIVER AND RELEASE  
ON FINAL PAYMENT  
(Civil Code §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.**

**Identifying Information**

|                  |  |
|------------------|--|
| 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. 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 checks are 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: \$ \_\_\_\_\_

**Signature**

Claimant's Signature: \_\_\_\_\_  
Claimant's Title: \_\_\_\_\_  
Date of Signature: \_\_\_\_\_

**[THIS PAGE INTENTIONALLY BLANK]**

**UNCONDITIONAL WAIVER AND RELEASE  
ON FINAL PAYMENT  
(Civil Code §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.**

**Identifying Information**

|                  |  |
|------------------|--|
| Name of Claimant |  |
| Name of Customer |  |
| Job Location     |  |

**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 the following:  
Disputed claims for extras in the amount of: \$ \_\_\_\_\_

**Signature**

Claimant's Signature: \_\_\_\_\_  
Claimant's Title: \_\_\_\_\_  
Date of Signature: \_\_\_\_\_

**[THIS PAGE INTENTIONALLY BLANK]**

**Contractor Guarantee**

**District:** **Merced Community College District**

**Project Name:** **BID #2024-06 Los Banos - Entrance Signs and Marquee Sign**

**Contractor Name:** \_\_\_\_\_

The Contractor hereby warrants and guarantees to the District that all work, materials, equipment and workmanship provided, furnished or installed by or on behalf of Contractor in connection with the above-referenced Project (the "Work") have been provided, furnished and installed in strict conformity with the Contract Documents for the Work, including without limitation, the Drawings and the Specifications. Contractor further warrants and guarantees that all work, materials, equipment and workmanship as provided, furnished and/or installed are fit for use as specified and fulfill all applicable requirements of the Contract Documents including without limitation, the Drawings and the Specifications. Contractor shall, at its sole cost and expense, repair, correct and/or replace any or all of the work, materials, equipment and/or workmanship of the Work, together with any other items which may be affected by any such repairs, corrections or replacement, that may be unfit for use as specified or defective within a period of one (1) year from the date of the District's Final Acceptance of the Work, ordinary wear and tear and unusual abuse or neglect excepted.

In the event of the Contractor's failure and/or refusal to comply with the provisions of this Guarantee, within the period of time set forth in the Contract Documents after the District's issuance of the Notice to the Contractor of any defect(s) in the Work, materials, equipment or workmanship, Contractor authorizes the District, without further notice to Contractor, to repair, correct and/or replace any such defective item at the expense of the Contractor. The Contractor shall reimburse the District for all costs, expenses or fees incurred by the District in providing or performing such repairs, corrections or replacements within ten (10) days of the District's presentation of a demand to the Contractor for the same.

The provisions of this Guarantee and the provisions of the Contract Documents for the Work relating to the Contractor's Guarantee(s) and warranties relating to the Work shall be binding upon the Contractor's Performance Bond Surety and all successors or assigns of Contractor and/or Contractor's Performance Bond Surety.

The provisions of this Guarantee are in addition to, and not in lieu of, any provisions of the Contract Documents for the Work relating to the Contractor's guarantee(s) and warranties or any guarantee(s) or warranties provided by any material supplier or manufacturer of any equipment, materials or other items forming a part of, or incorporated into the Work, or any other guarantee or warranty obligation of the Contractor, prescribed, implied or imposed by law.

The undersigned individual executing this Guarantee on behalf of Contractor warrants and represents that he/she is duly authorized to execute this Guarantee on behalf of Contractor and to bind Contractor to each and every provision hereof.

Dated: \_\_\_\_\_

By: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Typewritten or Handwritten Name)

\_\_\_\_\_  
(Title)



**[THIS PAGE INTENTIONALLY BLANK]**

**CONTRACTOR CERTIFICATION OF SUBCONTRACTOR CLAIM**

TO: MERCED COMMUNITY COLLEGE DISTRICT ("DISTRICT")

RE: **BID #2024-06 Los Banos - Entrance Signs and Marquee Sign**  
**YYYY (Contractor)**  
**ZZZZ (Subcontractor)**  
**Subcontractor Claim**

This Contractor Certification of Subcontractor Claim is submitted by YYYY relating to **BID #2024-06 Los Banos - Entrance Signs and Marquee Sign** to the District on behalf of ZZZ.

1. I am the \_\_\_\_\_ of the Contractor in connection with the above-described Project.
2. The Subcontractor has submitted the accompanying Subcontractor Claim to the Contractor for presentation to the District pursuant to Public Contract Code §9204.
3. I have personally reviewed the entirety of the Subcontractor Claim and all substantiating documentation in support of the Subcontractor Claim.
4. The Subcontractor Claim is made by the Subcontractor in good faith.
5. The Subcontractor Claim is supported by reasonable documentation establishing entitlement to the relief requested and District liability therefor.
6. The Subcontractor Claim does not incorporate any request constituting a False Claim under applicable law, including the California False Claim Act (Government Code §12650 et. seq.).
7. I am authorized: (i) to execute this Certification on behalf of the Contractor; and (ii) to submit this Certification and the accompanying Subcontractor Claim to the District.
8. I have personal first-hand knowledge of all of the foregoing.

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

Executed at \_\_\_\_\_, California, on \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Title)

**[THIS PAGE INTENTIONALLY BLANK]**

## GENERAL CONDITIONS

BID #2024-06 Los Banos - Entrance Signs and Marquee Sign



**GENERAL CONDITIONS  
TABLE OF CONTENTS**

**ARTICLE 1: DEFINITIONS**

- 1.1 District.
- 1.2 Contractor.
- 1.3 Architect.
- 1.4 The Work.
- 1.5 The Project.
- 1.6 Surety.
- 1.7 Subcontractors; Sub-Subcontractors.
- 1.8 Material Supplier.
- 1.9 Drawings and Specifications.
- 1.10 Special Conditions; Supplemental Conditions.
- 1.11 Contract Documents.
- 1.12 Intent and Correlation of Contract Documents.
  - 1.12.1 Work of the Contract Documents.
  - 1.12.2 Technical Terms.
  - 1.12.3 Conflict in Contract Documents.
- 1.13 Shop Drawings; Samples; Product Data ("Submittals").
- 1.14 Division of State Architect ("DSA").
- 1.15 District's Inspector.
- 1.16 Contract Document Terms.
- 1.17 Contractor's Superintendent.
- 1.18 Record Drawings.
- 1.19 Project Manager.
- 1.20 Construction Equipment.
- 1.21 Site.
- 1.22 Field Clarifications.
- 1.23 Defective or Non-Conforming Work.
- 1.24 Delivery.
- 1.25 Notice to Proceed.
- 1.26 Progress Reports; Verified Reports.
- 1.27 Laws.
- 1.28 Construction Change Directive.

**ARTICLE 2: DISTRICT**

- 2.1 Information Required of District.
  - 2.1.1 Surveys; Site Information.
  - 2.1.2 Permits, Licenses, Approvals.
  - 2.1.3 Drawings and Specifications.
  - 2.1.4 Furnishing of Information.
- 2.2 District's Right to Stop the Work.
- 2.3 Partial Occupancy or Use.
  - 2.3.1 District's Right to Partial Occupancy.
- 2.4 No Acceptance of Defective or Nonconforming Work.
- 2.5 District's Inspector.
  - 2.5.1 Authority of District's Inspector.

- 2.5.2 Limitations on District's Inspector.
- 2.5.3 Contractor Access for District's Inspector.
- 2.5.4 Contractor and District Responsibilities for Costs and Fees of District's Inspector.

**ARTICLE 3: ARCHITECT**

- 3.1 Architect's Administration of the Contract.
  - 3.1.1 Administration of Contract.
  - 3.1.2 Periodic Site Inspections.
  - 3.1.3 Contractor Responsibility for Construction Means, Methods and Sequences.
  - 3.1.4 Review of Applications for Payment.
  - 3.1.5 Rejection of Work.
  - 3.1.6 Submittals.
    - 3.1.6.1 Architect's Review.
    - 3.1.6.2 Time for Architect's Review.
  - 3.1.7 Issuance of Construction Change Directive.
  - 3.1.8 Changes to the Work; Change Orders.
  - 3.1.9 Completion.
  - 3.1.10 Interpretation of Contract Documents.
  - 3.1.11 Request for Information.
- 3.2 Communications; Architect's Role.
- 3.3 Termination of Architect; Substitute Architect.
- 3.4 Project Manager.

**ARTICLE 4: THE CONTRACTOR**

- 4.1 Contractor Review of Contract Documents.
  - 4.1.1 Examination of Contract Documents.
  - 4.1.2 Field Measurements.
  - 4.1.3 Dimensions; Layouts and Field Engineering.
  - 4.1.4 Work in Accordance With Contract Documents.
- 4.2 Site Investigation; Subsurface Conditions.
  - 4.2.1 Contractor Investigation.
  - 4.2.2 Subsurface Data.
  - 4.2.3 Subsurface Conditions.
- 4.3 Supervision and Construction Procedures.
  - 4.3.1 Supervision of the Work.
  - 4.3.2 Responsibility for the Work.
  - 4.3.3 Surveys.

- 4.3.4 Construction Utilities.
- 4.3.5 Existing Utilities; Removal, Relocation and Protection.
- 4.3.6 Conferences and Meetings.
  - 4.3.6.1 Pre-Construction Conference.
  - 4.3.6.2 Progress Meetings.
  - 4.3.6.3 Special Meetings.
  - 4.3.6.4 Minutes of Meetings.
- 4.4 Labor and Materials.
  - 4.4.1 Payment for Labor, Materials and Services.
  - 4.4.2 Employee Discipline.
  - 4.4.3 Compliance with Immigration Reform and Control Act of 1986.
  - 4.4.4 Contractor's Supervisory Personnel.
  - 4.4.5 Prohibition on Harassment.
    - 4.4.5.1 District's Policy Prohibiting Harassment.
    - 4.4.5.2 Contractor's Adoption of Anti-Harassment Policy.
    - 4.4.5.3 Prohibition on Harassment at the Site.
- 4.5 Taxes.
- 4.6 Permits, Fees and Notices; Compliance With Laws.
  - 4.6.1 Payment of Permits, Fees.
  - 4.6.2 Compliance With Laws.
  - 4.6.3 Notice of Variation From Laws.
- 4.7 Submittals.
  - 4.7.1 Purpose of Submittals.
  - 4.7.2 Contractor's Submittals.
    - 4.7.2.1 Prompt Submittals.
    - 4.7.2.2 Approval of Subcontractor Submittals.
    - 4.7.2.3 Verification of Submittal Information.
    - 4.7.2.4 Information Included in Submittals.
    - 4.7.2.5 Contractor Responsibility for Deviations.
    - 4.7.2.6 No Performance of Work Without Architect Review.
  - 4.7.3 Architect Review of Submittals.
  - 4.7.4 Deferred Approval Items.
- 4.8 Materials and Equipment.
  - 4.8.1 Specified Materials, Equipment.
  - 4.8.2 Approval of Substitutions or Alternatives.
  - 4.8.3 Placement of Material and Equipment Orders.
  - 4.8.4 District's Right to Place Orders for Materials and/or Equipment.
  - 4.8.5 Contractor and Subcontractor Communication.
- 4.9 Safety.
  - 4.9.1 Safety Programs.
  - 4.9.2 Contractor Safety Plan.
  - 4.9.3 Safety Precautions.
  - 4.9.4 Safety Signs, Barricades.
  - 4.9.5 Safety Notices.
  - 4.9.6 Safety Coordinator.
  - 4.9.7 Emergencies.
  - 4.9.8 Hazardous Materials.
    - 4.9.8.1 General.
    - 4.9.8.2 Prohibition on Use of Asbestos Construction Building Materials ("ACBMs").
    - 4.9.8.3 Disposal of Hazardous Materials.
- 4.10 Maintenance of Documents.
  - 4.10.1 Documents at Site.
  - 4.10.2 Maintenance of Record Drawings.
- 4.11 Use of Site.
- 4.12 Clean-Up.
- 4.13 Access to the Work.
- 4.14 Facilities and Information for the District's Inspector.
  - 4.14.1 Information to District's Inspector.
  - 4.14.2 Facilities for District's Inspector.
- 4.15 Patents and Royalties.
- 4.16 Cutting and Patching.
- 4.17 Encountering of Hazardous Materials.
- 4.18 Wage Rates; Employment of Labor.
  - 4.18.1 Determination of Prevailing Rates.
  - 4.18.2 Payment of Prevailing Rates.
  - 4.18.3 Prevailing Rate Penalty.
  - 4.18.4 Certified Payroll Records.
    - 4.18.4.1 Maintenance of Certified Payroll Records.
    - 4.18.4.2 Submittal of Certified Payroll Records to Labor Commissioner.
    - 4.18.4.3 Inspection of Certified Payroll Records.
  - 4.18.5 Hours of Work.
    - 4.18.5.1 Limits on Hours of Work.
    - 4.18.5.2 Penalty for Excess Hours.
    - 4.18.5.3 Contractor Responsibility.
  - 4.18.6 Apprentices.
    - 4.18.6.1 Employment of Apprentices.
    - 4.18.6.2 Apprenticeship Certificate.
    - 4.18.6.3 Ratio of Apprentices to Journeymen.
    - 4.18.6.4 Exemption From Ratios.
    - 4.18.6.5 Contributions to Trust

- Funds.
- 4.18.6.6 Contractor's Compliance.
- 4.18.7 Employment of Independent Contractors.
- 4.19 Assignment of Antitrust Claims.
- 4.20 Limitations Upon Site Activities.
- 4.21 Progress Reports; DSA Verified Reports.
  - 4.21.1 DSA Verified Reports: Contractor Actions.
  - 4.21.2 District Withholdings From Final Payment.
  - 4.21.3 Progress Reports.

**ARTICLE 5: SUBCONTRACTORS**

- 5.1 Subcontracts.
- 5.2 Subcontractor DIR Contractor Registration
  - 5.2.1 No Subcontractor Performance of Work Without DIR Registration.
  - 5.2.2 Contractor Obligation to Verify Subcontractor DIR Registration Status
  - 5.2.3 Contractor Obligation to Request Substitution of Listed Subcontractor Who Is Not DIR Registered Contractor
- 5.3 Substitution of Listed Subcontractor.
  - 5.3.1 Substitution Process.
  - 5.3.2 Responsibilities of Contractor Upon Substitution of Subcontractor.
- 5.4 Subcontractors' Work.

**ARTICLE 6: INSURANCE; INDEMNITY; BONDS**

- 6.1 Workers' Compensation Insurance; Employer's Liability Insurance.
- 6.2 Commercial General Liability and Property Insurance.
- 6.3 Builder's Risk "All-Risk" Insurance.
- 6.4 Insurance Requirements
  - 6.4.1 Coverage Limits
  - 6.4.2 Deductibles.
  - 6.4.3 No Modification or Cancellation Without Prior Notice to District.
  - 6.4.4 District Additional Insured.
  - 6.4.5 Certifications of Insurance.
- 6.5 Subcontractor's Insurance.
- 6.6 Maintenance of Insurance.
- 6.7 Contractor's Insurance Primary.
- 6.8 Indemnity.
- 6.9 Payment Bond; Performance Bond.

**ARTICLE 7: CONTRACT TIME**

- 7.1 Completion of the Work Within Contract

- Time.
- 7.2 Progress and Completion of the Work.
  - 7.2.1 Time of Essence.
  - 7.2.2 One Hundred Percent Completion.
  - 7.2.3 Correction or Completion of the Work After One Hundred Percent Completion.
    - 7.2.3.1 Punchlist.
    - 7.2.3.2 Time for Completing Punchlist Items. Final Completion.
  - 7.2.4 Contractor Responsibility for Multiple Inspections.
  - 7.2.5 Final Acceptance.
- 7.3 Construction Schedule.
  - 7.3.1 Submittal of Preliminary Construction Schedule.
  - 7.3.2 Review of Preliminary Construction Schedule.
  - 7.3.3 Preparation and Submittal of Contract Construction Schedule.
  - 7.3.4 Revisions to Approved Construction Schedule.
  - 7.3.5 Updates to Approved Construction Schedule.
  - 7.3.6 Contractor Responsibility for Construction Schedule.
- 7.4 Adjustment of Contract Time.
  - 7.4.1 Excusable Delays.
  - 7.4.2 Compensable Delays.
  - 7.4.3 Unexcusable Delays.
  - 7.4.4 Adjustment of Contract Time.
    - 7.4.4.1 Procedure for Adjustment of Contract Time.
    - 7.4.4.2 Limitations Upon Adjustment of Contract Time on Account of Delays.
- 7.5 Liquidated Damages.

**ARTICLE 8: CONTRACT PRICE**

- 8.1 Contract Price.
- 8.2 Cost Breakdown.
- 8.3 Progress Payments.
  - 8.3.1 Applications for Progress Payments.
  - 8.3.2 Payment Application Review for Determination of Proper Payment Application.
  - 8.3.3 Verification of Work Completed.
  - 8.3.4 District's Disbursement of Progress Payments.
    - 8.3.4.1 Timely Disbursement of Progress Payments.

- 8.3.4.2 Untimely Disbursement of Progress Payments.
- 8.3.4.3 District's Right to Disburse Payments by Joint Checks.
- 8.3.4.4 No Waiver of Defective or Non-Conforming Work.
- 8.3.5 Progress Payments for Changed Work.
- 8.3.6 Materials or Equipment Not Incorporated Into the Work.
  - 8.3.6.1 Limitations Upon Payment.
  - 8.3.6.2 Materials or Equipment Delivered and Stored at the Site.
  - 8.3.6.3 Materials or Equipment Not Delivered or Stored at the Site.
- 8.3.7 Exclusions From Progress Payments.
- 8.3.8 Title to Work.
- 8.3.9 Substitute Security for Retention.
- 8.4 Final Payment.
  - 8.4.1 Application for Final Payment.
  - 8.4.2 Conditions Precedent to Disbursement of Final Payment.
  - 8.4.3 Disbursement of Final Payment.
  - 8.4.4 Waiver of Claims.
  - 8.4.5 Claims Asserted After Final Payment.
- 8.5 Withholding of Payments.
- 8.6 Payments to Subcontractors.
- 8.7 Computerized Job Cost Reporting System.
  - 8.7.1 Job Cost Reporting.
  - 8.7.2 Job Cost Reporting System Requirements.
  - 8.7.3 Job Cost System Information.

**ARTICLE 9: CHANGES**

- 9.1 Changes in the Work.
- 9.2 Construction Change Directive.
- 9.3 Oral Order of Change in the Work.
- 9.4 Contractor Submittal of Data.
- 9.5 Adjustment to Contract Price and Contract Time on Account of Changes to the Work.
  - 9.5.1 Adjustment to Contract Price.
    - 9.5.1.1 Mutual Agreement.
    - 9.5.1.2 Determination by the District.
    - 9.5.1.3 Basis for Adjustment of Contract Price.

- 9.5.1.3.1 Labor.
- 9.5.1.3.2 Materials and Equipment.
- 9.5.1.3.3 Construction Equipment.
- 9.5.1.3.4 Mark-up on Costs of Changes to the Work.
- 9.5.1.4 Contractor Maintenance of Records.
- 9.5.2 Adjustment to Contract Time.
- 9.5.3 Addition or Deletion of Alternate Bid Item(s).
- 9.6 Change Orders.
- 9.7 Contractor Notice of Changes.
- 9.8 Disputed Changes.
- 9.9 Emergencies.
- 9.10 Minor Changes in the Work.
- 9.11 Unauthorized Changes.

**ARTICLE 10: SEPARATE CONTRACTORS**

- 10.1 District's Right to Award Separate Contracts.
- 10.2 District's Coordination of Separate Contractors.
- 10.3 Mutual Responsibility.
- 10.4 Discrepancies or Defects.

**ARTICLE 11: TESTS AND INSPECTIONS**

- 11.1 Tests; Inspections; Observations.
  - 11.1.1 Contractor's Notice.
  - 11.1.2 Cost of Tests and Inspections.
  - 11.1.3 Testing/Inspection Laboratory.
  - 11.1.4 Additional Tests, Inspections and Approvals.
- 11.2 Delivery of Certificates.
- 11.3 Timeliness of Tests, Inspections and Approvals.

**ARTICLE 12: UNCOVERING AND CORRECTION OF WORK**

- 12.1 Inspection of the Work.
  - 12.1.1 Access to the Work.
  - 12.1.2 Limitations Upon Inspections.
- 12.2 Uncovering of Work.
- 12.3 Rejection of Work.
- 12.4 Correction of Work.
- 12.5 Removal of Non-Conforming or Defective Work.
- 12.6 Failure of Contractor to Correct Work.
- 12.7 Acceptance of Defective or Non-Conforming Work.



**ARTICLE 13: WARRANTIES**

- 13.1 Workmanship and Materials.
- 13.2 Warranty Work.
- 13.3 Guarantee.
- 13.4 Survival of Warranties; Surety Obligations.

**ARTICLE 14: SUSPENSION OF WORK**

- 14.1 District's Right to Suspend Work.
- 14.2 Adjustments to Contract Price and Contract Time.

**ARTICLE 15: TERMINATION**

- 15.1 Termination for Cause.
  - 15.1.1 District's Right to Terminate.
  - 15.1.2 District's Rights Upon Termination.
  - 15.1.3 Completion by the Surety.
  - 15.1.4 Assignment and Assumption of Subcontracts.
  - 15.1.5 Costs of Completion.
  - 15.1.6 Contractor Responsibility for Damages.
  - 15.1.7 Conversion to Termination for Convenience.
  - 15.1.8 District's Rights Cumulative.
- 15.2 Termination for Convenience of the District.

**ARTICLE 16: MISCELLANEOUS**

- 16.1 Governing Law.
- 16.2 Marginal Headings; Interpretation.
- 16.3 Successors and Assigns.
- 16.4 Cumulative Rights and Remedies; No Waiver.
- 16.5 Severability.
- 16.6 No Assignment by Contractor.
- 16.7 Gender and Number.
- 16.8 Independent Contractor Status.
- 16.9 Notices.
- 16.10 Disputes; Continuation of Work.
- 16.11 Dispute/Claims Resolution.
  - 16.11.1 Public Contract Code §9204 Claims Resolution Procedures.
    - 16.11.1.1 Claim Defined.
    - 16.11.1.2 Claim Documentation.
    - 16.11.1.3 District Claim Review Statement.
    - 16.11.1.4 Meet and Confer.
      - 16.11.1.4.1 Meet and Confer Demand.
      - 16.11.1.4.2 Meet and Confer Statement.
    - 16.11.1.5 Non-Binding Mediation

- 16.11.1.5.1 Contractor Initiation.
- 16.11.1.5.2 Mediator Selection.
- 16.11.1.5.3 Mediation Procedures.
- 16.11.1.5.4 Mediation Costs.
- 16.11.1.5.5 Post-Mediation Disputed Claims.
- 16.11.1.5.6 Waiver.
- 16.11.2 Payment of Undisputed Claims.
- 16.11.3 Subcontractor Claims.
  - 16.11.3.1 Subcontractor Claim Submittal.
  - 16.11.3.2 Contractor Certification of Subcontractor Claim.
  - 16.11.3.3 District Review of Subcontractor Claim.
  - 16.11.3.4 Disputed Subcontractor Claims.
- 16.11.4 Government Code Claim Requirements.
- 16.11.5 Section 20104.4 Dispute Resolution Procedures; Claims Less Than \$375,000.
  - 16.11.5.1 Binding Arbitration of Claims Exceeding \$375,000
    - 16.11.5.1.1 JAMS Arbitration.
    - 16.11.5.2 Demand for Arbitration.
    - 16.11.5.3 Discovery.
    - 16.11.5.4 Arbitration Award.
    - 16.11.5.5 Arbitration Fees and Expenses.
    - 16.11.5.6 Limitation on Arbitrator.
  - 16.11.6 Inapplicability to Bid Bond.
- 16.12 Limitation on Special/Consequential Damages.
- 16.13 Capitalized Terms.
- 16.14 Attorneys' Fees.
- 16.15 Provisions Required by Law Deemed Inserted.
- 16.16 Days.
- 16.17 Entire Agreement.

## GENERAL CONDITIONS

### ARTICLE 1: DEFINITIONS

- 1.1 District. The "District" refers to **Merced Community College District** and unless otherwise stated, includes the District's authorized representatives, including the Project Manager, if a Project Manager is designated, the District's Board of Trustees and the District's officers, employees, agents and representatives.
- 1.2 Contractor. The Contractor is the person or entity identified as such in the Agreement; references to "Contractor" include the Contractor's authorized representative.
- 1.3 Architect. The Architect is the person or entity identified as such in the Agreement; references to the "Architect" include, as required by context of usage, the Architect's employees and authorized representative(s) and the Architect's Consultants and their employees and authorized representative(s).
- 1.4 The Work. The Work is the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment or services provided or to be provided by the Contractor to fulfill the Contractor's obligations under the Contract Documents. The Work may constitute the whole or a part of the Project.
- 1.5 The Project. The Project is the total construction of which the Work performed by the Contractor under the Contract Documents may be the whole or a part of the Project and which may include construction by the District or by separate contractors.
- 1.6 Surety. The Surety is the person or entity that executes, as surety, the Contractor's Labor and Material Payment Bond and/or Performance Bond.
- 1.7 Subcontractors; Sub-Subcontractors. A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work. "Subcontractor" does not include a separate contractor to the District or subcontractors of any separate contractor. A Sub-Subcontractor is a person or entity of any tier, who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the Site. References to "Subcontractor" herein include all subcontractors of any tier.
- 1.8 Material Supplier. A Material Supplier is any person or entity who only furnishes materials, equipment or supplies for the Work without fabricating, installing or consuming them in the Work.
- 1.9 Drawings and Specifications. The Drawings are the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing generally, the design, location and dimensions of the Work and may include without limitation, plans, elevations, sections, details, schedules or diagrams. The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards, criteria and workmanship for the Work and related services. The Drawings and Specifications are intended to delineate and describe the Work and its component parts so as to permit skilled and competent contractors to bid upon the Work and prosecute the same to completion.
- 1.10 Special Conditions; Supplemental Conditions. Special Conditions and/or Supplemental Conditions, if any are special or supplemental provisions, not otherwise provided for in the Agreement or the General Conditions.
- 1.11 Contract Documents. The Contract Documents consist of the Agreement between the District and the Contractor, Conditions of the Contract (whether General, Special, Supplemental or otherwise), Drawings, Specifications, including addenda thereto issued prior to execution of the Agreement and any other documents listed in the Agreement. The Contract Documents shall include modifications issued after execution of the Agreement. The Contract Documents form

the Contract for Construction.

- 1.12 Intent and Correlation of Contract Documents.
- 1.12.1 Work of the Contract Documents. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required to the extent consistent with the Contract Documents and reasonably inferable therefrom as being necessary to produce the intended results. Organization of the Specifications into divisions, sections or articles, and the arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade. Where any portion of the Contract Documents is silent and information appears elsewhere in the Contract Documents, such other portions of the Contract Documents shall control.
- 1.12.2 Technical Terms. Unless otherwise stated in the Contract Documents, words or terms which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.
- 1.12.3 Conflict in Contract Documents. Conflicts, inconsistencies or ambiguities in the Contract Documents shall be resolved by the Architect in accordance with Article 3.1.9 of the General Conditions; where conflicts or inconsistencies arise between the Drawings and the Specifications, in resolving such conflicts or inconsistencies, the Architect will be governed generally by the following standards: the Drawings are intended to describe matters relating to placement, type, quantity and the like; the Specifications are intended to describe matters relating to quality, materials, compositions, manufacturers and the like. If conflicts exist between portions of the Contract Documents regarding the quality of any item, product, equipment or materials, unless otherwise directed or authorized by the District, the Contractor shall provide the item, product, equipment or material of the highest or more stringent quality.
- 1.13 Shop Drawings; Samples; Product Data (“Submittals”). Shop Drawings are diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Material Supplier, or others to illustrate some portion of the Work. Samples are physical examples of materials, equipment or workmanship forming a part of, or to be incorporated into the Work. Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work. Shop Drawings, Samples and Product Data prepared or furnished by the Contractor, Subcontractors or Material Suppliers are collectively referred to as “Submittals”.
- 1.14 Division of State Architect (“DSA”). DSA is the California Division of the State Architect including without limitation DSA’s Office of Construction Services, Office of Design Services and the Office of Regulatory Services; references to the DSA in the Contract Documents shall mean the DSA, its offices and its authorized employees and agents. The authority of the DSA over the Work and the performance thereof shall be as set forth in the Contract Documents and Title 24 of the California Code of Regulations.
- 1.15 District’s Inspector. The District’s Inspector is the individual designated and employed by the District in accordance with the requirements of Title 24 of the California Code of Regulations. The District’s Inspector shall be authorized to act on behalf of the District as provided for in the Contract Documents and in Title 24 of the California Code of Regulations, as the same may be amended from time to time.
- 1.16 Contract Document Terms. The term “provide” means “provide complete in place” or to “furnish and install” such item. Unless otherwise provided in the Contract Documents, the terms “approved;” “directed;” “satisfactory;” “accepted;” “acceptable;” “proper;” “required;” “necessary”

and “equal” shall mean as approved, directed, satisfactory, accepted, acceptable, proper, required, necessary and equal, in the opinion of the Architect. The term “typical” as used in the Drawings shall require the installation or furnishing of such item(s) of the Work designated as “typical” in all other areas similarly marked as “typical”; Work in such other areas shall conform to that shown as “typical” or as reasonably inferable therefrom.

- 1.17 Contractor’s Superintendent. The Contractor’s Superintendent is the individual employed by the Contractor whose principal responsibility shall be the supervision and coordination of the Work; the Contractor’s Superintendent shall not perform routine construction labor.
- 1.18 Record Drawings. The Record Drawings are a set of the Drawings marked by the Contractor during the performance of the Work to indicate completely and accurately the actual as-built condition of the Work. The Record Drawings shall be sufficient for a capable and qualified draftsman to modify the Drawings to reflect and indicate the Work actually in place at Final Completion of the Work.
- 1.19 Project Manager. The Project Manager, if any, is the individual or entity designated as such in the Special Conditions. The Project Manager is an independent contractor retained by the District and shall be authorized and empowered to act on behalf of the District. In the event that a Project Manager is not designated in the Special Conditions, the District reserves the right to designate a Project Manager at any time during Contractor’s performance of the Work. The District reserves the right to remove or replace the Project Manager during Contractor’s performance of the Work. The designation of a Project Manager, if one has not been designated in the Special Conditions, or the removal or replacement of the designated Project Manager shall not result in adjustment of the Contract Price or the Contract Time or otherwise affect, limit or restrict Contractor’s obligations hereunder.
- 1.20 Construction Equipment. Construction Equipment is equipment utilized for the performance of any portion of the Work, but which is not incorporated into the Work.
- 1.21 Site. The Site is the physical area designated in the Contract Documents for Contractor’s performance, construction and installation of the Work.
- 1.22 Field Clarifications. A written or graphic document consisting of supplementary details, instructions or information issued on behalf of the District which clarifies or supplements the Contract Documents and which becomes a part of the Contract Documents upon issuance. Field Clarifications do not constitute an adjustment of the Contract Time or the Contract Price, unless a Change Order relating to a Field Clarification is authorized and issued under the Contract Documents.
- 1.23 Defective or Non-Conforming Work. Defective or Non-Conforming Work is any Work which is unsatisfactory, faulty or deficient by: (i) not conforming to the requirements of the Contract Documents; (ii) not conforming to the standards of workmanship of the applicable trade or industry; (iii) not being in compliance with the requirements of any inspection, reference, standard, test, or approval required by the Contract Documents; or (iv) damage occurring prior to Final Completion of all of the Work.
- 1.24 Delivery. Delivery used in conjunction with any equipment, materials or other items to be incorporated into the Work shall mean the unloading and storage in a protected condition at the Site pending incorporation into the Work.
- 1.25 Notice to Proceed. The Notice to Proceed is the written notice issued by or on behalf of the District to the Contractor authorizing the Contractor to proceed with commencement of the Work and which establishes the date for commencement of the Contract Time.
- 1.26 Progress Reports; Verified Reports. Progress Reports, if required, are written reports prepared by the Contractor and periodically submitted to the District in the form and content as required

by the Contract Documents. Verified Reports are periodic written reports prepared by the Contractor and submitted to the DSA; Verified Reports shall be in such form and content as required by the applicable provisions of Title 24 of the California Code of Regulations. A material obligation of the Contractor is the preparation of complete and accurate Progress Reports, if required, and Verified Reports as well as the timely submission of the same.

- 1.27 Laws. Laws refer to all laws, ordinances, codes, rules and/or regulations promulgated by any governmental or quasi-governmental agency with jurisdiction over any portion of the Work and which apply to any portion of the Work, including those in effect as of the execution of the Agreement, amendments thereto and subsequently enacted Laws that take effect during the performance of the Work. No adjustment of the Contract Time or the Contract Price shall be allowed for the Contractor's compliance with the Laws.
- 1.28 Construction Change Directive. A Construction Change Directive is a written instrument issued by or on behalf of the District to the Contractor directing a Change to the Work prior to the Contractor and District reaching full agreement on an adjustment of the Contract Time and/or Contract Price on account of such Change. A material obligation of the Contractor is timely performance of Work noted in a Construction Change Directive.

## **ARTICLE 2: DISTRICT**

### **2.1 Information Required of District**

2.1.1 Surveys; Site Information. Information, if any, concerning physical characteristics of the Site, including without limitation, surveys, soils reports, and utility locations, to be provided by the District are set forth in the Contract Documents. Information not provided by the District or necessary information in addition to that provided by the District concerning physical characteristics of the Site which is required shall be obtained by Contractor without adjustment to the Contract Price or the Contract Time.

2.1.2 Permits, Licenses, Approvals. Except as otherwise provided in the Contract Documents, the District shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities which relate to the Work of the Contractor under the Contract Documents. If permits, licenses, approvals or similar approvals relating to the Work, or the installation/construction thereof are designated as the responsibility of the Contractor under the Contract Documents, the Contractor shall obtain the same without adjustment of the Contract Price or the Contract Time.

2.1.3 Drawings and Specifications. Except as otherwise provided for in the Contract Documents, the District shall furnish the Contractor, free of charge, the number of copies of the Drawings and the Specifications as set forth in the Special Conditions. All of the Drawings and the Specifications provided by the District to the Contractor remain the property of the District; the Contractor shall not use the Drawings or the Specifications in connection with any other work of improvement other than the Work.

2.1.4 Furnishing of Information. Information or services to be provided by the District under the Contract Documents shall be furnished by the District with reasonable promptness to avoid delay in the orderly progress of the Work. Information about existing conditions furnished by the District under the Contract Documents is obtained from sources believed to be reliable, but the District neither guarantees nor warrants that such information is complete and accurate. The Contractor shall verify all information provided by the District. If the Contract Documents depict existing conditions on or about the Site, or the Work involves the renovation, removal or remodeling of existing improvements or the Work involves any tie-in or other connection with existing improvements, the conditions and/or existing improvements depicted in the Contract Documents are as they are believed to exist. The Contractor shall bear the risk of any variations

between conditions or existing improvements depicted in the Contract Documents and those conditions or existing improvements actually encountered in the performance of the Work. The existence of any variations between conditions or existing improvements depicted in the Contract Documents and those actually encountered in the performance of the Work shall not result in any District liability therefor, nor shall any such variations result in an adjustment of the Contract Time or the Contract Price.

2.2 District's Right to Stop the Work. In addition to the District's right to suspend the Work or terminate the Contract pursuant to the Contract Documents, the District, may, by written order, direct the Contractor to stop the Work, or any portion thereof, until the cause for such stop work order has been eliminated if the Contractor: (i) fails to correct Work which is not in conformity and in accordance with the requirements of the Contract Documents, or (ii) otherwise fails to carry out the Work in conformity and accordance with the Contract Documents. The right of the District to stop the Work hereunder shall not be deemed a duty on the part of the District to exercise such right for the benefit of the Contractor or any other person or entity, nor shall the District's exercise of such right: (i) waive or limit the exercise of any other right or remedy of the District under the Contract Documents or the Laws; or (ii) result in adjustment of the Contract Time or Contract Price.

2.3 Partial Occupancy or Use.

2.3.1 District's Right to Partial Occupancy. The District may occupy or use any completed or partially completed portion of the Work, provided that: (i) the District has obtained the consent of, or is otherwise authorized by, public authorities with jurisdiction thereof, to so occupy or use such portion of the Work and (ii) the District and the Contractor have accepted, in writing, the responsibilities assigned to each of them for security, maintenance, utilities, damage to the Work, insurance, the period for correction of the Work and commencement of warranties required by the Contract Documents for such portion of the Work partially used or occupied by the District. If the Contractor and the District are unable to agree upon the matters set forth in (ii) above, the District may nevertheless use or occupy any portion of the Work, with the responsibility for such matters subject to resolution in accordance with the Contract Documents. Immediately prior to such partial occupancy or use of the Work, or portions thereof, the District, the District's Inspector, the Contractor and the Architect shall jointly inspect the portions of the Work to be occupied or to be used to determine and record the condition of the Work. Repairs, replacements or other corrective action noted in such inspection shall be promptly performed and completed by the Contractor so that the portion of the Work to be occupied or used by the District is in conformity with the requirements of the Contract Documents and the District's occupancy or use thereof is not impaired. The District's use or occupancy of the Work or portions thereof pursuant to the preceding shall not be deemed "completion" of the Work as that term is used in Public Contract Code §7107.

2.3.2 No Acceptance of Defective or Nonconforming Work. The District's partial occupancy or use of the Work or any portion thereof, shall not constitute the District's acceptance of the Work which is defective or non-conforming.

2.4 District's Inspector.

2.4.1 Authority of District's Inspector. In addition to the authority and rights of the District's Inspector as provided for elsewhere in the Contract Documents and/or the Laws, all of the Work shall be performed under the observation of the District's Inspector. The foregoing notwithstanding, the Contractor shall not perform any Work deviating from the Contract Documents solely on the basis of direction by the District's Inspector; such deviations shall be deemed defective or non-conforming Work subject to correction or replacement at the sole cost of the Contractor and without adjustment of the Contract Time. The performance of the duties of the District's Inspector shall not relieve or limit the Contractor's performance of its obligations under the Contract Documents.

2.4.2 Limitations on District's Inspector. The does not have authority to interpret the Contract Documents or to modify the Work depicted in the Contract Documents. The District's Inspector has no authority relative to the content or scope of the Contractor's safety plan/program. The Contractor shall not perform any Work deviating from the Contract Documents solely on the basis of direction by the District's Inspector; such deviations shall be deemed Defective or Non-Conforming Work subject to correction or replacement at the sole cost of the Contractor and without adjustment of the Contract Time.

2.4.3 Contractor Access for District's Inspector. The Contractor shall provide the District's Inspector with access to all parts of the Work at any time, wherever located and whether partially or completely fabricated, manufactured, furnished or installed.

2.4.4 Contractor and District Responsibilities for Costs and Fees of District's Inspector. The District is responsible only for payment of the fees of the District's Inspector for standard eight (8) hour work day Mondays through Fridays, excepting holiday days ("District's Inspector Standard Workdays"). Unless the District directs the Contractor to perform Work exceeding the District's Inspector Standard Workdays, for any Work performed by the Contractor outside the District's Inspector Standard Workdays, the Contractor shall be responsible for payment of District's Inspector fees for District's Inspector services relating to such Work. All services provided by the District's Inspector exceeding an eight (8) hour workday Mondays through Fridays and/or the first eight (8) hours on Saturdays shall be at one and one-half (1½) times the District's Inspector's basic hourly rate. All hours of service provided by the District's Inspector in excess of eight (8) hours on Saturdays, and all hours of service provided by the District's Inspector on holiday days or on Sundays are at two (2) times the District's Inspector's basic hourly rate. Fees for services provided by the District's Inspector beyond the District's Inspector Standard Workdays set forth above are the sole responsibility of the Contractor; the District may deduct such fees from the Contract Price then or thereafter due the Contractor.

### **ARTICLE 3: ARCHITECT**

#### 3.1 Architect's Administration of the Contract.

3.1.1 Administration of Contract. The Architect will provide administration of the Contract as described in the Contract Documents, and will be one of the District's representatives during construction until the time that Final Payment. The Architect will advise and consult with the District, the Project Manager, if any, and the District's Inspector with respect to the administration of the Contract and the Work. The Architect is authorized to act on behalf of the District to the extent provided for in the Contract Documents; and shall have the responsibilities and authority established by the Laws.

3.1.2 Periodic Site Inspections. The Architect will visit the Site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the completed Work and to determine, in general, if the Work is being performed in a manner indicating that the Work, when completed, will be in accordance with the Contract Documents. The Architect is not required to make exhaustive or continuous Site inspections to check quality or quantity of the Work. On the basis of Site observations as an architect, the Architect will keep the District informed of the progress of the Work, and will endeavor to guard the District against defects and deficiencies in the Work.

3.1.3 Contractor Responsibility for Construction Means, Methods and Sequences. The Architect will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, these being solely the Contractor's responsibility. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons performing portions of the Work.

3.1.4 Review of Applications for Payment. Pursuant to Article 8 hereof, the Architect will

review the Contractor's Payment Applications and for Final Payment, evaluate the extent of Work performed and verify to the District the amount properly due the Contractor on such Application for Payment.

3.1.5 Rejection of Work. The Architect is authorized to reject Work which is defective or does not conform to the requirements of the Contract Documents. Whenever the Architect considers it necessary or advisable, for implementation of the intent of the Contract Documents, the Architect is authorized to require additional inspections or testing of the Work, whether or not such Work is fabricated, installed or completed. Neither this authority of the Architect nor a decision made in good faith by the Architect to exercise or not to exercise such authority shall modify requirements of the Contract Documents or any obligation of the Contractor under the Contract Documents.

3.1.6 Submittals.

3.1.6.1 Architect's Review. The Architect will review and approve or take other appropriate action upon Submittals for the limited purpose of checking for general conformance with information given and the design concept expressed in the Contract Documents. Review of Submittals is not for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor. The Architect's review of the Contractor's Submittals shall not: (i) modify or limit the Contractor's obligations under the Contract Documents; (ii) requirements of the Contract Documents relating to the Work; (iii) approval of safety measures, programs or precautions; or (iv) construction means, methods, techniques, sequences or procedures. The Architect's acceptance of a specific item in a Submittal shall not indicate approval of an assembly of which the item is a component with the Submittal(s) required and relating to such assembly have been reviewed by the Architect.

3.1.6.2 Time for Architect's Review. The Architect's review of Submittals will be conducted promptly so as not to delay or hinder the progress of the Work or the activities of the Contractor, the District or the District's separate contractors while allowing sufficient time, in the Architect's reasonable professional judgment, to permit adequate review of Submittals. The foregoing notwithstanding, the Architect's review and return of Submittals will conform with the time limits and other conditions, if any, set forth in the Specifications or the Submittal Schedule if the Submittal Schedule is required by other provisions of the Contract Documents.

3.1.7 Issuance of Construction Change Directive. The Architect is authorized to issue Construction Change Directives.

3.1.8 Changes to the Work; Change Orders. The Architect will prepare Change Orders, and may authorize minor Changes in the Work which do not result in adjustment of the Contract Time or the Contract Price.

3.1.9 Completion. In conjunction with the District, District's Inspector, Project Manager, if any, and the Contractor, the Architect will conduct observations of the Work to determine the date(s) of Completion and Final Completion. If the District does not designate a Project Manager for the Work, the Architect shall: (i) be authorized to enforce the Contractor's close-out obligations; and (ii) receive from the Contractor and the records, written warranties and related close-out materials assembled by the Contractor in accordance with the Contract Documents.

3.1.10 Interpretation of Contract Documents. The Architect will interpret and decide matters concerning the requirements of the Contract Documents on written request of either the District or the Contractor. The Architect's response to such requests will be made with reasonable promptness and within the time limits agreed upon, if any. If no agreement is reached establishing the time for the Architect's review and response to requests under this Article 3.1.10, the Architect shall be afforded a fifteen (15) day period after receipt of such request to review and respond thereto. Interpretations and decisions of the Architect will: (i) be consistent



with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions; (ii) endeavor to secure faithful performance by both the District and the Contractor; (iii) not show partiality to either the District or Contractor; and (iv) not result in liability for results of interpretations or decisions so rendered in good faith. The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

**3.1.11 Request for Information.** If the Contractor encounters any condition which the Contractor believes, in good faith and with reasonable basis, is the result of an ambiguity, conflict, error or omission in the Contract Documents (collectively "the Conditions"), Contractor shall timely notify the Architect, in writing, of the Conditions encountered and to request information from the Architect necessary to address and resolve any such Conditions before proceeding with any portion of the Work affected or which may be affected by such Conditions. If the Contractor fails to timely notify the Architect in writing of any Conditions encountered and the Contractor proceeds to perform any portion of the Work containing or affected by such Conditions the Contractor shall bear all costs associated with or required to correct, remove, or otherwise remedy any portion of the Work affected thereby without adjustment of the Contract Time or the Contract Price. In requesting information of the Architect to address and resolve any Conditions the Contractor shall act with promptness in submitting any such written request so as to allow the Architect a reasonable period of time to review, evaluate and respond to any such request, taking into account the then current status of the progress and completion of the Work and the actual or potential impact of any such Conditions upon the completion of the Work within the Contract Time. The Contract Time shall not be subject to adjustment in the event that the Contractor shall fail to timely request information from the Architect. The Architect's responses to any such Contractor request for information shall conform to the standards and time frame set forth in Article 3.1.10 of these General Conditions. The foregoing provisions notwithstanding, if the Architect reasonably determines that any of Contractor's request(s) for information: (i) does not reflect adequate or competent supervision or coordination by the Contractor or any Subcontractor; (ii) does not reflect the Contractor's adequate or competent knowledge of the requirements of the Work or the Contract Documents; or (iii) is not justified for any other reason, Contractor shall be liable to the District for all costs incurred by the District associated with the processing, reviewing, evaluating and responding to any such request for information, including without limitation, fees of the Architect. In responding to any of Contractor's request(s) for information, the Architect shall, in the response, indicate if the Architect has made the determination pursuant to the preceding sentence and, if so, the costs to be borne by the Contractor for the processing, review, evaluation and response to the request for information. Thereafter, the District is authorized to deduct such costs from any portion of the Contract Price then or thereafter due the Contractor.

**3.2 Communications; Architect's Role.** All communications regarding the Work, the performance thereof or the Contract Documents shall be in writing; verbal communications shall be reduced to writing. If the District does not designate a Project Manager for the Work, communications between the Contractor and the District shall be through the Architect. Communications between separate contractors, if any, shall be through the Architect.

**3.3 Termination of Architect; Substitute Architect.** In case of termination of employment of the Architect, the District shall appoint a substitute architect whose status under the Contract Documents shall be that of the Architect.

**3.4 Project Manager.** If a Project Manager is designated for the Work, the Project Manager shall be a representative of the District until Final Completion is achieved and Final Payment is due the Contractor. The Project Manager is authorized to act on behalf of the District and in connection with the Work as set forth in the Contract Documents, including without limitation: (i) review of the Contractor's Construction Schedule and updates thereto; (ii) review of the Contractor's Applications for

Payment and verification of the amount due the Contractor under an Application for Payment; (iii) conducting the Pre-Construction Meeting, Progress Meetings and/or Special Meetings and maintaining minutes thereof; and (iv) enforcement of the Contractor's obligations under the Contract Documents, including the Contractor's close-out obligations.

#### **ARTICLE 4: THE CONTRACTOR**

##### **4.1 Contractor Review of Contract Documents.**

4.1.1 Examination of Contract Documents. The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the District pursuant to the Contract Documents and shall at once report to the Architect any errors, inconsistencies or omissions discovered. If the Contractor performs any Work knowing, or with reasonable diligence should have known that, it involves an error, inconsistency or omission in the Contract Documents without prior notice to the Architect of the same, the Contractor shall assume full responsibility for such performance and shall bear all costs for correction of the same without adjustment of the Contract Price.

4.1.2 Field Measurements. Prior to commencement of the Work, or portions thereof, the Contractor shall take field measurements and verify field conditions at the Site and shall carefully compare such field measurements and conditions with information provided in the Contract Documents. Errors, inconsistencies or omissions discovered shall be immediately reported to the Architect along with request for clarification or direction.

4.1.3 Dimensions; Layouts and Field Engineering. Unless otherwise expressly provided, dimensions indicated in the Drawings are intended for reference only. The Drawings are intended to be diagrammatic and schematic in nature; the Contractor is solely responsible for dimensioning and coordinating the Work of the Contract Documents. All field engineering required for laying out the Work and establishing grades for earthwork operations shall be by the Contractor at its expense. Any field engineering or other engineering to be provided or performed by the Contractor under the Contract Documents and required or necessary for the proper execution or installation of the Work shall be provided and performed by the an engineer duly registered under the laws of the State of California in the engineering discipline for such portion of the Work.

4.1.4 Work in Accordance With Contract Documents. The Contractor shall perform all of the Work in strict conformity with the Contract Documents, the Laws and Architect accepted Submittals.

##### **4.2 Site Investigation; Subsurface Conditions.**

4.2.1 Contractor Investigation. The Contractor is responsible for, and by executing the Agreement acknowledges, that it has carefully examined the Site and has taken all steps it deems reasonably necessary to ascertain all conditions which may affect the Work, or the cost thereof, including, without limitation, conditions bearing upon transportation, disposal, handling or storage of materials; availability of labor or utilities; access to the Site; and the physical conditions and the character of equipment, materials, labor and services necessary to perform the Work. Any failure of the Contractor to do so will not relieve it from the responsibility for fully and completely performing all Work without adjustment to the Contract Price or the Contract Time. The District assumes no responsibility to the Contractor for any understandings or representations concerning conditions or characteristics of the Site, or the Work, made by any of its officers, employees or agents prior to the execution of the Agreement, unless such understandings or representations are expressly set forth in the Contract Documents.

4.2.2 Subsurface Data. By executing the Agreement, the Contractor acknowledges that it has examined the boring data and other subsurface data available and satisfied itself as to the character, quality and quantity of surface and subsurface materials, including without limitation, obstacles which may be encountered in performance of the Work, insofar as this information is reasonably ascertainable from an inspection of the Site, review of available subsurface data and

analysis of information furnished by the District under the Contract Documents. Subsurface data or other soils investigation report provided by the District hereunder are not a part of the Contract Documents. Information contained in such data or report regarding subsurface conditions, elevations of existing grades or below grade elevations are approximate only and are neither guaranteed or warranted by the District to be complete and accurate. The Contractor shall examine all boring and other subsurface data to make its own independent interpretation of the subsurface conditions and acknowledges that its bid is based upon its own opinion of the conditions which may be encountered. The District assumes no responsibility for any conclusions or interpretations made by Contractor on the basis of available subsurface data or other information furnished by District under the Contract Documents.

4.2.3 Subsurface Conditions. 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's Inspector, in writing, of any: (i) material that the Contractor believes may be material that is hazardous waste, as defined in California Health and Safety Code §25117, that is required to be removed to a Class I or Class II or Class III disposal site in accordance with provisions of existing law; (ii) subsurface or latent physical conditions at the site differing from those indicated; or (iii) unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in the Work or the character provided for in the Contract Documents. If upon notice to the District of the conditions described above and upon the District's investigation thereof, the District determines that the conditions so materially differ or involve such hazardous materials which require an adjustment to the Contract Price or the Contract Time, the District shall issue a Change Order in accordance with Article 9 hereof. In accordance with California Public Contract Code §7104, any dispute arising between the Contractor and the District as to any of the conditions listed in (i), (ii) or (iii) above, shall not excuse the Contractor from the completion of the Work within the Contract Time and the Contractor shall proceed with all Work to be performed under the Contract Documents. The District reserves the right to terminate the Contract pursuant to Article 15.2 hereof should the District determine not to proceed because of any condition described in (i), (ii) or (iii) above.

#### 4.3 Supervision and Construction Procedures.

4.3.1 Supervision of the Work. The Contractor shall supervise and direct performance of the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract Documents, unless Contract Documents give other specific instructions concerning these matters. The Contractor shall be responsible for inspection of completed or partially completed portions of Work to determine that such portions are in proper condition to receive subsequent Work.

4.3.2 Responsibility for the Work. The Contractor is responsible to the District for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and all other persons performing any portion of the Work under a contract with the Contractor. The Contractor is not relieved from its obligation to perform the Work in accordance with the Contract Documents either by activities or duties of the Project Manager, District's Inspector or the Architect, or by tests, inspections or approvals required or performed by persons other than the Contractor.

4.3.3 Surveys. The Contractor shall prepare or cause to be prepared all detailed surveys necessary for performance of the Work, including without limitation, slope stakes, points, lines and elevations. The Contractor is responsible for the establishment, location, maintenance and preservation of benchmarks, reference points and stakes for the Work without adjustment of the Contract Price. The Contractor is solely responsible for all loss or costs resulting from the loss, destruction, disturbance or damage of benchmarks, reference points or stakes.

4.3.4 Construction Utilities. The District will furnish and pay the costs of utility services for the

Work as set forth in the Special Conditions; all other utilities necessary to complete the Work and the Contractor's obligations hereunder shall be obtained by the Contractor without adjustment of the Contract Price or the Contract Time. The Contractor shall furnish and install necessary or appropriate temporary distributions of utilities, including utilities furnished by the District. Any such temporary distributions shall be removed by the Contractor upon completion of the Work. The costs of all such utility services, including the installation, relocations and removal of temporary distributions thereof, shall be borne by the Contractor and included in the Contract Price.

4.3.5 Existing Utilities; Removal, Relocation and Protection. In accordance with California Government Code §4215, the District assumes responsibility for the timely removal, relocation, or protection of existing main or trunkline utility facilities located on the Site which are not identified in the Drawings, Specifications or other Contract Documents. Contractor shall be compensated for the costs of locating, repairing damage not due to the Contractor's failure to exercise reasonable care, and removing or relocating such utility facilities not indicated in the Drawings, Specifications and other Contract Documents with reasonable accuracy and for equipment on the Site necessarily idled during such work. Contractor shall not be assessed Liquidated Damages for delay in completion of the Work when such delay is caused by the failure of the District or the owner of the utility to provide for removal or relocation of such utility facilities. The foregoing notwithstanding, the District is not required to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities can be inferred from the presence of other visible facilities, such as buildings, meters and junction boxes, on or adjacent to the Site. If the Contractor encounters utility facilities not identified by the District in the Drawings, Specifications, or other Contract Documents, the Contractor shall immediately notify, in writing, the District, the District's inspector, the Architect, the Project Manager and the utility owner. If utility facilities are owned by a public utility, the public utility shall have the sole discretion to perform repairs or relocation work or permit the Contractor to do such repairs or relocation work at a reasonable price.

4.3.6 Conferences and Meetings. A material obligation of the Contractor under the Contract Documents is the attendance by the Contractor's supervisory personnel for the Work and the Contractor's management personnel as required by the Contract Documents or as requested by the District. The Contractor's personnel participating in conferences and meetings relating to the Work shall be authorized to act on behalf of the Contractor and to bind the Contractor. The Contractor is solely responsible for arranging for the attendance by Subcontractors, Material Suppliers at meetings and conferences relating to the Work as necessary, appropriate or as requested by the District.

4.3.6.1 Pre-Construction Conference. The Contractor's representatives (and representatives of Subcontractors as requested by the District) shall attend a Pre-Construction Conference at such time and place as designated by the District. The Pre-Construction Conference will address items such as the Contractor's access to the Site, review of construction procedures and requirements and other matters pertaining generally to construction of the Work.

4.3.6.2 Progress Meetings. Progress meetings will be conducted on regular intervals (weekly unless otherwise expressly indicated elsewhere in the Contract Documents). The Contractor's representatives and representatives of Subcontractors (as requested by the District) shall attend Progress Meetings. Progress Meetings will be chaired by the Architect or the Project Manager and will generally include as agenda items: Site safety, field issues, coordination of Work, construction progress and impacts to timely completion, if any. The purposes of the Progress Meetings include: a formal and regular forum for discussion of the status and progress of the Work by all Project participants, a review of progress or resolution of previously raised issues and action items assigned to the Project participants, and reviews of the Construction Schedule and Submittals.

4.3.6.3 Special Meetings. As deemed necessary or appropriate by the District, Special Meetings will be conducted with the participation of the Contractor, Subcontractors and other Project participants as requested by the District.

4.3.6.4 Minutes of Meetings. Following conclusion of the Pre-Construction Conference, Progress Meetings and Special Meetings, the Architect or the Project Manager will prepare and distribute minutes reflecting the items addressed and actions taken at a meeting or conference. Unless the Contractor notifies the Architect or the Project Manager in writing of objections or corrections to minutes prepared hereunder within five (5) days of the date of distribution of the minutes, the minutes as distributed shall constitute the official record of the meeting or conference. No objections or corrections of any Subcontractor or Material Supplier shall be submitted directly to the Architect or the Project Manager; such objections or corrections shall be submitted to the Architect and the Project Manager through the Contractor. If the Contractor timely interposes objections or notes corrections, the resolution of such matters shall be addressed at the next scheduled Progress Meeting.

#### 4.4 Labor and Materials.

4.4.1 Payment for Labor, Materials and Services. Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, Construction Equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated in the Work.

4.4.2 Employee Discipline. The Contractor shall enforce strict discipline and good order among the Contractor's employees, the employees of any Subcontractor or Sub-subcontractor, and all other persons performing any part of the Work at the Site. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. The Contractor shall dismiss from its employ and direct any Subcontractor or Sub-subcontractor to dismiss from their employment any person deemed by the District to be unfit or incompetent to perform Work and thereafter, the Contractor shall not employ nor permit the employment of such person for performance of any part of the Work without the prior written consent of the District, which consent may be withheld in the reasonable discretion of the District.

4.4.3 Compliance with Immigration Reform and Control Act of 1986. The Contractor is solely and exclusively responsible for employment of individuals for the Work of the Contract in conformity with the Immigration Reform and Control Act of 1986, 8 USC §§1101 et seq. (the "IRCA"); the Contractor shall also require Subcontractors and any other person or entity employing labor in connection with any of the Work to so similarly comply with the IRCA. The foregoing includes without limitation, verification that individuals engaged in any Work are legally entitled to do so.

4.4.4 Contractor's Supervisory Personnel. Prior to start of Work at the Site, the Contractor shall submit to the District, Architect and Project Manager, a written statement of the qualifications of the Contractor's proposed Superintendent and Project Manager for the Work. Acceptance of the Contractor's proposed Superintendent and Project Manager is subject to establishing their: (i) skills, experience and other capabilities to supervise, coordinate and manage the Work; (ii) fluent verbal and written English language capabilities; (iii) competency in reading, comprehending and understanding drawings, specifications and other technical construction-related materials; and (iv) recent experience of in completing construction projects similar to the Work within the budget and time established for such other construction projects. Upon acceptance of the Contractor's Superintendent or Project Manager by the District, the Contractor shall not be change such personnel without prior consent of the District, unless such personnel: (i) are unsatisfactory to the Contractor and ceases to be employed by the Contractor for the Work; or (ii) is determined by the District to be unfit, incompetent or incapable of performing functions and responsibilities assigned.

#### 4.4.5 Prohibition on Harassment.

4.4.5.1 District's Policy Prohibiting Harassment. The District is committed to providing a campus and workplace free of sexual harassment and harassment based on factors such as race, color religion, national origin, ancestry, age, medical condition, marital status, disability, veteran status or other legally protected classification. Harassment includes without limitation, verbal, physical or visual conduct which creates an intimidating, offensive or hostile environment such as racial slurs; ethnic jokes; posting of offensive statements, posters or cartoons or similar conduct. Sexual harassment includes without limitation the solicitation of sexual favors, unwelcome sexual advances, or other verbal, visual or physical conduct of a sexual nature.

4.4.5.2 Contractor's Adoption of Anti-Harassment Policy. Contractor shall adopt and implement all appropriate and necessary policies prohibiting any form of discrimination in the workplace, including without limitation harassment on the basis of any classification protected under local, state or federal law, regulation or policy. Contractor shall take all reasonable steps to prevent harassment from occurring, including without limitation affirmatively raising the subject of harassment among its employees, expressing strong disapproval of any form of harassment, developing appropriate sanctions, informing employees of their right to raise and how to raise the issue of harassment and informing complainants of the outcome of an investigation into a harassment claim. Contractor shall require that any Subcontractor or Sub-subcontractor performing any portion of the Work to adopt and implement policies in conformity with this Article 4.4.4.

4.4.5.3 Prohibition on Harassment at the Site. Contractor shall not permit any person, whether employed by Contractor, a Subcontractor, or any other person or entity, performing any Work at or about the Site to engage in any prohibited form of harassment. Any such person engaging in a prohibited form of harassment directed to any individual performing or providing any portion of the Work at or about the Site shall be subject to appropriate sanctions in accordance with the anti-harassment policy adopted and implemented pursuant to Article 4.4.4.2 above. Any person, performing or providing Work on or about the Site engaging in a prohibited form of harassment directed to any student, faculty member or staff of the District or directed to any other person on or about the Site shall be subject to immediate removal and shall be prohibited thereafter from providing or performing any portion of the Work. Upon the District's receipt of any notice or complaint that any person employed directly or indirectly by Contractor in performing or providing the Work has engaged in a prohibited form of harassment, the District will promptly undertake an investigation of such notice or complaint. If the District, after such investigation, reasonably determines that a prohibited form of harassment has occurred, the District shall promptly notify the Contractor of the same and direct that the person engaging in such conduct be immediately removed from the Site. Unless the District's determination that a prohibited form of harassment has occurred is grossly negligent or without reasonable cause, District shall have no liability for directing the removal of any person determined to have engaged in a prohibited form of harassment nor shall the Contract Price or the Contract Time be adjusted on account thereof. Contractor and the Surety shall defend, indemnify and hold harmless the District and its employees, officers, board of trustees, agents, and representatives from any and all claims, liabilities, judgments, awards, actions or causes of actions, including without limitation, attorneys' fees, which arise out of, or pertain in any manner to: (i) the assertion by any person dismissed from performing or providing work at the direction of the District pursuant to this Article 4.4.4.3; or (ii) the assertion by any person that any person directly or indirectly under the employment or direction of the Contractor has engaged in a prohibited form of harassment directed to or affecting such person. The obligations of the Contractor and the Surety under the preceding sentence are in addition to, and not in lieu of, any other

obligation of defense, indemnity and hold harmless whether arising under the Contract Documents, at law or otherwise; these obligations survive completion of the Work or the termination of the Contract.

4.5 Taxes. The Contractor shall pay, without adjustment of the Contract Price, all sales, consumer, use and other taxes for the Work or portions thereof provided by the Contractor under the Contract Documents.

4.6 Permits, Fees and Notices; Compliance With Laws.

4.6.1 Payment of Permits, Fees. Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permits, other permits, governmental fees, licenses and inspections necessary or required for the proper execution and completion of the Work.

4.6.2 Compliance With Laws. The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and other orders of public authorities bearing on performance of the Work.

4.6.3 Notice of Variation From Laws. If the Contractor knows, or has reason to believe, that any portion of the Contract Documents are at variance with applicable laws, statutes, ordinances, building codes, regulations or rules, the Contractor shall promptly notify the Architect and the District's Inspector, in writing, of the same. If the Contractor performs Work knowing, or with reasonable diligence should have known, it to be contrary to laws, statutes, ordinances, building codes, rules or regulations applicable to the Work without such notice to the Architect and the District's Inspector, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs arising or associated therefrom, including without limitation, the removal, replacement or correction of the same.

4.7 Submittals.

4.7.1 Purpose of Submittals. Submittals are not Contract Documents. Submittals are for the purpose of demonstrating, for those portions of the Work for which Submittals are required, the manner in which the Contractor proposes to provide or incorporate such item of the Work in conformity with the information given and the design concept expressed in the Contract Documents.

4.7.2 Contractor's Submittals.

4.7.2.1 Prompt Submittals. The Contractor shall review, approve and submit to the Architect or such other person or entity designated by the District or the Contract Documents, the number of copies of Submittals required by the Contract Documents. All Submittals required by the Contract Documents shall be prepared, assembled and submitted by the Contractor within the time frames set forth in the Submittal Schedule incorporated and made a part of the Approved Construction Schedule. Contractor's submission of Submittals in conformity with the Submittal Schedule is a material obligation of the Contractor. If the Contractor fails or refuses to deliver Submittals in accordance with the Submittal Schedule, the Contractor shall be subject to per diem assessments in the amount set forth in the Special Conditions for each day of delayed submission for any Submittal beyond the date set forth in the Submittal Schedule for Contractor's submission of such Submittal. Contractor and the District acknowledge and agree that the per diem assessment for delayed submission of Submittals set forth in the Special Conditions represents a reasonable estimate of costs and expenses the District will incur as a result of delayed submission of Submittals and that the same is not a penalty. Notwithstanding Contractor's submission of all required Submittals in accordance with the Submittal Schedule, in the event that the District or the Architect reasonably determines that all or any portion of such Submittals fail to comply with the requirements of Articles 4.7.2.2, 4.7.2.3 and 4.7.2.4 of these General Conditions and/or such Submittals are not otherwise complete and accurate so as to require re-submission,

Contractor shall bear all costs associated with the review and approval of resubmitted Submittals, including without limitation Architect's fees incurred in connection therewith; provided that such costs are in addition to, and not in lieu of, Liquidated Damages imposed under this Article 4.7.2.1 for Contractor's delayed submission of Submittals. If Liquidated Damages are assessed for the Contractor's delayed submission of Submittals or if the Contractor is assessed Architect fees to review incomplete or inaccurate Submittals, the District may deduct the same from any portion the Contract Price then or thereafter due the Contractor. Submittals not required by the Contract Documents or which do not otherwise conform to the requirements of the Contract Documents may be returned without action. No adjustment to the Contract Time or the Contract Price shall be granted to the Contractor on account of its failure to timely submit of any Submittal.

4.7.2.2 Approval of Subcontractor Submittals. All Submittals prepared by Subcontractors, Material Suppliers, manufacturers or distributors shall bear the written approval of the Contractor thereto prior to submission to the Architect for review. Any Submittal not bearing the Contractor's written approval shall be subject to return to the Contractor for re-submittal in conformity herewith, with the same being deemed to not have been submitted. Any delay, impact or cost associated therewith shall be the sole and exclusive responsibility of the Contractor without adjustment to the Contract Time or the Contract Price.

4.7.2.3 Verification of Submittal Information. By approving and submission of Submittals, the Contractor represents to the District and Architect that the Contractor has determined and verified materials, field measurements, field construction criteria, catalog numbers and similar data related thereto and has checked and coordinated the information contained within such Submittals with the requirements of the Work and of the Contract Documents.

4.7.2.4 Information Included in Submittals. All Submittals shall be accompanied by a written transmittal or other writing by the Contractor providing an identification of the portion of the Drawings or the Specifications pertaining to the Submittal, with each Submittal numbered consecutively for ease of reference along with the following information: (i) date of submission; (ii) project name; (iii) name of submitting Subcontractor; and (iv) if applicable, the revision number. The foregoing information is in addition to, and not in lieu of, any other information required by the Contract Documents for the Architect's review, evaluation and acceptance of the Contractor's Submittals.

4.7.2.5 Contractor Responsibility for Deviations. The Contractor shall not be relieved of responsibility for correcting deviations from the requirements of the Contract Documents by the Architect's review of Submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submission of the Submittal and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Submittals by the Architect's review thereof.

4.7.2.6 No Performance of Work Without Architect Review. The Contractor shall perform no portion of the Work requiring the Architect's review of Submittals until the Architect has completed its review and returned the Submittal to the Contractor indicating "No Exception Taken" to such Submittal. The Contractor shall not perform any portion of the Work forming a part of a Submittal or which is affected by a related Submittal until the entirety of the Submittal or other related Submittal has been fully processed. Such Work shall be in accordance with the final action taken by the Architect in review of Submittals and other applicable portions of the Contract Documents.

4.7.3 Architect Review of Submittals. The purpose of the Architect's review of Submittals and the time for the Architect's return of Submittals to the Contractor shall be as set forth elsewhere in the Contract Documents. If the Architect returns a Submittal as rejected or requiring



| Notation               | Action Required                                                          |
|------------------------|--------------------------------------------------------------------------|
| No Exceptions Taken    | No formal revision required                                              |
| Make Corrections Noted | Make revision noted; re-submission of revised Submittal not required     |
| Revise and Re-Submit   | Revise Submittal in accordance with notations and re-submit for revision |
| Rejected Re-Submit     | Prepare new alternative Submittal and re-submit for review               |

correction(s) with re-submission, the Contractor, so as not to delay the progress of the Work, shall promptly thereafter resubmit a Submittal conforming to the requirements of the Contract Documents; the resubmitted Submittal shall indicate the portions thereof modified in accordance with the Architect's direction. When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the Architect shall be entitled to rely upon the accuracy and completeness of such calculations and certifications accompanying Submittals. The Architect's review of the Submittals is for the limited purposes described in the Contract Documents. The following notations or notations of a similar nature noted on a reviewed Submittal will require the Contractor action noted below.

4.7.4 Deferred Approval Items. If any portion of the Work is designated in the Contract Documents as a "Deferred Approval" item, Contractor shall be solely and exclusively responsible for: (i) the design, engineering and specifying the materials/equipment forming any part of the Deferred Approval Item; (ii) integrating and/or coordinating the Deferred Approval Item with other portions of the Work; (iii) preparation of Submittals for such item(s) in a timely manner so as not to delay or hinder the completion of the Work within the Contract Time; and (iv) timely obtaining DSA approval thereof.

4.8 Materials and Equipment.

4.8.1 Specified Materials, Equipment. References in the Contract Documents to any specific article, device, equipment, product, material, fixture, patented process, form, method or type of construction, by name, make, trade name, or catalog number, with or without the words "or equal" shall be deemed to establish a minimum standard of quality or performance, and shall not be construed as limiting competition.

4.8.2 Approval of Substitutions or Alternatives. The Contractor may propose to furnish alternatives or substitutes for a particular item specified in the Contract Documents, provided that: (i) such proposed substitution or alternative complies with the requirements of the Specifications relating to substitutions of specified items; (ii) the Contractor certifies to the Architect and District that the quality, performance capability and functionality (including visual and/or aesthetic effect) of the proposed alternative or substitute meet or exceed the quality, performance capability and functionality of the item or process specified; and (iii) demonstrate to the reasonable satisfaction of the Architect and District that the use of the substitution or alternative is appropriate and will not delay completion of the Work or result in an increase to the Contract Price. The Contractor shall submit calculations engineering, construction, dimension, visual, aesthetic and performance data to the Architect to permit its proper evaluation of the proposed substitution or alternative. If requested by the Architect, Contractor shall promptly furnish any additional information or data regarding a proposed substitution or alternative which the Architect deems reasonably necessary for the evaluation of the proposed substitution or alternative. The Contractor shall not provide, furnish or install any substitution or alternative without the Architect's review and final action on the proposed substitution or alternative; any alternative or substitution installed or incorporated into the Work without first obtaining the Architect's review and final action of the same shall be subject to removal pursuant to Article 12 hereof. The Architect's decision evaluating the Contractor's proposed substitutions

or alternatives shall be final. Neither the Contract Time nor the Contract Price shall be increased on account of any substitution or alternative proposed by the Contractor and which is accepted by the Architect; provided, however, that in the event a substitution or alternative accepted by the Architect and purchase, fabrication and/or installation or such accepted substitution or alternative shall be less expensive than the originally specified item, the Contract Price shall be reduced by the actual cost savings realized by the Contractor's furnishing and/or installation of such approved substitution or alternative. The Contractor shall be solely responsible for all costs and fees incurred by the District to review a proposed substitution or alternative, including without limitation fees of the Architect, and/or governmental agencies to review and/or approve any proposed substitution or alternative. The Contractor shall be solely responsible for any increase in the cost of any accepted substitution or alternative or any Work affected by such alternative or substitution. The foregoing notwithstanding, all requests for the Architect's review and approval of any proposed substitution or alternative and all engineering, construction, dimension and performance data substantiating the equivalency of the proposed substitution or alternative shall be submitted by Contractor not later than thirty-five (35) days following the date of the District's award of the Contract to Contractor by action of the District's Board of Trustees; any request for approval of proposed alternatives or substitutions submitted thereafter may be rejected summarily. The foregoing process and time limits shall apply to any proposed substitution or alternative regardless of whether the substitute or alternate item is to be provided, furnished or installed by Contractor, any Subcontractor, any Sub-Subcontractor, Material Supplier or Manufacturer.

**4.8.3 Placement of Material and Equipment Orders.** Contractor shall, after award of the Contract, promptly and timely place all orders for materials and/or equipment necessary for completion of the Work so that delivery of the same shall be made without delay or interruption to the timely completion of the Work. Contractor shall require that any Subcontractor similarly place orders for all materials and/or equipment to be furnished by any such Subcontractor in a prompt and timely manner so that delivery of the same shall be made without delay or interruption to the timely completion of the Work. Upon request of the District, Project Manager or the Architect, the Contractor shall furnish reasonably satisfactory written evidence of the placement of orders for materials and/or equipment necessary for completion of the Work, including without limitation, orders for materials and/or equipment to be provided, furnished or installed by any Subcontractor.

**4.8.4 District's Right to Place Orders for Materials and/or Equipment.** Notwithstanding any other provision of the Contract Documents, if the Contractor shall, upon request of the District, Project Manager or the Architect, fails or refuses, for any reason, to provide reasonably satisfactory written evidence of the placement of orders for materials and/or equipment necessary for completion of the Work, or should the District determine, in its sole and reasonable discretion, that any orders for materials and/or equipment have not been placed in a manner so that such materials and/or equipment will be delivered to the Site so the Work can be completed without delay or interruption, the District shall have the right, but not the obligation, to place such orders on behalf of the Contractor. If the District exercises the right to place orders for materials and/or equipment pursuant to the foregoing, the District's conduct shall not be deemed to be an exercise, by the District, of any control over the means, methods, techniques, sequences or procedures for completion of the Work, all of which remain the responsibility and obligation of the Contractor. Notwithstanding the right of the District to place orders for materials and/or equipment pursuant to the foregoing, the election of the District to exercise, or not to exercise, such right shall not relieve the Contractor from any of Contractor's obligations under the Contract Documents, including without limitation, completion of the Work within the Contract Time and for the Contract Price. If the District exercises the right hereunder to place orders for materials and/or equipment on behalf of Contractor pursuant to the foregoing, Contractor shall reimburse the District for all costs and fees incurred by the District in placing such orders; such costs and fees may be deducted by the District from the Contract Price then or thereafter due the

Contractor.

4.8.5 Contractor and Subcontractor Communication. All written communications between the Contractor and any Subcontractor, Material Supplier or others directly or indirectly engaged by the Contractor to perform or provide any portion of the Work shall be available to the District, the Project Manager and the Architect for review, inspection and reproduction as may be requested from time to time. The foregoing is a material obligation of the Contractor hereunder.

#### 4.9 Safety.

4.9.1 Safety Programs. The Contractor shall be solely responsible for initiating, maintaining and supervising all safety programs required by applicable law, ordinance, regulation or governmental orders in connection with the performance of the Contract, or otherwise required by the type or nature of the Work. The Contractor's safety program shall include all actions and programs necessary for compliance with California or federally statutorily mandated workplace safety programs, including without limitation, compliance with the California Drug Free Workplace Act of 1990 (California Government Code §§8350 et seq.). Without limiting or relieving the Contractor of its obligations hereunder, the Contractor shall require that its Subcontractors similarly initiate and maintain all appropriate or required safety programs.

4.9.2 Contractor Safety Plan. Prior to commencement of Work at the Site, the Contractor shall submit to the District and the Project Manager, if any, the Contractor's Safety Plan for the Work for review and acceptance by the District. Acceptance by the District is subject to the Safety Plan conforming to requirements of the Laws, conditions at or about the Site and the nature of the Work. The Contractor shall modify its Safety Plan as necessary to obtain the District's acceptance thereof. Notwithstanding the District's acceptance of the Contractor's Safety Plan, the Contractor shall remain solely responsible for implementing the Safety Plan and implementing measures as necessary to maintain safety of persons and property at and about the Site. The District's acceptance of the Contractor's Safety Plan shall not limit, restrict or otherwise modify the Contractor's obligations relating to safety at or about the Site in accordance with the Contract Documents and the Laws.

4.9.3 Safety Precautions. The Contractor shall be solely responsible for initiating and maintaining reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to: (i) employees on the Work and other persons who may be affected thereby; (ii) the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site, under care, custody or control of the Contractor or Subcontractors; and (iii) other property or items at the Site, or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement.

4.9.4 Safety Signs, Barricades. The Contractor shall erect and maintain, as required by existing conditions and conditions resulting from performance of the Contract, reasonable safeguards for safety and protection of property and persons, including, without limitation, posting danger signs and other warnings against hazards, barricades, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

4.9.5 Safety Notices. The Contractor shall give or post all safety notices required by the Laws and comply with the Laws bearing on safety of persons or property or their protection from damage, injury or loss.

4.9.6 Safety Coordinator. The Contractor shall designate a responsible member of the Contractor's organization at the Site whose duty shall be the prevention of accidents and the implementation and maintenance safety precautions and programs. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Project Manager, District's Inspector and the Architect.

4.9.7 Emergencies. In an emergency affecting safety of persons or property, the Contractor shall act, to prevent threatened damage, injury or loss.

4.9.8 Hazardous Materials.

4.9.8.1 General. If the Contractor, any Subcontractor or anyone employed directly or indirectly by them shall use, at the Site, or incorporate into the Work, any material or substance deemed to be hazardous or toxic under any law, rule, ordinance, regulation or interpretation thereof (collectively "Hazardous Materials"), the Contractor shall comply with all Laws applicable thereto and shall exercise all necessary safety precautions relating to the use, storage or disposal thereof.

4.9.8.2 Prohibition on Use of Asbestos Construction Building Materials ("ACBMs"). Notwithstanding any provision of the Drawings or the Specifications to the contrary, it is the intent of the District that ACBMs not be used or incorporated into any portion of the Work. In the event that any portion of the Work depicted in the Drawings or the Specifications shall require materials or products which the Contractor knows, or should have known with reasonably diligent investigation, to contain ACBMs, Contractor shall promptly notify the Architect and the District's Inspector of the same so that an appropriate alternative can be made in a timely manner so as not to delay the progress of the Work. Contractor warrants to the District that there are no materials or products used or incorporated into the Work which contain ACBMs. Whether before or after completion of the Work, if it is discovered that any product or material forming a part of the Work or incorporated into the Work contains ACBMs, the Contractor shall at its sole cost and expense remove such product or material in accordance with any laws, rules, procedures and regulations applicable to the handling, removal and disposal of ACBMs and to replace such product or material with non-ACBM products or materials and to return the affected portion(s) of the Work to the finish condition depicted in the Drawings and Specifications relating to such portion(s) of the Work. Contractor's obligations under the preceding sentence shall survive the termination of the Contract, the warranty period provided under the Contract Documents, the Contractor's completion of the Work or the District's acceptance of the Work. If the Contractor fails or refuses, for any reason, to commence the removal and replacement of any material or product containing ACBMs forming a part of, or incorporated into the Work, within ten (10) days of the date of the District's written notice to the Contractor of the existence of ACBM materials or products in the Work, the District may thereafter proceed to cause the removal and replacement of such materials or products in any manner which the District determines to be reasonably necessary and appropriate; all costs, expenses and fees, including without limitation fees and costs of consultants and attorneys, incurred by the District in connection with such removal and replacement shall be the responsibility of the Contractor and the Surety.

4.9.8.3 Disposal of Hazardous Materials. Contractor shall be solely and exclusively responsible for the disposal of any Hazardous Materials on or about the Site. The Contractor's obligations hereunder shall include without limitation, the transportation and disposal of any Hazardous Materials in strict conformity with the Laws.

#### 4.10 Maintenance of Documents.

4.10.1.1 Documents at Site. The Contractor shall maintain at the Site: (i) one record copy of the Drawings, Specifications and all addenda thereto; (ii) Change Orders approved by the District and all other modifications to the Contract Documents; (iii) Submittals reviewed by the Architect; (iv) Record Drawings; (v) Material Safety Data Sheets ("MSDS") accompanying any materials, equipment or products delivered or stored at the Site or incorporated into the Work; and (vi) all building and other codes or regulations applicable to the Work, including without limitation, Title 24, Part 2 of the California Code of Regulations. During performance of the Work, all documents maintained by Contractor at the Site shall be available to the District, the Project Manager, the Architect, the District's Inspector and DSA for review, inspection or reproduction. Upon completion of the Work, all documents maintained at the Site by the

Contractor pursuant to the foregoing shall be assembled and transmitted to the Architect for delivery to the District.

4.10.1.2 Maintenance of Record Drawings. During its performance of the Work, the Contractor shall maintain Record Drawings consisting of a set of the Drawings which are marked to indicate all field changes made to adapt the Work depicted in the Drawings to field conditions, changes resulting from Change Orders and all concealed or buried installations, including without limitation, piping, conduit and utility services. All buried or concealed items of Work shall be completely and accurately marked and located on the Record Drawings. The Record Drawings shall be clean and all changes, corrections and dimensions shall be marked in a neat and legible manner in a contrasting color. Record Drawings relating to the Structural, Mechanical, Electrical and Plumbing portions of the Work shall indicate without limitation, circuiting, wiring sizes, equipment/member sizing and shall depict the entirety of the as built conditions of such portions of the Work. The Record Drawings shall be continuously maintained by the Contractor during the performance of the Work. At any time during the Contractor's performance of the Work, upon the request of the District, the District's Inspector or the Architect, the Contractor shall make the Record Drawings maintained here under available for the District's review and inspection. The District's review and inspection of the Record Drawings during the Contractor's performance of the Work shall be only for the purpose of generally verifying that Contractor is continuously maintaining the Record Drawings in a complete and accurate manner; any such inspection or review shall not be deemed to be the District's approval or verification of the completeness or accuracy thereof. The failure or refusal of the Contractor to continuously maintain complete and accurate Record Drawings or to make available the Record Drawings for inspection and review by the District may be deemed by the District to be Contractor's default of a material obligation hereunder. Without waiving, restricting or limiting any other right or remedy of the District for the Contractor's failure or refusal to continuously maintain the Record Drawings, the District may, upon reasonably determining that the Contractor has not, or is not, continuously maintaining the Record Drawings in a complete and accurate manner, take appropriate action to cause the continuous maintenance of complete and accurate Record Drawings, in which event all fees and costs incurred or associated with such action shall be charged to the Contractor and the District may deduct the amount of such fees and costs from any portion of the Contract Price then or thereafter due the Contractor. In accordance with Article 8.4.2 of these General Conditions, prior to receipt of the Final Payment, Contractor shall deliver the Record Drawings to the Architect.

4.11 Use of Site. The Contractor shall confine operations at the Site to areas permitted by the Laws, subject to any restrictions or limitations set forth in the Contract Documents. The Contractor shall not unreasonably encumber the Site or adjoining areas with materials or equipment. The Contractor shall be solely responsible for providing security at the Site with all such costs included in the Contract Price. The District shall at all times have access to the Site.

4.12 Clean-Up. The Contractor shall at all times keep the Site and all adjoining areas free from the accumulation of any waste material or rubbish caused or generated by performance of the Work. Without limiting the generality of the foregoing, Contractor shall maintain the Site in a "rake-clean" standard on a daily basis. If the Work includes painting and/or the installation of floor covering, before any painting operations or the installation of any flooring covering, the area and adjoining areas of the Site where paint is to be applied or floor covering is to be installed shall be in a "broom-clean" condition. Prior to completion of the Work, Contractor shall remove from the Site all rubbish, waste materials, excess excavated materials, tools, Construction Equipment, machinery, surplus materials and any other items which are not the property of the District under the Contract Documents. Upon completion of the Work, the Site and all adjoining areas shall be left by the Contractor in a neat and broom clean condition satisfactory to District. The District's Inspector or

Project Manager shall be authorized to direct the Contractor's clean-up obligations hereunder. If the Contractor fails to clean up as provided for in the Contract Documents, the District may do so, and all costs incurred in connection therewith shall be charged to the Contractor; the District may deduct such costs from any portion of the Contract Price then or thereafter due the Contractor.

4.13 Access to the Work. The Contractor shall provide DSA, the District, the Project Manager, the District's Inspector and the Architect access to the Work, whether in place, preparation and progress and wherever located.

4.14 Facilities and Information for the District's Inspector.

4.14.1 Information to District's Inspector. The Contractor shall furnish the District's Inspector access to the Work for obtaining such information as may be necessary to keep the District's Inspector fully informed respecting the progress, quality and character of the Work and materials, equipment or other items incorporated therein.

4.14.2 Facilities for District's Inspector. Facilities, services or other items to be provided by the Contractor for use by the District's Inspector, if any, shall be as set forth in the Special Conditions. If any such facilities, services or other items are designated in the Special Conditions and the Contractor fails or refuses to provide the same, the District may furnish such facilities, services or other items, with the costs, fees or expenses incurred to furnish the same being deducted from the Contract Price.

4.15 Patents and Royalties. The Contractor and the Surety shall defend, indemnify and hold harmless the District and its agents, employees and officers from any claim, demand or legal proceeding arising out of or pertaining, in any manner, to any actual or claimed infringement of patent rights in connection with performance of the Work.

4.16 Cutting and Patching. The Contractor is responsible for cutting, fitting or patching required to complete the Work or to make the component parts thereof fit together properly. The Contractor shall not damage or endanger any portion of the Work, or the fully or partially completed construction of the District or separate contractors by cutting, patching, excavation or other alteration. The Contractor shall not cut, patch or otherwise alter the construction by the District or separate contractor without the prior written consent of the District or separate contractor thereto, which consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold consent to the request of the District or separate contractor to cut, patch or otherwise alter the Work.

4.17 Encountering of Hazardous Materials. If the Contractor encounters Hazardous Materials at the Site which have not been rendered harmless or for which there is no provision in the Contract Documents for containment, removal, abatement or handling of such Hazardous Materials, the Contractor shall immediately stop the Work in the affected area, but shall diligently proceed with the Work in all other unaffected areas. Upon encountering such Hazardous Materials, the Contractor shall immediately notify the District's Inspector and the Architect, in writing, of such condition. The Contractor shall proceed with the Work in such affected area only after such Hazardous Materials have been rendered harmless, contained, removed or abated. If such Hazardous Materials are encountered, the Contractor shall be entitled to an adjustment of the Contract Time to the extent that the Work is stopped and Completion of the Work is affected thereby. In no event shall there be an adjustment to the Contract Price solely on account of the Contractor encountering such Hazardous Materials.

4.18 Wage Rates; Employment of Labor.

4.18.1 Determination of Prevailing Rates. Pursuant to the provisions of Division 2, Part 7, Chapter 1, Article 2 of the California Labor Code at §§1770 et seq., the District has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages and the prevailing rate for holiday and overtime work in the locality in which the Work is to be performed. Holidays shall be as defined in the collective bargaining agreement applicable to each particular craft, classification or type of worker employed under the Contract. Per diem wages include employer payments for health and welfare, pensions, vacation, travel time and

subsistence pay as provided in California Labor Code §1773.8, apprenticeship or other training programs authorized by California Labor Code §3093, and similar purposes when the term “per diem wages” is used herein. Holiday and overtime work, when permitted by law, shall be paid for at the rate of at least one and one-half (1½) times the above specified rate of per diem wages, unless otherwise specified. The Contractor shall post, at appropriate and conspicuous locations on the Site, a schedule showing all determined general prevailing wage rates.

4.18.2 Payment of Prevailing Rates. There shall be paid each worker of the engaged in the Work, not less than the general prevailing wage rate for the classification of Work performed, regardless of any contractual relationship which may be alleged to exist between the Contractor or any Subcontractor and such worker.

4.18.3 Prevailing Rate Penalty. The Contractor shall, as a penalty, forfeit not more than Two Hundred Dollars (\$200.00) to the District for each calendar day or portion thereof, for each worker paid less than the prevailing rates for such work or craft in which such worker is employed for the Work by the Contractor or by any Subcontractor, of any tier, in connection with the Work. The amount of the penalty for failure to pay applicable prevailing wage rates shall be determined and assessed in accordance with the standards established pursuant to Labor Code §1775(a)(2). The amount of the penalty shall be determined based on consideration of both of the following: (i) whether the failure of the Contractor or Subcontractor to pay the correct rate of per diem wages was a good faith mistake and, if so, the error was promptly and voluntarily corrected when brought to the attention of the Contractor or Subcontractor; and (ii) whether the Contractor or Subcontractor has a prior record of failing to meet its prevailing wage obligations. The penalty may not be less than forty dollars (\$40) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, unless the failure of the Contractor or Subcontractor to pay the correct rate of per diem wages was a good faith mistake and, if so, the error was promptly and voluntarily corrected when brought to the attention of the contractor or subcontractor. The penalty may not be less than eighty dollars (\$80) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, if the Contractor or Subcontractor has been assessed penalties within the previous three years for failing to meet its prevailing wage obligations on a separate contract, unless those penalties were subsequently withdrawn or overturned. The penalty may not be less than one hundred twenty dollars (\$120) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, if the Labor Commissioner determines that the violation was willful, as defined in subdivision (c) of Section 1777.1. When the penalty amount due hereunder is collected from the Contractor or Subcontractor, any outstanding wage claim under Chapter 1 (commencing with Section 1720) of Part 7 of Division 2 against that Contractor or Subcontractor shall be satisfied before applying that amount to the penalty imposed on that Contractor or Subcontractor hereunder. The difference between prevailing wage rates and the amount paid to each worker each calendar day, or portion thereof, for which each worker paid less than the prevailing wage rate, shall be paid to each worker by the Contractor.

4.18.4 Certified Payroll Records.

4.18.4.1 Maintenance of Certified Payroll Records. Pursuant to California Labor Code §1776, the Contractor and each Subcontractor, of any tier, shall keep an accurate payroll record, 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 person employed for the Work.

4.18.4.2 Submittal of Certified Payroll Records to Labor Commissioner. The Contractor and each Subcontractor shall submit their respective Certified Payroll Records to the Labor Commissioner on forms, in the manner and within the times prescribed by the Labor Commissioner.

4.18.4.3 Inspection of Certified Payroll Records. The Certified Payroll Records of the Contractor and Subcontractors shall be available for inspection at all reasonable hours at the principal office of the Contractor on the following basis: (i) a certified copy

of an employee's payroll record shall be made available for inspection or furnished to such employee or his/her authorized representative on request; (ii) a certified copy of all payroll records shall be made available for inspection or furnished upon request to the District, the Division of Labor Standards Enforcement and the Division of Apprenticeship Standards of the Department of Industrial Relations; (iii) a certified copy of payroll records shall be made available upon request to the public for inspection or copies thereof made; provided, however, that a request by the public shall be made through either the District, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested Certified Payroll Records have not been provided, the requesting party shall, prior to being provided the records, reimburse the cost of preparation by the Contractor, Subcontractors and the entity through which the request was made; the public shall not be given access to such records at the principal office of the Contractor; (iv) the Contractor shall file a certified copy of the Certified Payroll Records with the entity that requested such records within ten (10) days after receipt of a written request; (v) any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the District, the Division of Apprenticeship Standards or the 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 the Contractor or any Subcontractor, of any tier, performing a part of the Work shall not be marked or obliterated. The Contractor shall inform the District of the location of Certified Payroll Records, including the street address, city and county and shall, within five (5) working days, provide a notice of a change or location and address. In the event of noncompliance with the requirements of this Article 4.18.4, the Contractor shall have ten (10) days in which to comply, subsequent to receipt of written notice specifying in what respects the Contractor must comply herewith. Should noncompliance still be evident after such 10-day period, the Contractor shall, as a penalty to the District, forfeit One Hundred Dollars (\$100.00) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, such penalties shall be withheld from any portion of the Contract Price then or thereafter due the Contractor. The Contractor is solely responsible for compliance with the foregoing provisions.

#### 4.18.5 Hours of Work.

4.18.5.1 Limits on Hours of Work. Pursuant to California Labor Code §1810, eight (8) hours of labor shall constitute a legal day's work. Pursuant to California Labor Code §1811, the time of service of any worker employed at any time by the Contractor or by a Subcontractor, of any tier, upon the Work or upon any part of the Work, is limited and restricted to eight (8) hours during any one calendar day and forty (40) hours during any one calendar week, except as hereafter provided. Notwithstanding the foregoing provisions, Work performed by employees of Contractor or any Subcontractor, of any tier, in excess of eight (8) hours per day and forty (40) hours during any one week, shall be permitted upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half (12) times the basic rate of pay.

4.18.5.2 Penalty for Excess Hours. The Contractor shall pay to the District a penalty of Twenty-five Dollars (\$25.00) for each worker employed on the Work by the Contractor or any Subcontractor, of any tier, for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any calendar day and forty (40) hours in any one calendar week, in violation of the provisions of the California Labor Code, unless compensation to the worker so employed by the Contractor is not less than one and one-half (12) times the basic rate of pay for all hours worked in excess of eight (8) hours per day.

4.18.5.3 Contractor Responsibility. Any Work performed by workers necessary to



be performed after regular working hours or on Sundays or other holidays shall be performed without adjustment to the Contract Price or any other additional expense to the District.

4.18.6 Apprentices.

4.18.6.1 Employment of Apprentices. Any apprentices employed to perform any of the Work shall be paid the standard wage paid to apprentices under the regulations of the craft or trade for which such apprentice is employed, and such individual shall be employed only for the work of the craft or trade to which such individual is registered. Only apprentices, as defined in California Labor Code §3077 who are in training under apprenticeship standards and written apprenticeship agreements under California Labor Code §§3070 et seq. are eligible to be employed for the Work. The employment and training of each apprentice shall be in accordance with the provisions of the apprenticeship standards and apprentice agreements under which such apprentice is training.

4.18.6.2 Apprenticeship Certificate. When the Contractor or any Subcontractor, of any tier, in performing any of the Work employs workers in any Apprenticeable Craft or Trade, the Contractor and such Subcontractor shall apply to the Joint Apprenticeship Committee administering the apprenticeship standards of the craft or trade in the area of the site of the Work for a certificate approving the Contractor or such Subcontractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected, provided, however, that the approval as established by the Joint Apprenticeship Committee or Committees shall be subject to the approval of the Administrator of Apprenticeship. The Joint Apprenticeship Committee or Committees, subsequent to approving the Contractor or Subcontractor, shall arrange for the dispatch of apprentices to the Contractor or such Subcontractor in order to comply with California Labor Code §1777.5. The Contractor and Subcontractors shall submit contract award information to the applicable Joint Apprenticeship Committee which shall include an estimate of journeyman hours to be performed under the Contract, the number of apprentices to be employed, and the approximate dates the apprentices will be employed. There shall be an affirmative duty upon the Joint Apprenticeship Committee or Committees, administering the apprenticeship standards of the crafts or trades in the area of the site of the Work, to ensure equal employment and affirmative action and apprenticeship for women and minorities. Contractors or Subcontractors shall not be required to submit individual applications for approval to local Joint Apprenticeship Committees provided they are already covered by the local apprenticeship standards.

4.18.6.3 Ratio of Apprentices to Journeymen. The ratio of Work performed by apprentices to journeymen, who shall be employed in the Work, may be the ratio stipulated in the apprenticeship standards under which the Joint Apprenticeship Committee operates, but in no case shall the ratio be less than one hour of apprentice work for each five hours of labor performed by a journeyman, except as otherwise provided in California Labor Code §1777.5. The minimum ratio for the land surveyor classification shall not be less than one apprentice for each five journeymen. Any ratio shall apply during any day or portion of a day when any journeyman, or the higher standard stipulated by the Joint Apprenticeship Committee, is employed at the site of the Work and shall be computed on the basis of the hours worked during the day by journeymen so employed, except for the land surveyor classification. The Contractor shall employ apprentices for the number of hours computed as above before the completion of the Work. The Contractor shall, however, endeavor, to the greatest extent possible, to employ apprentices during the same time period that the journeymen in the same craft or trade are employed at the site of the Work. Where an hourly apprenticeship ratio is not feasible for a particular craft or trade, the Division of Apprenticeship Standards, upon application of a Joint Apprenticeship Committee, may order a minimum

ratio of not less than one apprentice for each five journeymen in a craft or trade classification. The Contractor or any Subcontractor covered by this Article and California Labor Code §1777.5, upon the issuance of the approval certificate, or if it has been previously approved in such craft or trade, shall employ the number of apprentices or the ratio of apprentices to journeymen stipulated in the apprenticeship standards. Upon proper showing by the Contractor that it employs apprentices in such craft or trade in the State of California on all of its contracts on an annual average of not less than one apprentice to each five journeymen, the Division of Apprenticeship Standards may grant a certificate exempting the Contractor from the 1-to-5 ratio as set forth in this Article and California Labor Code §1777.5. This Article shall not apply to contracts of general contractors, or to contracts of specialty contractors not bidding for work through a general or prime contractor, involving less than Thirty Thousand Dollars (\$30,000.00) or twenty (20) working days. The term "Apprenticeable Craft or Trade," as used herein shall mean a craft or trade determined as an Apprenticeable occupation in accordance with rules and regulations prescribed by the Apprenticeship Council.

4.18.6.4 Exemption From Ratios. The Joint Apprenticeship Committee shall have the discretion to grant a certificate, which shall be subject to the approval of the Administrator of Apprenticeship, exempting the Contractor from the 1-to-5 ratio set forth in this Article when it finds that any one of the following conditions are met: (i) unemployment for the previous three-month period in such area exceeds an average of fifteen percent (15%) or; (ii) the number of apprentices in training in such area exceeds a ratio of 1-to-5 in relation to journeymen, or; (iii) the Apprenticeable Craft or Trade is replacing at least one-thirtieth (1/30) of its journeymen annually through apprenticeship training, either on a statewide basis or on a local basis, or; (iv) if assignment of an apprentice to any Work performed under the Contract Documents would create a condition which would jeopardize such apprentice's life or the life, safety or property of fellow employees or the public at large, or if the specific task to which the apprentice is to be assigned is of such a nature that training cannot be provided by a journeyman. When such exemptions from the 1-to-5 ratio between apprentices and journeymen are granted to an organization which represents contractors in a specific trade on a local or statewide basis, the member contractors will not be required to submit individual applications for approval to local Joint Apprenticeship Committees, provided they are already covered by the local apprenticeship standards.

4.18.6.5 Contributions to Trust Funds. The Contractor or any Subcontractor, of any tier, who, performs any of the Work by employment of journeymen or apprentices in any Apprenticeable Craft or Trade and who is not contributing to a fund or funds to administer and conduct the apprenticeship program in any such craft or trade in the area of the site of the Work, to which fund or funds other contractors in the area of the site of the Work are contributing, shall contribute to the fund or funds in each craft or trade in which it employs journeymen or apprentices in the same amount or upon the same basis and in the same manner as the other contractors do, but where the trust fund administrators are unable to accept such funds, contractors not signatory to the trust agreement shall pay a like amount to the California Apprenticeship Council. The Division of Labor Standards Enforcement is authorized to enforce the payment of such contributions to such fund(s) as set forth in California Labor Code §227. Such contributions shall not result in an increase in the Contract Price.

4.18.6.6 Contractor's Compliance. The responsibility of compliance with this Article for all Apprenticeable Trades or Crafts is solely and exclusively that of the Contractor. All decisions of the Joint Apprenticeship Committee(s) under this Article are subject to the provisions of California Labor Code §3081. In the event the Contractor willfully fails to comply with the provisions of this Article and California Labor Code §1777.5, pursuant to California Labor Code §1777.7, the Contractor shall: (i) be denied

the right to bid on any public works contract for a period of one (1) year from the date the determination of non-compliance is made by the Administrator of Apprenticeship; and (ii) forfeit, as a civil penalty, Fifty Dollars (\$50.00) for each calendar day of noncompliance. Notwithstanding the provisions of California Labor Code §1727, upon receipt of such determination, the District shall withhold such amount from the Contract Price then due or to become due. Any such determination shall be issued after a full investigation, a fair and impartial hearing, and reasonable notice thereof in accordance with reasonable rules and procedures prescribed by the California Apprenticeship Council. Any funds withheld by the District pursuant to this Article shall be deposited in the General Fund or other similar fund of the District. The interpretation and enforcement of California Labor Code §§1777.5 and 1777.7 shall be in accordance with the rules and procedures of the California Apprenticeship Council.

**4.18.7 Employment of Independent Contractors.** Pursuant to California Labor Code §1021.5, Contractor shall not willingly and knowingly enter into any agreement with any person, as an independent contractor, to provide any services in connection with the Work where the services provided or to be provided requires that such person hold a valid contractors' license issued pursuant to California Business and Professions Code §§7000 et seq. and such person does not meet the burden of proof of his/her independent contractor status pursuant to California Labor Code §2750.5. In the event that Contractor shall employ any person in violation of the foregoing, Contractor shall be subject to the civil penalties under California Labor Code §1021.5 and any other penalty provided by law. In addition to the penalties provided under California Labor Code §1021.5, Contractor's violation of this Article 4.18.7 or the provisions of California Labor Code §1021.5 shall be deemed an event of Contractor's default under Article 15.1 of these General Conditions. The Contractor shall require Subcontractors performing or providing any portion of the Work to adhere to and comply with the foregoing provisions.

**4.19 Assignment of Antitrust Claims.** Pursuant to California Government Code §4551, the Contractor and its Subcontractor(s), of any tier, hereby offers and agrees to assign to the District all rights, title and interest in and to all causes of action they may have under Section 4 of the Clayton Act, (15 U.S.C. §15) or under the Cartwright Act (California Business and Professions Code §§16700 et seq.), arising from purchases of goods, services or materials hereunder or any Subcontract. This assignment shall be made and become effective at the time the District tenders Final Payment to the Contractor, without further acknowledgment by the parties. If the District receives, either through judgment or settlement, a monetary recovery in connection with a cause of action assigned under California Government Code §§4550 et seq., the assignor thereof shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the District any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the District as part of the Contract Price, less the expenses incurred by the District in obtaining that portion of the recovery. Upon demand in writing by the assignor, the District shall, within one year from such demand, reassign the cause of action assigned pursuant to this Article if the assignor has been or may have been injured by the violation of law for which the cause of action arose: and (i) the District has not been injured thereby; or (ii) the District declines to file a court action for the cause of action.

**4.20 Limitations Upon Site Activities.** Except in the circumstances of an emergency, no construction activities shall be permitted at or about the Site except during the District's hours and days set forth in the Special Conditions. Work performed outside of the hours and days noted in the Special Conditions will not result in adjustment of the Contract Time or the Contract Price; unless Work outside of the hours and days noted in the Special Conditions is expressly authorized by the District.

4.21 Progress Reports: DSA Verified Reports.

4.21.1 DSA Verified Reports: Contractor Actions. A material obligation of the Contractor is the completion by the Contractor of all actions and activities which by the Contract Documents or by the Laws are the responsibility of the Contractor relating to DSA reporting requirements pursuant to Education Code §81141 (including amendments thereto) and issuance of DSA's Certificate of Compliance for the Project pursuant to Education Code §81147 (including amendments thereto) upon completion of the Work. The foregoing shall include without limitation, the timely preparation, completion and filing of Verified Reports during Project construction and the filing of the Final Verified Report with DSA within ten (10) days of the determination of Final Completion. Concurrently with submittal to DSA, the Contractor shall provide the District, District's Inspector, Architect and Construction Manager with copies of all Verified Reports completed by the Contractor and submitted to DSA.

4.21.2 District Withholdings From Final Payment. The completion and filing of the Final Verified Report with DSA by the Contractor is an express condition precedent to the District's disbursement of the Final Payment. If the Contractor fails to prepare and file the Final Verified Report with DSA within ten (10) days of the determination of Final Completion, the District may in the sole and exclusive discretion of the District retain and withhold an amount not to exceed ten percent (10%) of the Final Payment from disbursement to the Contractor as damages for the failure of the Contractor to have timely and completely discharged its obligations hereunder. The Contractor acknowledges and agrees that the foregoing withholdings by the District is a reasonable estimate of the damages and other losses the District will sustain due to the failure of the Contractor to have timely and fully discharged its obligations hereunder.

4.21.3 Progress Reports. Progress Reports shall be completed by the Contractor for each day of construction activities at the Site and submitted to the District or Project Manager not later than 9:00 A.M. of the ensuing business day.

**ARTICLE 5: SUBCONTRACTORS**

5.1 Subcontracts. Any Work performed for the Contractor by a Subcontractor shall be pursuant to a written agreement between the Contractor and such Subcontractor which specifically incorporates by reference the Contract Documents and which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents, including without limitation, the policies of insurance required under Article 6 of these General Conditions and obligates the Subcontractor to assume toward the Contractor all the obligations and responsibilities of the Contractor which by the Contract Documents the Contractor assumes toward the District and the Architect. The foregoing notwithstanding, no contractual relationship shall exist, or be deemed to exist, between any Subcontractor and the District, unless the Contract is terminated and District, in writing, elects to assume the Subcontract. Each Subcontract for a portion of the Work shall provide that such Subcontract may be assigned to the District if the Contract is terminated by the District pursuant to Article 15 hereof, subject to the prior rights of the Surety if the District terminates the Contract for the Contractor's default. The Contractor shall provide to the District copies of all executed Subcontracts and Purchase Orders to which Contractor is a party within thirty (30) days after Contractor's execution of the Agreement. During performance of the Work, the Contractor shall, from time to time, as and when requested by the District, the Architect or the Project Manager provide the District with copies of any and all Subcontracts or Purchase Orders relating to the Work and all modifications thereto. The Contractor's failure or refusal, for any reason, to provide copies of such Subcontracts or Purchase Orders in accordance with the two preceding sentences is Contractor's default of a material term of the Contract Documents.

5.2 Subcontractor DIR Contractor Registration.

5.2.1 No Subcontractor Performance of Work Without DIR Registration. No portion of the Work is permitted to be performed by a Subcontractor unless the Subcontractor is a DIR

Registered contractor. The foregoing DIR contractor registration requirement is applicable for all Subcontractors, including without limitation, lower tier Subcontractors and Subcontractors who are not identified in the Contractor's Subcontractors List.

**5.2.2 Contractor Obligation to Verify Subcontractor DIR Registration Status.** An affirmative and on-going obligation of the Contractor under the Contract Documents is the Contractor's verification that all Subcontractors are at all times during performance of the Work in full and strict compliance with DIR contractor registration requirements. The Contractor shall not permit or allow any Subcontractor to perform any Work without the Contractor's verification that the Subcontractor is in full and strict compliance with DIR contractor registration requirements.

**5.2.3 Contractor Obligation to Request Substitution of Listed Subcontractor Who Is Not DIR Registered Contractor.** If any Subcontractor identified in the Contractor's Subcontractors List submitted with the Contractor's proposal for the Work is not a DIR registered contractor at the time of opening of proposals for the Work or if a Subcontractor's DIR contractor registration lapses prior to or during a Subcontractor's performance of Work, the Contractor shall request the District's consent to substitute the Subcontractor who is not a DIR registered contractor pursuant to Labor Code §1771.1(c)(3) and/or Labor Code §1771.1(d).

**5.3 Substitution of Listed Subcontractor.**

**5.3.1 Substitution Process.** Request of the Contractor to substitute a listed Subcontractor will be considered only if in strict conformity with this Article 5.2 and California Public Contract Code §4107. All costs incurred by the District, including without limitation, costs of the District's Inspector, the Architect, the Project Manager or attorneys' fees in the review and evaluation of a request to substitute a listed Subcontractor shall be borne by the Contractor; such costs may be deducted by the District from the Contract Price then or thereafter due the Contractor.

**5.3.2 Responsibilities of Contractor Upon Substitution of Subcontractor.** The District's consent to Contractor's substitution of a listed Subcontractor shall not relieve Contractor from its obligation to complete the Work within the Contract Time and for the Contract Price. The substitution of a listed Subcontractor shall not, under any circumstance, result in, or give rise to any to any increase of the Contract Price or the Contract Time on account of such substitution. If the District consents to substitution of a listed Subcontractor, the Architect shall determine the extent to which, if any, revised or additional Submittals will be required of the newly substituted Subcontractor ("Substituted Subcontractor"). If the Architect determines that revised or additional Submittals are required of a Substituted Subcontractor, the Architect shall promptly notify the Contractor, in writing, of such requirement. In such event, revised or additional Submittals shall be submitted to Architect not later than thirty (30) days following the date of the Architect's written notice to the Contractor pursuant to the foregoing sentence; provided that if in the reasonable and good faith judgment of the Architect, the progress of the Work or completion of the Work requires submission of additional or revised Submittals by a Substituted Subcontractor in less than thirty (30) days, the Architect shall so state in its written notice to the Contractor. If the revised or additional Submittals are not submitted by Contractor within thirty (30) days, or such earlier time as determined by the Architect pursuant to the preceding sentence, following the Architect's written notice of the requirement for revised or additional Submittals, Contractor shall be subject to the per diem assessments for late Submittals as set forth in Article 4.7.2.1 of these General Conditions. Any revised or additional Submittals required pursuant to this Article 5.3.2 shall conform to the requirements of Article 4.7 of these General Conditions. Contractor shall reimburse the District for all fees and costs, including without limitation fees of the Architect, the District's administrative costs and DSA fees, incurred or associated with the processing, review and evaluation of any revised or additional Submittals required pursuant to this Article 5.3.2; the District may deduct such fees and costs from any portion of the Contract Price then or thereafter due the Contractor. In the event that additional or revised Submittals are required pursuant to this Article 5.3.2, such requirement shall not result in an increase to the Contract Time or the Contract Price.

- 5.4 Subcontractors' Work. Whenever the Work of a Subcontractor is dependent upon the Work of the Contractor or another Subcontractor, the Contractor shall require the Subcontractor to: (i) coordinate its Work with the dependent Work; (ii) provide necessary dependent data and requirements; (iii) supply and/or install items to build into the dependent Work of others; (iv) make appropriate provisions for dependent Work of others; (v) carefully examine and understand the portions of the Contract Documents (including Drawings, Specifications and Field Clarifications) and Submittals relating to the dependent Work; and (vi) examine the existing dependent Work and verify that the dependent Work is in proper condition for the Subcontractor's Work. If the dependent Work is not in a proper condition, the Subcontractor shall notify the Contractor in writing and not proceed with the Subcontractor's Work until the dependent Work has been corrected or replaced and is in a proper condition for the Subcontractor's Work.

## **ARTICLE 6: INSURANCE; INDEMNITY; BONDS**

- 6.1 Workers' Compensation Insurance; Employer's Liability Insurance. The Contractor shall purchase and maintain Workers' Compensation Insurance as will protect the Contractor from claims under workers' or workmen's compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. Contractor shall purchase and maintain Employer's Liability Insurance covering bodily injury (including death) by accident or disease to any employee which arises out of the employee's employment by Contractor. The Employer's Liability Insurance required of Contractor hereunder may be obtained by Contractor as a separate policy of insurance or as an additional coverage under the Workers' Compensation Insurance required to be obtained and maintained by Contractor hereunder. The limits of liability for the Employer's Liability Insurance required hereunder shall be as set forth in the Special Conditions.
- 6.2 Commercial General Liability. The Contractor shall purchase and maintain Commercial General Liability, including coverage for the types of claims set forth below which may arise out of or result from Contractor's performance of the Work: (i) claims for damages because of bodily injury, sickness or disease or death of any person other than the Contractor's employees; (ii) claims for damages insured by usual personal injury liability coverage; (iii) claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom; (iv) claims for damages because of bodily injury, death of a person or property damages arising out of ownership, maintenance or use of a motor vehicle; (v) contractual liability insurance applicable to the Contractor's obligations under the Contract Documents; (vi) Completed Operations; and (vii) Contractor's Pollution Liability.
- 6.3 Builder's Risk "All-Risk" Insurance. The Contractor, during the progress of the Work and until Final Acceptance of all Work by the District, shall maintain Builder's Risk "All-Risk" Completed Value Insurance Coverage on all insurable Work included under the Contract Documents which coverage is to provide extended coverage and insurance against vandalism and malicious mischief, perils of fire, sprinkler leakage, civil authority, sonic boom, collapse and flood upon the entire Work which is the subject of the Contract Documents, and including completed Work and Work in progress to the full insurable value thereof. Contractor's Builders Risk Insurance shall include coverage and insurance against the perils of earthquake if so indicated in the Special Conditions. Such insurance shall include the District as an additional named insured, and any other person with an insurable interest designated by the District as an additional named insured. The risk of damage to the Work due to the perils covered by the Builder's Risk "All Risk" Insurance, as well as any other hazard which might result in damage to the Work, is that of the Contractor and the Surety, and no claims for such loss or damage shall be recognized by the District, nor will such loss or damage excuse the complete and satisfactory performance of the Contract by the Contractor.

6.4 Insurance Requirements.

6.4.1 Coverage Limits. Minimum coverage limits for each policy of insurance required of the Contractor hereunder are set forth in the Special Conditions.

6.4.2 Deductibles. The Contractor is solely and exclusively responsible for the payment of deductibles, if any, under any policy of insurance required of the Contractor hereunder, without adjustment to the Contract Price on account thereof.

6.4.3 No Modification or Cancellation Without Prior Notice to District. Coverages afforded under policies of insurance required of the Contractor shall include provisions to the effect that coverage thereunder will not be canceled or allowed to expire until at least thirty (30) days prior written notice has been given to the District. Should any policy of insurance be canceled before Final Acceptance of the Work by the District and the Contractor fails to immediately procure replacement insurance as required, the District reserves the right to procure such insurance and to deduct the premium cost thereof and other costs incurred by the District in connection therewith from any sum then or thereafter due the Contractor under the Contract Documents.

6.4.4 District Additional Insured. The District shall be an additional insured under the Contractor's Commercial Liability and Builders Risk policies of insurance. The additional Insured acknowledgement shall be submitted as a separate declaration from the Contractor's insurance provider (ACCORD form modifications are not acceptable).

6.4.5 Certificates of Insurance. Prior to commencing the Work, Contractor shall deliver to the District Certificates of Insurance evidencing the insurance coverages required by the Contract Documents. Failure or refusal of the Contractor to so deliver Certificates of Insurance may be deemed by the District to be a default of a material obligation of the Contractor under the Contract Documents, and thereupon the District may proceed to exercise any right or remedy provided for under the Contract Documents or at law. The Contractor shall, from time to time, furnish the District, when requested, with satisfactory proof of coverage of each type of insurance required by the Contract Documents; failure of the Contractor to comply with the District's request may be deemed by the District to be a default of a material obligation of the Contractor under the Contract Documents.

6.5 Subcontractors' Insurance. Contractor shall require that every Subcontractor, to obtain and maintain the policies of insurance set forth in Articles 6.1, 6.2 and 6.4 of these General Conditions; the coverages and limits of liability of such policies of insurance to be obtained and maintained by Subcontractors shall be as set forth in the Special Conditions. The policies of insurance to be obtained and maintained by Subcontractors hereunder are in addition to, and not in lieu of, Contractor obtaining and maintaining such policies of insurance. Each of the policies of insurance obtained and maintained by a Subcontractor hereunder shall conform with the requirements of this Article 6. Upon request of the District, Contractor shall promptly deliver to the District Certificates of Insurance evidencing that the Subcontractors have obtained and maintained policies of insurance in conformity with the requirements of this Article 6. Failure or refusal of the Contractor to provide the District with Subcontractors' Certificates of Insurance evidencing the insurance coverages required hereunder is a material default of Contractor hereunder.

6.6 Maintenance of Insurance. Any insurance bearing on the adequacy of performance of Work shall be maintained after the District's Final Acceptance of all of the Work for the full one year correction of Work period and any longer specific guarantee or warranty periods set forth in the Contract Documents. Should such insurance be canceled before the end of any such periods and the Contractor fails to immediately procure replacement insurance as specified, the District reserves the right to procure such insurance and to charge the cost thereof to the Contractor. Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's responsibility for payment of damages resulting from its operations or performance of the Work under the Contract Documents, including without limitation the Contractor's obligation to pay Liquidated Damages. In no instance will the District's exercise of its option to occupy and use completed

portions of the Work relieve the Contractor of its obligation to maintain insurance required under this Article until the date of Final Acceptance of the Work by the District, or such time thereafter as required by the Contract Documents. The insurer providing any insurance coverage required hereunder shall be to the reasonable satisfaction of the District.

- 6.7 Contractor's Insurance Primary. All insurance and the coverages thereunder required to be obtained and maintained by Contractor hereunder, if overlapping with any policy of insurance maintained by the District, shall be deemed to be primary and non-contributing with any policy maintained by the District and any policy or coverage thereunder maintained by District shall be deemed excess insurance. To the extent that the District maintains a policy of insurance covering property damage arising out of the perils of fire or other casualty covered by the Contractor's Builder's Risk Insurance or the Comprehensive General Liability Insurance of the Contractor or any Subcontractor, the District, Contractor and all Subcontractors waive rights of subrogation against the others. The costs for obtaining and maintaining the insurance coverages required herein shall be included in the Contract Price.
- 6.8 Indemnity. Unless arising solely out of the active negligence, gross negligence or willful misconduct the District or the Architect, the Contractor shall indemnify, defend and hold harmless the Indemnified Parties who are: (i) the District and its Board of Trustees, officers, employees, agents and representatives (including the District's Inspector); (ii) the Architect its respective agents and employees; and (iii) if one is designated by the District for the Work, the Project Manager and its agents and employees. The Contractor's obligations hereunder includes indemnity, defense and hold harmless of the Indemnified Parties from and against any and all damages, losses, claims, demands or liabilities whether for damages, losses or other relief, including, without limitation attorneys' fees and costs which arise, in whole or in part, from the Work, the Contract Documents or the negligent, grossly negligent or willful acts, omissions or other conduct of the Contractor, any Subcontractor or any person or entity engaged by them for the Work. The Contractor's obligations under the foregoing include without limitation: (i) injuries to or death of persons; (ii) damage to property; or (iii) theft or loss of property; (iv) Stop Payment Notice claims asserted by any person or entity in connection with the Work; and (v) other losses, liabilities, damages or costs resulting from, in whole or part, any acts, omissions or other conduct of Contractor, any of Contractor's Subcontractors, of any tier, or any other person or entity employed directly or indirectly by Contractor in connection with the Work and their respective agents, officers or employees. If any action or proceeding, whether judicial, administrative, arbitration or otherwise, shall be commenced on account of any claim, demand or liability subject to Contractor's obligations hereunder, and such action or proceeding names any of the Indemnified Parties as a party thereto, the Contractor shall, at its sole cost and expense, defend the named Indemnified Parties in such action or proceeding with counsel reasonably satisfactory to the named Indemnified Parties. In the event that there shall be any judgment, award, ruling, settlement, or other relief arising out of any such action or proceeding to which any of the Indemnified Parties are bound by, Contractor shall pay, satisfy or otherwise discharge any such judgment, award, ruling, settlement or relief; Contractor shall indemnify and hold harmless the Indemnified Parties from any and all liability or responsibility arising out of any such judgment, award, ruling, settlement or relief. The Contractor's obligations hereunder are binding upon Contractor's Performance Bond Surety and these obligations shall survive notwithstanding Contractor's completion of the Work or the termination of the Contract.
- 6.9 Payment Bond; Performance Bond. Prior to commencement of the Work, the Contractor shall furnish a Performance Bond as security for Contractor's faithful performance of the Contract and a Labor and Material Payment Bond as security for payment of persons or entities performing work, labor or furnishing materials in connection with Contractor's performance of the Work under the Contract Documents. Unless otherwise stated in the Special Conditions, the amounts of the Performance Bond and the Payment Bond required hereunder shall be one hundred percent (100%) of the Contract Price. Said Labor and Material Payment Bond and Performance Bond shall be in the form



and content set forth in the Contract Documents. The failure or refusal of the Contractor to furnish either the Performance Bond or the Labor and Material Payment Bond in strict conformity with this Article 6.9 may be deemed by the District as a default by the Contractor of a material obligation hereunder. The Surety on any bond required under the Contract Documents shall be an Admitted Surety Insurer as that term is defined in California Code of Civil Procedure §995.120.

## **ARTICLE 7: CONTRACT TIME**

7.1 Completion of the Work Within Contract Time. Unless otherwise expressly provided in the Contract Documents, the Contract Time is the period of time, including authorized adjustments thereto, allotted in the Contract Documents for achieving Completion of the Work. The date for commencement of the Work is the date established by the Notice to Proceed issued by the District pursuant to the Agreement, which shall not be postponed by the failure to act of the Contractor or of persons or entities for whom the Contractor is responsible. The date of Completion is the date certified by the Architect and the District's Inspector as such in accordance with the Contract Documents.

7.2 Progress and Completion of the Work.

7.1.1 Time of Essence. Time limits stated in the Contract Documents are of the essence. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing and achieving Completion of the Work. The Contractor shall employ and supply a sufficient force of workers, material and equipment, and prosecute the Work with diligence so as to maintain progress, to prevent Work stoppage and to achieve Completion of the Work within the Contract Time.

7.1.2 One Hundred Percent Completion. Completion is that stage in the progress of the Work when the Work or any designated portion thereof (whether described as milestones, phases, segments or other similar terms) is complete in accordance with the Contract Documents so the District can occupy or use the Work or designated portion thereof for its intended purpose. Completion shall be determined by the Architect, Project Manager, if any, and the District's Inspector upon request by the Contractor in accordance with the Contract Documents. The good faith and reasonable determination of Completion by the District's Inspector, Project Manager, if any and the Architect shall be controlling and final.

7.1.3 Correction or Completion of the Work After One Hundred Percent Completion.

7.1.3.1 Punchlist. Upon achieving Completion of the Work, the District, the District's Inspector, the Project Manager, if any, the Architect and the Contractor shall jointly inspect the Work and prepare a comprehensive list of items of the Work to be corrected or completed by the Contractor ("the Punchlist"). The exclusion of, or failure to include, any item on the Punchlist shall not alter or limit the obligation of the Contractor to complete or correct any portion of the Work in accordance with the Contract Documents.

7.1.3.2 Time for Completing Punchlist Items. In addition to establishing the Punchlist items pursuant to Article 7.2.3.1, the Project Manager, if any, Contractor and Architect shall, after the joint inspection, establish a reasonable time for Contractor's completion of all Punchlist items. If mutual agreement is not reached to establish the time for the Contractor's completion of Punchlist items, the Architect shall determine such time, and in such event, the time determined by the Architect shall be final and binding upon the District and Contractor so long as the Architect's determination is made in good faith. The Contractor shall promptly and diligently proceed to complete all Punchlist items within the time established. If the Contractor fails or refuses, for any reason, to complete all Punchlist items within the time established, Contractor shall be subject to assessment of Liquidated Damages in accordance with Article 7.4 hereof. The foregoing notwithstanding, if the Contractor fails or refuses to complete all Punchlist items, the District may in its sole and exclusive discretion and without further notice to Contractor, elect to cause the completion of all remaining Punchlist items provided, however that

such election by the District is in addition to and not in lieu of any other right or remedy of the District under the Contract Documents or at law. If the District elects to complete Punchlist items of the Work, pursuant to the foregoing, Contractor shall be responsible for all costs incurred by the District in connection herewith and the District may deduct such costs from the Contract Price then or thereafter due the Contractor, if these costs exceed the remaining Contract Price due to the Contractor, the Contractor and the Performance Bond Surety are jointly and severally liable to District for any such excess costs.

7.1.4 Final Completion. Final Completion is that stage of the Work when all Work has been completed in accordance with the Contract Documents, including without limitation, all Punchlist items noted upon One Hundred Percent Completion, and the Contract has been otherwise fully performed by the Contractor. Final Completion shall be determined by the Architect, Project Manager, if any and the District's Inspector upon request of the Contractor. The good faith and reasonable determination of Final Completion by the District's Inspector, Project Manager, if any, and the Architect shall be controlling and final.

7.1.5 Contractor Responsibility for Multiple Inspections. If the Contractor requests determination of Completion or Final Completion by the District's Inspector, Project Manager, if any, and the Architect and it is determined by the District's Inspector, Project Manager, if any, or the Architect that the Work does not then justify certification of Completion or Final Completion and re-inspection is required at a subsequent time to make such determination, the Contractor shall be responsible for all costs of such re-inspection, including without limitation, the fees of the Architect, Project Manager, if any, and the District's Inspector. The District may deduct such costs from the Contract Price then due or thereafter due to the Contractor.

7.1.6 Final Acceptance. Final Acceptance of the Work shall occur upon approval of the Work by the District's Board of Trustees; such approval shall be submitted for adoption at the next regularly scheduled meeting of the District's Board of Trustees after the determination of Final Completion. The commencement of any warranty or guarantee period under the Contract Documents is the date upon which the District's Board of Trustees approves of the Final Acceptance of the Work.

## 7.2 Construction Schedule.

7.2.1 Submittal of Preliminary Construction Schedule. Within five (5) days following execution of the Agreement, the Contractor shall prepare and submit to the District, the Project Manager, if any, and the Architect a Preliminary Construction Schedule indicating, in graphic form, the estimated rate of progress and sequence of all Work required under the Contract Documents. The purpose of the Preliminary Construction Schedule is to assure adequate planning and execution of the Work so that it is completed within the Contract Time and to permit evaluation of the progress of the Work. Unless otherwise provided in the Special Conditions, the Construction Schedules required under this Article 7 shall; (i) be prepared with a commercially available computer software program in a critical path format; (ii) indicate the date(s) for commencement and completion of various portions of the Work including without limitation, procurement, fabrication and delivery of major items, materials or equipment; (iii) indicate manpower and other resources required for completion of each Construction Schedule activity; (iv) indicate costs for completion of each Construction Schedule activity; (v) identify each Submittal required by the Contract Documents, the date for the Contractor's submission of each Submittal and the date for the return of the reviewed Submittal to the Contractor. The Contractor may submit a Preliminary Construction Schedule depicting completion of the Work in a duration shorter than the Contract Time; provided that such Preliminary Construction Schedule shall not be a basis for adjustment to the Contract Price in the event that completion of the Work shall occur after the time depicted therein, nor shall such Preliminary Construction Schedule be the basis for any extension of the Contract Time, the Contractor's entitlement to any extension of

the Contract Time shall be based upon the Contract Time and not on any shorter duration which may be depicted in the Contractor's Preliminary Construction Schedule. If the Construction Schedules required under this Article 7.3 incorporate therein any "float" time, such float shall be deemed to jointly belong to and owned by the District and the Contractor. As used herein, "float time" shall be deemed to refer to the time between earliest finish date and the latest finish date of each activity shown on the Construction Schedule.

**7.2.2 Review of Preliminary Construction Schedule.** The District, the Project Manager, if any, and the Architect shall review the Preliminary Construction Schedule submitted by the Contractor pursuant to Article 7.3.1 above for conformity with the requirements of the Contract Documents. Within fifteen (15) days of the date of receipt of the Preliminary Construction Schedule, the Preliminary Construction Schedule will be returned to the Contractor with comments to the form or content thereof. Review of the Preliminary Construction Schedule and any comments thereto by the District, the Project Manager and/or the Architect shall not be deemed to be the assumption of construction means, methods or sequences by the District, the Project Manager or the Architect, all of which remain the Contractor's obligations under the Contract Documents.

**7.2.3 Preparation and Submittal of Contract Construction Schedule.** Within ten (10) days of the District's return of the Preliminary Construction Schedule to the Contractor pursuant to Article 7.3.2 above, the Contractor shall prepare and submit to the Architect and the Project Manager, if any, the Construction Schedule which incorporates therein the comments to the Preliminary Construction Schedule. Upon the Contractor's submittal of such Construction Schedule, the District, the Project Manager and the Architect shall review the same for purposes of determining conformity with the requirements of the Contract Documents. Within fifteen (15) days of the receipt of the Construction Schedule, the District will approve such Construction Schedule or will return the same to the Contractor with comments to the form or content. In the event there are comments to the form or content thereof, the Contractor, shall within seven (7) days of receipt of such comments, revise and resubmit the Construction Schedule incorporating therein such comments. Upon the District's approval of the form and content of a Construction Schedule, the same shall be deemed the "Approved Construction Schedule." The District's approval of a Construction Schedule shall be for the sole and limited purpose of determining conformity with the requirements of the Contract Documents. By the Approved Construction Schedule, the District shall not be deemed to have exercised control over, or approval of, construction means, methods or sequences, all of which remain the responsibility and obligation of the Contractor in accordance with the terms of the Contract Documents. Further, the Approved Construction Schedule shall not operate to limit or restrict any of Contractor's obligations under the Contract Documents nor relieve the Contractor from the full, faithful and timely performance of such obligations in accordance with the terms of the Contract Documents. The activities, commencement and completion dates of activities, and the sequencing of activities depicted on the Approved Construction Schedule shall not be modified or revised by the Contractor without the prior consent, or direction, of the District and the Architect. Updates to the Approved Construction Schedule pursuant to Article 7.3.5 below shall not be deemed revisions to the Approved Construction Schedule. If the Approved Construction Schedule depicts completion of the Work in a duration shorter than the Contract Time, the same shall not be a basis for an adjustment of the Contract Time or the Contract Price in the event that actual completion of the Work shall occur after such the time depicted in such Approved Construction Schedule. In such event, the Contract Price shall not be subject to adjustment on account of any additional costs incurred by the Contractor to complete the Work prior to the Contract Time, as adjusted in accordance with the terms of the Contract Documents. Any adjustment of the Contract Time or the Contract Price shall be based upon the Contract Time set forth in the Contract Documents and not any shorter duration which may be depicted in the Approved Construction Schedule.

**7.2.4 Revisions to Approved Construction Schedule.** In the event that the progress of the

Work or the sequencing of the activities of the Work shall materially differ from that indicated in the Approved Construction Schedule, as determined by the District in its reasonable discretion and judgment, the District may direct the Contractor to revise the Approved Construction Schedule; within fifteen (15) days of the District's direction, the Contractor shall prepare and submit to the Architect and the Project Manager a revised Approved Construction Schedule, for review and approval by the District. The Contractor may request consent of the District to revise the Approved Construction Schedule. Any such request shall be considered by the District only if in writing setting forth the Contractor's proposed revision(s) to the Approved Construction Schedule and the reason(s) therefor. The District may consent to, or deny, any such request of the Contractor to revise the Approved Construction Schedule in its reasonable discretion.

**7.2.5 Updates to Approved Construction Schedule.** The Contractor shall monitor and update the Approved Construction Schedule on a monthly basis, or more frequently as required by the conditions or progress of the Work, or as may be requested by the District. The Contractor shall provide the District, the Project Manager and the Architect with updated Approved Construction Schedules indicating progress achieved and activities commenced or completed within the prior updated Approved Construction Schedule. Updates to the Approved Construction Schedule shall not include any revisions to the activities, commencement and completion dates of activities or the sequencing of activities depicted on the Approved Construction Schedule. Any such revisions to the Approved Construction Schedule shall result in the District's rejection of such update and Contractor shall, within seven (7) days of the District's rejection of such update, submit to the Architect and the Project Manager an Updated Approved Construction Schedule which does not incorporate any such revisions. If requested by the District, the Contractor shall also submit, with its updates to the Approved Construction Schedule a narrative statement including a description of current and anticipated problem areas of the Work, delaying factors and their impact, and an explanation of corrective action taken or proposed by the Contractor. If the progress of the Work is behind the Approved Construction Schedule, the Contractor shall indicate what measures will be taken to place the Work back on schedule. The District may, from time to time, and in the District's sole and exclusive discretion, transmit to the Contractor's Performance Bond Surety the Approved Construction Schedule, any updates thereof and the narrative statement described hereinabove. The District's election to transmit, or not to transmit such information, to the Contractor's Performance Bond Surety shall not limit the Contractor's obligations under the Contract Documents.

**7.2.6 Contractor Responsibility for Construction Schedule.** The Contractor shall be responsible for the preparation, submittal and maintenance of the Construction Schedules required by the Contract Documents, and any failure of the Contractor to do so may be deemed by the District as the Contractor's default in the performance of a material obligation under Contract Documents. Any and all costs or expenses required or incurred to prepare, submit, maintain, and update the Construction Schedules shall be solely that of the Contractor and no such cost or expense shall be charged to the District. The Contract Price shall not be subject to adjustment on account of costs, fees or expenses incurred or associated with the Contractor's preparation, submittal, and maintenance or updating of the Construction Schedules.

**7.3 Adjustment of Contract Time.** If Completion is delayed, adjustment, if any, to the Contract Time on account of such delay shall be in accordance with this Article 7.4.

**7.3.1 Excusable Delays.** If Completion of the Work is delayed by Excusable Delays, the Contract Time shall be subject to adjustment for such reasonable period of time as determined by the Architect; Excusable Delays shall not result in any increase in the Contract Price. Excusable Delays refer to unforeseeable and unavoidable casualties or other unforeseen causes beyond the control, and without fault or neglect, of the Contractor, any Subcontractor, Material Supplier or other person directly or indirectly engaged by the Contractor in performance of any portion of the Work. Excusable Delays include unanticipated and unavoidable labor disputes, unusual and unanticipated delays in transportation of equipment, materials or

Construction Equipment reasonably necessary for completion and proper execution of the Work, unanticipated unusually severe weather conditions or DSA directive to stop the Work. Neither the financial resources of the Contractor or any person or entity directly or indirectly engaged by the Contractor in performance of any portion of the Work shall be deemed conditions beyond the control of the Contractor. If an event of Excusable Delay occurs, the Contract Time shall be subject to adjustment hereunder only if the Contractor establishes: (i) full compliance with all applicable provisions of the Contract Documents relative to the method, manner and time for Contractor's notice and request for adjustment of the Contract Time; (ii) that the event(s) forming the basis for Contractor's request to adjust the Contract Time are outside the reasonable control and without any fault or neglect of the Contractor or any person or entity directly or indirectly engaged by Contractor in performance of any portion of the Work; and (iii) that the event(s) forming the basis for Contractor's request to adjust the Contract Time directly and adversely impacted the progress of the Work as indicated in the Approved Construction Schedule or the most recent updated Approved Construction Schedule relative to the date(s) of the claimed event(s) of Excusable Delay. The foregoing provisions notwithstanding, if the Special Conditions set forth a number of "Rain Days" to be anticipated during performance of the Work, the Contract Time shall not be adjusted for rain related unusually severe weather conditions until and unless the actual number of Rain Days during performance of the Work exceeds those noted in the Special Conditions and such additional Rain Days directly and adversely impact the critical path progress of the Work as depicted in the Approved Construction Schedule or the most recent updated Approved Construction Schedule relative to the date(s) of such additional Rain Days.

7.3.2 Compensable Delays. If Completion of the Work is delayed and such delay is caused by the acts or omissions of the District, the Architect, or separate contractor employed by the District (collectively "Compensable Delays"), upon Contractor's request and notice, in strict conformity with Articles 7 and 9 of these General Conditions, the Contract Time will be adjusted by Change Order for such reasonable period of time as determined by the Architect and the District. In accordance with California Public Contract Code §7102, if the Contractor's progress is delayed by any of the events described in the preceding sentence, Contractor shall not be precluded from the recovery of damages directly and proximately resulting therefrom, provided that the District is liable for the delay, the delay is unreasonable under the circumstances involved and the delay was not within the reasonable contemplation of the District and the Contractor at the time of execution of the Agreement. In such event, Contractor's damages, if any, shall be limited to direct, actual and unavoidable additional costs of labor, materials or Construction Equipment directly resulting from such delay, and shall exclude indirect or other consequential damages, including without limitation, home office expenses, bond capacity impairment or loss of prospective economic advantage. Except as expressly provided for herein, Contractor shall not have any other claim, demand or right to adjustment of the Contract Price arising out of delay, interruption, hindrance or disruption to the progress of the Work. Adjustments to the Contract Price and the Contract Time, if any, on account of Changes to the Work or Suspension of the Work shall be governed by the applicable provisions of the Contract Documents, including without limitation, Articles 9 and 14 of these General Conditions.

7.3.3 Unexcusable Delays. Unexcusable Delays refer to any delay to the progress of the Work caused by events or factors other than those specifically identified in Articles 7.4.1 and 7.4.2 above. Neither the Contract Price nor the Contract Time shall be adjusted on account of Unexcusable Delays.

7.3.4 Adjustment of Contract Time.

7.3.4.1 Procedure for Adjustment of Contract Time. The Contract Time shall be subject to adjustment only in strict conformity with applicable provisions of the Contract Documents. Failure of Contractor to request adjustment(s) of the Contract Time in strict

conformity with applicable provisions of the Contract Documents shall be deemed Contractor's waiver of the same.

7.3.4.2 Limitations Upon Adjustment of Contract Time on Account of Delays. Any adjustment of the Contract Time on account of an Excusable Delay or a Compensable Delay shall be limited as set forth herein. If an Excusable Delay and a Compensable Delay occur concurrently, the maximum extension of the Contract Time shall be the number of days from the commencement of the first delay to the cessation of the delay which ends last. If an Unexcusable Delay occurs concurrently with either an Excusable Delay or a Compensable Delay, the maximum extension of the Contract Time shall be the number of days, if any, which the Excusable Delay or the Compensable Delay exceeds the period of time of the Unexcusable Delay. In addition to the foregoing limitations upon extension of the Contract Time, no adjustment of the Contract Time shall be made on account of any Excusable Delays or Compensable Delays unless such delay(s) actually and directly impact Work or Work activities on the critical path of the then current and updated Approved Construction Schedule as of the date on which such delay first occurs. The District shall not be deemed in breach of, or otherwise in default of any obligation hereunder, if the District shall deny any request by the Contractor for an adjustment of the Contract Time for any delay which does not actually and directly impact Work or Work activities on the critical path of the then current and updated Approved Construction Schedule.

- 7.4 Liquidated Damages. Should the Contractor neglect, fail or refuse to: (i) submit Submittals in accordance with the Approved Construction Schedule; (ii) achieve Completion of the Work or designated portions thereof within the Contract Time, (subject to adjustments authorized under the Contract Documents); (iii) or to complete Punchlist items within the time established pursuant to the Contract Documents, the Contractor agrees to pay to the District the amount of per diem Liquidated Damages set forth in the Special Conditions, not as a penalty but as Liquidated Damages, for every day beyond the Contract Time, as adjusted, until Submittals are submitted, Completion or completion of the Punchlist items are achieved. The Liquidated Damages amounts set forth in the Special Conditions are agreed upon by and between the Contractor and the District because of the difficulty of fixing the District's actual damages in the event of delayed submission of Submittals, Completion or completion of Punchlist items. The Contractor and the District specifically agree that said amounts are reasonable estimates of the District's damages in such event, and that such amounts do not constitute a penalty. Liquidated Damages may be deducted from the Contract Price then or thereafter due the Contractor. The Contractor and the Surety shall be liable to the District for any Liquidated Damages exceeding any amount of the Contract Price then held or retained by the District. In the event that the Contractor shall fail or refuse to complete Punchlist items and the District elects to exercise its right to cause completion or correction of such items pursuant to Article 7.2.3.2 hereof, the District's assessment of Liquidated Damages pursuant to the foregoing shall be in addition, and not in lieu of, the District's right to charge Contractor with the cost of completing or correcting such items of the Work, as provided for under Article 7.2.3.2. The Contractor and the District acknowledge and agree that the provisions of this Article 7.5 are reasonable under the circumstances existing at the time of the Contractor's execution of the Agreement.

## **ARTICLE 8: CONTRACT PRICE**

- 8.1 Contract Price. The Contract Price is the amount stated in the Agreement and subject to adjustments thereto in accordance with the Contract Documents, is the total amount payable by the District to the Contractor for completion of the Work and other obligations of the Contractor under the Contract Documents. The District's payment of the Contract Price to the Contractor shall be in accordance with the Contract Documents.
- 8.2 Cost Breakdown. Within fifteen (15) days of the execution of the Agreement by Contractor,

Contractor shall furnish, in a form acceptable to the District, a detailed estimate and complete Cost Breakdown of the Contract Price. The Cost Breakdown is subject to the District's review and approval of the form and content thereof. If the District objects to any portion of the Cost Breakdown, within ten (10) days of the District's receipt of the Cost Breakdown, the District shall notify the Contractor, in writing of the District's objection(s) to the Cost Breakdown. Within five (5) days of the date of the District's written objection(s), Contractor shall submit a revised Cost Breakdown to the District for review and approval. The foregoing procedure for the preparation, review and approval of the Cost Breakdown shall continue until the District has approved of the entirety of the Cost Breakdown. Upon the District's approval of the Cost Breakdown, the Cost Breakdown shall not be thereafter modified or amended by the Contractor without the prior consent and approval of the District, which may be granted, conditioned or withheld in the sole discretion of the District. Notwithstanding any provision of the Contract Documents to the contrary, payment of the Contractor's overhead, supervision and general conditions costs and profit, as such items are reflected in the Cost Breakdown, shall be made by the District in equal installments with its disbursements of Progress Payments and the Final Payment with the amount of each such installment equal to the aggregate amount of such items as reflected in the Cost Breakdown divided by the number of months of the Contract Time.

### 8.3 Progress Payments.

8.3.1 Applications for Progress Payments. During the Contractor's performance of the Work, the Contractor shall submit monthly, on the first working day of each month, to the District, District's Inspector, Project Manager, if any, and the Architect, Applications for Progress Payments ("Payment Applications"), on forms approved by the District, setting forth an itemized estimate of Work completed in the preceding month for the purpose of the District's making of Progress Payments thereon. Values utilized in the Payment Applications shall be based upon the District approved Cost Breakdown pursuant to Article 8.2 above provided that such values are only for determining the basis of Progress Payments to Contractor, and shall not be considered as fixing a basis for adjustments, whether additive or deductive, to the Contract Price, or for determining the extent of Work actually completed.

8.3.2 Payment Application Review for Determination of Proper Payment Application. Pursuant to Public Contract Code §20104.50, upon receipt of a Payment Application, the District's Inspector, the Project Manager, if any, and the Architect will review the Payment Application as soon as practicable for the purpose of determining that the Payment Application is a proper Payment Application. A Payment Application is "proper" only if information required by the form of Payment Application is completely and accurately provided by the Contractor and the Payment Application is accompanied by: (i) a summary listing of the Subcontractors/Material Suppliers entitled to payment of any portion of the requested Progress Payment, along with the amount of payment each Subcontractor/Material Supplier is entitled to receive from the Contractor from the proceeds of the requested Progress Payment; (ii) completed and executed form of Verification of Certified Payroll Records Submittal To Labor Commissioner; (iii) duly completed and executed forms of Conditional Waiver and Release of Rights Upon Progress Payment in accordance with California Civil Code §8132 of the Contractor and Subcontractors/Material Suppliers covering the Progress Payment requested; (iv) duly completed and executed forms of Unconditional Waiver and Release of Rights upon Progress Payment in accordance with California Civil Code §8134 of the Contractor and Subcontractors/Material Suppliers covering the Progress Payment received by the Contractor under the immediately preceding Payment Application; (v) if applicable, a current union statement reflecting that the Contractor and Subcontractors are current in the payment of any supplemental fringe benefits required pursuant to any collective bargaining agreement to which the Contractor or any such Subcontractor is a party to or is otherwise bound by; and (vi) a certification by the Contractor that it has continuously maintained the Record Drawings reflecting the actual as-built conditions of the Work performed be for which the Progress Payment is

requested, it being understood that such certification is subject to verification by the District, Architect or the Project Manager prior to disbursement of the Progress Payment. Pursuant to Public Contract Code §20104.50, if a Payment Application determined by the District not to be a proper Payment Application it shall be returned by the District to the Contractor as soon as is practicable after receipt thereof, but in no event not more than seven (7) days after receipt. The District's return of any Payment Application pursuant to the preceding sentence shall be accompanied by a written document setting forth the reason(s) why the Payment Application is not proper.

**8.3.3 Verification of Work Completed.** Upon receipt of a Payment Application, the Architect, Project Manager, if any and the District's Inspector shall inspect and verify the Work to determine whether it has been performed in accordance with requirements of the Contract Documents and to determine the portion of the Payment Application which is properly due to the Contractor under the terms of the Contract Documents.

**8.3.4 District's Disbursement of Progress Payments.**

**8.3.4.1 Timely Disbursement of Progress Payments.** Pursuant to Public Contract Code §20104.50, within thirty (30) days after the District's receipt of a proper Payment Application, there shall be paid, by District, to Contractor a sum equal to ninety-five percent (95%) of the value of the Work indicated in the Payment Application which is actually in place as of the date of the Payment Application, as verified by the District's Inspector, Project Manager, if any, and the Architect and the pro rata portion of the Contractor's overhead, supervision and general conditions costs and profit for that month; provided, however, that the District's obligation to disburse any Progress Payment shall be subject to the District's receipt of all documents set forth in Article 8.3.2 above, each and all of which are conditions precedent to the District's obligation to disburse Progress Payments. If a Payment Application is determined not to be proper due to the failure or refusal of the Contractor to submit documents with the Payment Application, as required by Article 8.3.2, or incompleteness or inaccuracies in any such documents submitted or if it is reasonably determined that the Record Drawings have not been continuously maintained to reflect the actual as built conditions of the Work completed in the period for which the Progress Payment is requested, the thirty (30) day period hereunder for the District's timely disbursement of a Progress Payment is deemed to commence on the date that the District is actually in receipt of documents not submitted with the Payment Application, or corrections to documents with the Payment Application so as to render them complete and accurate, or the date upon which the Contractor accurately and fully completes preparation of the Record Drawings relating to the Work for which the Progress Payment is requested.

**8.3.4.2 Untimely Disbursement of Progress Payments.** Pursuant to Public Contract Code §20104.50, if the District fails to make a Progress Payment within thirty (30) days after receipt of an undisputed and proper Payment Application, the District shall pay the Contractor interest on the undisputed amount of such Payment Application at the legal rate of interest set forth in California Code of Civil Procedure §685.010(a). The foregoing notwithstanding, if the District determines that any Payment Application is not proper, pursuant to Article 8.3.2 above, and the District does not return such Payment Application within the seven (7) day period provided for in Article 8.3.2, the period of time for the District's disbursement of the Progress Payment on such Payment Application without incurring interest liability shall be reduced by the number of days exceeding the seven (7) day return period.

**8.3.4.3 District's Right to Disburse Payments by Joint Checks.** The District, may, in its sole discretion, issue joint checks to the Contractor and Subcontractors/Material Suppliers in satisfaction of its obligation to make Progress Payments or the Final Payment due hereunder.

**8.3.4.4 No Waiver of Defective or Non-Conforming Work.** The approval of any Payment Application or the disbursement of any Progress Payment to the Contractor shall not be



deemed nor constitute acceptance of defective or non-conforming Work.

8.3.5 Progress Payments for Changed Work. The Contractor's Payment Applications may include requests for payment on account of Changes in the Work which have been properly authorized and approved by the District's Inspector, the Architect and all other governmental agencies with jurisdiction over such Change in accordance with the terms of the Contract Documents and for which a Change Order has been issued. Except as provided for herein, no other payment shall be made by the District for Changes in the Work.

8.3.6 Materials or Equipment Not Incorporated Into the Work.

8.3.6.1 Limitations Upon Payment. Except as expressly provided for herein, no payments shall be made by the District on account of any item of the Work, including without limitation, materials or equipment which, at the time of the Contractor's submittal of a Payment Application, has/have not been incorporated into and made a part of the Work.

8.3.6.2 Materials or Equipment Delivered and Stored at the Site. The District may, in its sole and exclusive discretion, make payment for materials or equipment not yet incorporated into the Work if, at or prior to the time of the Contractor's submittal of a Payment Application requesting payment for such materials or equipment if all of the following are complied with: (i) the materials or equipment have been delivered to the Site; (ii) adequate arrangements, reasonably satisfactory to the District, have been made by the Contractor to store and protect such materials or equipment at the Site including without limitation, insurance reasonably satisfactory to the District, covering and protecting against the risk of loss, destruction, theft or other damage to such materials or equipment while in storage; and (iii) the establishment of procedures reasonably satisfactory to the District by which title to such materials or equipment will be vested in the District upon the District's payment therefor. The Contractor acknowledges that the discretion to make, or not to make, payment for materials or equipment delivered or stored at the Site pursuant to the preceding sentence shall be exercised exclusively by the District; the District's exercise of discretion not to make payment shall not be deemed the District's default hereunder. If the District elects to make payment for materials or equipment delivered and stored at the Site, the costs and expenses incurred to comply with the requirements of (ii) and (iii) of this Article 8.3.6.2 shall be borne solely and exclusively by the Contractor and no payment shall be made by the District on account of such costs and expenses.

8.3.6.3 Materials or Equipment Not Delivered or Stored at the Site. No payments shall be made by the District for materials or equipment to be incorporated into the Work where such materials or equipment have not been delivered or stored at the Site or which are in the process of fabrication or transportation to the Site.

8.3.7 Exclusions From Progress Payments. In addition to the District's right to withhold disbursement of any Progress Payment provided for in the Contract Documents, neither the Contractor's Payment Application shall include, nor shall the District be obligated to disburse any portion of the Contract Price for amounts which the Contractor does not intend to pay any Subcontractor or Material Supplier because of a dispute or any other reason.

8.3.8 Title to Work. The Contractor warrants that title to all Work covered by an Payment Application will pass to the District no later than the time of payment. The Contractor further warrants that upon submittal of a Payment Application, all Work for which a Progress Payment has been previously disbursed and the Contractor has received payment from the District therefor shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, Material Suppliers or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

8.3.9 Substitute Security for Retention. Pursuant to California Public Contract Code §22300, eligible and equivalent securities may be substituted for any monies withheld by the District to

ensure the Contractor's performance under the Contract Documents at the request and expense of the Contractor and in conformity with the provisions of California Public Contract Code §22300. The foregoing and the provisions of California Public Contract Code §22300 notwithstanding, failure of the Contractor to request the substitution of eligible and equivalent securities for monies to be withheld by the District within ten (10) days following the date of award of the Contract to Contractor shall be deemed a waiver of such right.

#### 8.4 Final Payment.

8.4.1 Application for Final Payment. When the Contractor has achieved Final Completion of the Work and has otherwise fully performed its obligations under the Contract Documents, the Contractor shall submit an Application for Final Payment on such form as approved by the District. Thereupon, the Architect, Project Manager, if any, and the District's Inspector will promptly make a final inspection of the Work and when the Architect, Project Manager, if any and the District's Inspector find the Work acceptable under the Contract Documents and that the Contract has been fully performed by the Contractor, the Architect, Project Manager, if any, and the District's Inspector will thereupon promptly approve the Application for Final Payment, stating that to the best their knowledge, information and belief, the Work has been completed in accordance with the terms of the Contract Documents. The Final Payment shall include the remaining balance of the Contract Price and any retention from Progress Payments previously withheld by the District.

8.4.2 Conditions Precedent to Disbursement of Final Payment. Neither Final Payment nor any remaining Contract Price shall become due until the Contractor submits to the District each and all of the following, the submittal of which are conditions precedent to the District's obligation to disburse the Final Payment: (i) an affidavit or certification by the Contractor that payrolls, bills for materials and other indebtedness incurred in connection with the Work for which the District or the District's property may or might be responsible or encumbered have been paid or otherwise satisfied; (ii) a certificate evidencing that insurance required by the Contract Documents to remain in force after the Contractor's receipt of Final Payment is currently in effect; (iii) a written statement that the Contractor knows of no One Hundred Percent reason that the insurance will not be renewable to cover any period following Final Payment as required by the Contract Documents; (iv) consent of the Surety on the Labor and Material Payment Bond and Performance Bond, to Final Payment if required; (v) duly completed and executed forms of Conditional or Unconditional Waivers and Releases of rights upon Final Payment of the Contractor, Subcontractors/Material Suppliers in accordance with California Civil Code §§8136 or 8138, with each of the same stating that there are, or will be, no claims for additional compensation after disbursement of the Final Payment; (vi) Operations and Maintenance manuals and separate warranties provided by any manufacturer or distributor of any materials or equipment incorporated into the Work; (vii) the Record Drawings; (viii) the form of Guarantee included in the Contract Documents duly executed by an authorized representative of the Contractor; (ix) any and all other items or documents required by the Contract Documents to be delivered to the District upon completion of the Work; (x) the completion and submittal of all reports required by the Contract Documents, including without limitation, verified reports required by applicable provisions of the California Code of Regulations; and (xi) if required by the District, such other data establishing payment or satisfaction of obligations such as receipts, releases and waivers of liens, Stop Payment Notices, claims, security interest or encumbrances arising out of the Contract to the extent and in such form as may be required by the District.

8.4.3 Disbursement of Final Payment. Provided that the District is then in receipt of all documents and other items in Article 8.4.2 above as conditions precedent to the District's obligation to disburse Final Payment, not later than sixty (60) days following Final Acceptance the District shall disburse the Final Payment to the Contractor. Pursuant to California Public Contract Code §7107, if there is any dispute between the District and the Contractor at the time that disbursement of the Final Payment is due, the District may withhold from disbursement of

the Final Payment an amount not to exceed one hundred fifty percent (150%) of the amount in dispute. If the Contractor fails to timely submit completed DSA Reports in accordance with Article 4.21.1 above, the Final Payment due the Contractor shall be reduced in accordance with Article 4.21.2 above.

8.4.4 Waiver of Claims. The Contractor's acceptance of the Final Payment is a waiver and release by the Contractor of any and all claims against the District for compensation or otherwise in connection with the Contractor's performance of the Contract.

8.4.5 Claims Asserted After Final Payment. Any lien, Stop Payment Notice or other claim filed or asserted after the Contractor's acceptance of the Final Payment by any Subcontractor, laborer, Material Supplier or others in connection with or for Work performed under the Contract Documents shall be the sole and exclusive responsibility of the Contractor and the Surety. The Contractor and Surety shall indemnify, defend and hold harmless the District and its officers, agents, representatives and employees from and against any claims, demands or judgments arising or associated therewith, including without limitation attorney's fees incurred by the District in connection therewith.

8.5 Withholding of Payments. The District may withhold any Progress Payment or the Final Payment, in whole or in part, or backcharge the Contractor to the extent it may deem advisable to protect the District on account of: (i) defective Work or Work not in conformity with the requirements of the Contract Documents which is not remedied; (ii) failure of the Contractor to make payments when due Subcontractors/Material Suppliers; (iii) claims filed or reasonable evidence of the probable filing of claims by Subcontractors, laborers, Material Suppliers, or others performing any portion of the Work under the Contract Documents for which the District may be liable or responsible including, without limitation, Stop Payment Notice Claims filed with the District pursuant to California Civil Code §9350 et seq.; (iv) a reasonable doubt that the Contract can be completed for the then unpaid balance of the Contract Price; (v) tax demands filed in accordance with California Government Code §12419.4; (vi) other claims, penalties and/or forfeitures for which the District is required or authorized to retain funds otherwise due the Contractor; (vii) any amounts due from the Contractor to the District under the terms of the Contract Documents; or (viii) the Contractor's failure to perform any of its obligations under the Contract Documents, its default under the Contract Documents or its failure to maintain adequate progress of the Work. In addition to the foregoing, the District shall not be obligated to process any Payment Application or Application for Final Payment, nor shall Contractor be entitled to any Progress Payment or Final Payment so long as any lawful or proper direction concerning the Work or the performance thereof or any portion thereof, given by the District, the District's Inspector, the Architect or any public authority having jurisdiction over the Work, or any portion thereof, shall not be fully and completely complied with by the Contractor. When the District is reasonably satisfied that the Contractor has remedied any such deficiency, payment shall be made of the amount withheld.

8.6 Payments to Subcontractors. The Contractor shall pay all Subcontractors for and on account of Work of the Contract performed by such Subcontractors in accordance with the terms of their respective subcontracts and as provided for pursuant to California Public Contract Code §10262, the provisions of which are deemed incorporated herein by this reference. If the Contractor fails to make payment to Subcontractors in conformity with California Public Contract Code §10262, the provisions of California Public Contract Code §10253 shall apply; by this reference, the provisions of California Public Contract Code §10253 are incorporated herein in its entirety, except that the references in said Section 10253 to "the director" shall be deemed to refer to the District. The Contractor shall timely make payment of retention due Subcontractors in accordance with Public Contract Code §7107.

8.7 Computerized Job Cost Reporting System.

8.7.1 Job Cost Reporting. The Contractor and each Subcontractor with a Subcontract valued at One Million Five Hundred Thousand Dollars (\$1.5M) or greater shall maintain a computerized job cost reporting system conforming to the requirements set forth herein. The computer program(s) utilized by the Contractor and applicable Subcontractors shall be subject to the

review and acceptance by the District. The job cost reporting systems for the Work shall be updated in regular intervals of not more than one (1) calendar month.

8.7.2 Job Cost Reporting System Requirements. The computerized job cost programs utilized by the Contractor and applicable Subcontractors shall conform and comply with generally accepted accounting principles applied in a consistent manner and with recognized and generally accepted construction industry accounting standards, guidelines and procedures. The job cost reporting system format and configuration shall follow the general format of the District approved Cost Breakdown and budgets established for each line item shall be traceable to a bid estimate of costs. The job cost reporting systems utilized by the Contractor and applicable Subcontractors shall be capable of: (i) providing overall cost status on a monthly and cumulative basis; (ii) providing comparative analysis of the original budgeted costs, actual costs, remaining budget, and projected cost of completion; the job cost reporting system shall be capable of providing comparative analysis for individual line items and the totality of the Work reflected in the job cost report and; (iii) tracking adjustments to original budget amounts for Changes to the Work (including, without limitation, issued, pending and potential Change Orders).

8.7.3 Job Cost System Information. Upon request of the District, the Contractor and applicable Subcontractors shall make available written job cost reports and/or provide the District with the electronic files of the then current or requested job cost report. The Contractor's obligations hereunder are material.

## **ARTICLE 9: CHANGES**

9.1 Changes in the Work. The District, at any time, by written order, may make Changes within the general scope of the Work under the Contract Documents or issue additional instructions, require additional Work or direct deletion of Work. The Contractor shall not proceed with any Change involving an increase or decrease in the Contract Price or the Contract Time without prior written authorization from the District. The foregoing notwithstanding, the Contractor shall promptly commence and diligently complete any Change to the Work subject to the District's written authorization issued pursuant to the preceding sentence; the Contractor is not relieved or excused from its obligation to promptly commence and diligently complete any Change subject to the District's written authorization by virtue of the absence or inability of the Contractor and the District to agree upon the extent of any adjustment to the Contract Time or the Contract Price on account of such Change. The issuance of a Change Order pursuant to this Article 9 in connection with any Change authorized by the District under this Article 9.1 is not a condition precedent to Contractor's obligation to promptly commence and diligently complete any such Change authorized by the District hereunder. The District's right to make Changes shall not invalidate the Contract nor relieve the Contractor of any liability or other obligations under the Contract Documents. Any requirement of notice of Changes in the scope of Work to the Surety shall be the responsibility of the Contractor. Changes to the Work depicted or described in the Drawings or the Specifications shall be subject to approval by the DSA. The District may make Changes to bring the Work or the Project into compliance with environmental requirements or standards established by state or federal statutes and regulations enacted after award of the Contract.

9.2 Construction Change Directive. A Construction Change Directive is a written instrument issued by or on behalf of the District directing a Change to the Work prior to the Contractor and District reaching full agreement on an adjustment of the Contract Time and/or Contract Price on account of such Change. The Contractor shall promptly commence and diligently complete any Change to the Work subject to a Construction Change Directive issued hereunder. The issuance of a Change Order pursuant to this Article 9 in connection with any Construction Change Directive authorized by the District is not a condition precedent to Contractor's obligation to promptly commence and

diligently complete any such Construction Change Directive. Upon completion of the Work subject to a Construction Change Directive, if the Contractor and District have not agreed on the adjustment of Contract Time and/or Contract Price for such Change, District shall issue a Unilateral Change Order pursuant to this Article 9.

- 9.3 Oral Order of Change in the Work. Any oral order, direction, instruction, interpretation, or determination from the District or the Architect which in the opinion of the Contractor constitutes a Change to the Work, or otherwise requires an adjustment to the Contract Price or the Contract Time, shall be treated as a Change only if the Contractor gives the Architect, Project Manager, if any and the District's Inspector written notice within ten (10) days of the order, directions, instructions, interpretation or determination and prior to acting in accordance therewith. Time is of the essence in Contractor's written notice pursuant to the preceding sentence. Accordingly, Contractor acknowledges that its failure, for any reason, to give written notice within ten (10) days of such order, direction, instruction, interpretation or determination is the Contractor's waiver of any right to assert or claim any entitlement to an adjustment of the Contract Time or the Contract Price on account of such order, direction, instruction, interpretation or determination. The written notice shall state the date, circumstances, extent of adjustment to the Contract Price or the Contract Time, if any, requested, and the source of the order, directions, instructions, interpretation or determination that the Contractor regards as a Change. Unless the Contractor acts in strict accordance with this procedure, any such order, direction, instruction, interpretation or determination shall not be treated as a Change and the Contractor waives any claim for any adjustment to the Contract Price or the Contract Time on account thereof.
- 9.4 Contractor Submittal of Data. Within thirty (30) days after receipt of a written order directing a Change in the Work or furnishing the written notice regarding any oral order directing a Change in the Work, the Contractor shall submit to the Architect, Project Manager, if any, the District's Inspector and the District a detailed written statement setting forth the general nature of the Change, the adjustment to the Contract Price on account thereof, properly itemized and supported by sufficient substantiating data to permit evaluation of the same, and the extent of adjustment of the Contract Time, if any, required by such Change. No claim or adjustment to the Contract Price or the Contract Time shall be allowed if not asserted by the Contractor in strict conformity herewith or if asserted after Final Payment is made under the Contract Documents.
- 9.5 Adjustment to Contract Price and Contract Time on Account of Changes to the Work.
- 9.5.1 Adjustment to Contract Price. Adjustments to the Contract Price due to Changes in the Work shall be determined by application of one of the following methods, in the following order of priority:
- 9.5.1.1 Mutual Agreement. By negotiation and mutual agreement, on a lump sum basis, between the District and the Contractor on the basis of the estimate of the actual and direct increase or decrease in costs on account of the Change. Upon request of the District, Project Manager, if any, or the Architect, the Contractor shall provide a detailed estimate of increase or decrease in costs directly associated with performance of the Change along with cost breakdowns of the components of the Change and supporting data and documentation. The Contractor's estimate of increase or decrease in costs pursuant to the foregoing, if requested, shall be in sufficient detail and in such form as to allow the District, the District's Inspector and the Architect to review and assess the completeness and accuracy thereof. The Contractor shall be solely responsible for any additional costs or additional time arising out of, or related in any manner to, its failure to provide the estimate of costs within the time specified in the request of the District or the Architect for such estimate.
- 9.5.1.2 Determination by the District. By the District, whether or not negotiations are initiated pursuant to Article 9.5.1.1 above, based upon actual and necessary costs incurred by the Contractor as determined by the District on the basis of the Contractor's

records. In the event that the procedure set forth in this Article 9.5.1.2 is utilized to determine the extent of adjustment to the Contract Price on account of Changes to the Work, promptly upon determining the extent of adjustment to the Contract Price, the District shall notify the Contractor in writing of the same; the Contractor is deemed to have accepted the District's determination of the amount of adjustment to the Contract Price on account of a Change to the Work unless Contractor notifies the District, the Architect, Project Manager, if any and the District's Inspector, in writing, not more than fifteen (15) days from the date of the District's written notice, of any objection to the District's determination. Failure of the Contractor to timely notify the District, the Architect and the District's Inspector of Contractor's objections to the District's determination of the extent of adjustment to the Contract Price shall be deemed Contractor's acceptance of the District's determination and a waiver of any right or basis of the Contractor to thereafter protest or otherwise object to the District's determination. Notwithstanding any objection of the Contractor to the District's determination of the extent of any adjustment to the Contract Price pursuant to this Article 9.5.1.2, Contractor shall, pursuant to Article 9.8 below, diligently proceed to perform and complete any such Change.

**9.5.1.3 Basis for Adjustment of Contract Price.** If Changes in the Work require an adjustment of the Contract Price pursuant to Articles 9.5.1.1 or 9.5.1.2 above, the basis for adjustment of the Contract Price shall be as follows:

**9.5.1.3.1 Labor.** Contractor shall be compensated for the costs of labor actually and directly utilized in the performance of the Change. 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 Change. Use of a labor classification which would increase labor costs associated with any Change shall not be permitted. Labor costs shall exclude costs incurred by the Contractor in preparing estimate(s) of the costs of the Change, in the maintenance of records relating to the costs of the Change, coordination and assembly of materials and information relating to the Change or performance thereof, or the supervision and other overhead and general conditions costs associated with the Change or performance thereof.

**9.5.1.3.2 Materials and Equipment.** Contractor shall be compensated for the costs of materials and equipment necessarily and actually used or consumed in connection with the performance of Changes. Costs of materials and equipment 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 Changes, they shall be credited to the District. If materials and/or equipment necessarily used in the performance of Changes 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 or equipment. If, in the reasonable opinion of the District, the costs asserted by the Contractor for materials and/or equipment in connection with any Change is excessive, or if the Contractor fails to provide satisfactory evidence of the actual costs of such materials and/or equipment from its supplier or vendor of the same, the costs of such materials and/or equipment and the District's obligation for payment of the same shall be limited to the then lowest wholesale price at which similar materials and/or equipment are available in the

quantities required to perform the Change. The District may elect to furnish materials and/or equipment for Changes to the Work, in which event the Contractor shall not be compensated for the costs of furnishing such materials and/or equipment or any mark-up thereon.

9.5.1.3.3 Construction Equipment. Contractor shall be compensated for the actual cost of the necessary and direct use of Construction Equipment in the performance of Changes to the Work. Use of such Construction Equipment in the performance of Changes to the Work shall be compensated in increments of fifteen (15) minutes. Rental time for Construction Equipment moved by its own power shall include time required to move such Construction Equipment to the site of the Work from the nearest available rental source of the same. If Construction 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 Construction Equipment is used for performance of any portion of the Work other than Changes to the Work. Unless prior approval in writing is obtained by the Contractor from the Architect, Project Manager, if any, the District's 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. The Contractor shall not be entitled to an allowance or any other compensation for Construction Equipment or tools used in the performance of Changes to the Work where such Construction Equipment or tools have a replacement value of \$500.00 or less. Construction Equipment costs claimed by the Contractor in connection with the performance of any Change to the 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, Project Manager, if any, the District's Inspector and the District, the allowable rate for the use of Construction Equipment in connection with Changes to 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 Construction Equipment operator), and any all other costs incurred by the Contractor incidental to the use of such Construction Equipment.

9.5.1.3.4 Mark-up on Costs of Changes to the Work. In determining the cost to the District and the extent of increase to the Contract Price resulting from a Change adding to the Work, the allowance for mark-ups on the costs of the Change for all overhead (including home office and field overhead), general conditions costs and profit associated with the Change shall not exceed the percentage set forth in the Special Conditions, regardless of the number of Subcontractors, of any tier, performing any portion of any Change to the Work. If a Change to the Work reduces the Contract Price, no profit, general conditions or overhead costs shall be paid by the District to the Contractor for the reduced or deleted Work. In such event, the adjustment to the Contract Price shall be the actual cost reduction realized by the reduced or deleted Work multiplied by the percentage set forth in the Special Conditions for mark-ups on the cost of a Change adding to the scope of the Work.

**9.5.1.4 Contractor Maintenance of Records.** If the Contractor is directed to perform any Changes to the Work pursuant to Article 9.1, 9.2 or 9.3, or should the Contractor encounter conditions which the Contractor believes to obligate the District to adjust the Contract Price and/or the Contract Time, Contractor shall maintain detailed records on a daily basis. Such records shall include without limitation hourly records for labor and Construction Equipment and itemized records of materials and equipment used that day in connection with the performance of any Change to the Work. If more than one Change to the Work is performed by the Contractor in a calendar day, Contractor shall maintain separate records of labor, Construction Equipment, materials and equipment for each such Change. If any Subcontractor provides or performs any portion of a Change to the Work, Contractor shall require that each such Subcontractor maintain records in accordance with this Article. Each daily record maintained hereunder shall be signed by Contractor's Superintendent or Contractor's authorized representative which shall constitute the Contractor's representation and warranty to the District that all information contained therein is true, accurate, complete and relate only to the Change referenced therein. All records maintained by a Subcontractor relating to the costs of a Change to the Work shall be signed by such Subcontractor's authorized representative or Superintendent. All records maintained hereunder shall be subject to inspection, review and/or reproduction by the District, the Architect, Project Manager, if any or the District's Inspector upon request. If the Contractor fails or refuses, for any reason, to maintain or make available for inspection, review and/or reproduction such records and the adjustment to the Contract Price on account of any Change to the Work, the District's reasonable good faith determination of the extent of adjustment to the Contract Price on account of such Change shall be final, conclusive, dispositive and binding upon Contractor. Contractor's obligation to maintain records hereunder is in addition to, and not in lieu of, any other Contractor obligation under the Contract Documents with respect to Changes to the Work.

**9.5.2 Adjustment to Contract Time.** If any Change to the Work authorized pursuant to this Article 9, the Contract Time affects the critical path of the Work, the Contract Time shall be extended or reduced by Change Order for a period of time commensurate with the time reasonably necessary to perform such Change. The Contractor is solely responsible for submitting scheduling data, analysis and other materials necessary or required by the District to substantiate the Contract Time adjustment requested by the Contractor for a Change. The District is not obligated to consider any adjustment to the Contract Time on account of a Change until the Contractor has submitted such scheduling data, analysis and other materials.

**9.5.3 Addition or Deletion of Alternate Bid Item(s).** If the Bid Proposal for the Work includes proposal(s) for Alternate Bid Item(s), during Contractor's performance of the Work, the District may elect, pursuant to this Article to add any such Alternate Bid Item(s) if the same did not form a basis for award of the Contract or delete any such Alternate Bid Item(s) if the same formed a basis for award of the Contract. If the District elects to add or delete any such Alternate Bid Item(s) pursuant to the foregoing, the cost or credit for such Alternate Bid Item(s) shall be as set forth in the Contractor's Bid. If any Alternate Bid Item is added or deleted from the Work pursuant to the foregoing, the Contract Time shall be adjusted by the number of days allocated for the added or deleted Alternate Bid Item in the Contract Documents; if days are not allocated for any Alternate Bid Item added or deleted pursuant to the foregoing, the Contract Time shall be equitably adjusted.

**9.6 Change Orders.** If the District approves of a Change, a written Change Order prepared by the Architect on behalf of the District shall be forwarded to the Contractor describing the Change and setting forth the adjustment to the Contract Time and the Contract Price, if any, on account of such Change. All Change Orders shall be in full payment and final settlement of all claims for direct, indirect and consequential costs, including without limitation, costs of delays or impacts related to,



or arising out of, items covered and affected by the Change Order, as well as any adjustments to the Contract Time. Any claim or item relating to any Change incorporated into a Change Order not presented by the Contractor for inclusion in the Change Order shall be deemed waived. The Contractor shall execute the Change Order prepared pursuant to the foregoing; once the Change Order has been prepared and forwarded to the Contractor for execution, without the prior approval of the District which may be granted or withheld in the sole and exclusive discretion of the District, the Contractor shall not modify or amend the form or content of such Change Order, or any portion thereof. The Contractor's attempted or purported modification or amendment of any such Change Order, without the prior approval of the District, shall not be binding upon the District; any such unapproved modification or amendment to such Change Order shall be null, void and unenforceable. Unless otherwise expressly provided for in the Contract Documents or in the Change Order, any Change Order issued hereunder shall be binding upon the District only upon action of the District's Board of Trustees approving and ratifying such Change Order. In the event of any amendment or modification made by the Contractor to a Change Order for which there is no prior approval by the District, in accordance with the provisions of this Article 9.6, unless otherwise expressly stated in its approval and ratification of such Change Order, any action of the Board of Trustees to approve and ratify such Change Order shall be deemed to be limited to the Change Order as prepared by the Architect; such approval and ratification of such Change Order shall not be deemed the District's approval and ratification of any unapproved amendment or modification by the Contractor to such Change Order.

- 9.7 Contractor Notice of Changes. If the Contractor claims that any instruction, request, the Drawings, the Specifications, action, condition, omission, default, or other situation obligates the District to increase the Contract Price or to extend the Contract Time, the Contractor shall notify the Project Manager, if any, the District's Inspector and the Architect, in writing, of such claim within ten (10) days from the date of its actual or constructive notice of the factual basis supporting the same. The District shall consider any such claim of the Contractor only if sufficient supporting documentation is submitted with the Contractor's notice to the District's Inspector and the Architect. Time is of the essence in Contractor's written notice pursuant to the preceding sentence so that the District can promptly investigate and consider alternative measures to the address such instruction, request, Drawings, Specifications, action, condition, omission, default or other situation. Accordingly, Contractor acknowledges that its failure, for any reason, to give written notice (with sufficient supporting documentation to permit the District's review and evaluation) within ten (10) days of its actual or constructive knowledge of any instruction, request, Drawings, Specifications, action, condition, omission, default or other situation for which the Contractor believes there should an adjustment of the Contract Time or the Contract Price shall be deemed Contractor's waiver, release, discharge and relinquishment of any right to assert or claim any entitlement to an adjustment of the Contract Time or the Contract Price on account of any such instruction, request, Drawings, Specifications, action, condition, omission, default or other situation. In the event that the District determines that the Contract Price or the Contract Time are subject to adjustment based upon the events, circumstances and supporting documentation submitted with the Contractor's written notice under this Article 9.7, any such adjustment shall be determined in accordance with the provisions of Articles 9.5.1 and 9.5.2.
- 9.8 Disputed Changes. If there is any dispute or disagreement between the Contractor and the District or the Architect regarding the characterization of any item as a Change to the Work or as to the appropriate adjustment of the Contract Price or the Contract Time on account thereof, the Contractor shall promptly proceed with the performance of such item of the Work, subject to a subsequent resolution of such dispute or disagreement in accordance with the terms of the Contract Documents. The Contractor's failure or refusal to so proceed with such Work may be deemed to be Contractor's default of a material obligation of the Contractor under the Contract Documents.
- 9.9 Emergencies. In an emergency affecting or threatening the safety of persons, or which affects or

threatens the Work, or property, the Contractor, without special instruction or prior authorization from the District, Project Manager or the Architect, is permitted to act at its discretion to prevent such threatened loss or injury. Any compensation claimed by the Contractor on account of such emergency work shall be submitted and determined in accordance with this Article 9.

- 9.10 Minor Changes in the Work. The Architect may order minor Changes in the Work not involving an adjustment in the Contract Price or the Contract Time and not inconsistent with the intent of the Contract Documents. Such Changes shall be effected by written order and shall be binding on the District and the Contractor. The Contractor shall carry out such orders promptly.
- 9.11 Unauthorized Changes. Any Work beyond the lines and grades shown on the Contract Documents, or any extra Work performed or provided by the Contractor without notice to the Architect and the District's Inspector in the manner and within the time set forth in Articles 9.2 or 9.7 shall be considered unauthorized and at the sole expense of the Contractor. Work so done will not be measured or paid for, no extension to the Contract Time will be granted on account thereof and any such Work may be ordered removed at the Contractor's sole cost and expense. The failure of the District to direct or order removal of such Work shall not constitute acceptance or approval of such Work nor relieve the Contractor from any liability on account thereof.

#### **ARTICLE 10: SEPARATE CONTRACTORS**

- 10.1 District's Right to Award Separate Contracts. The District reserves the right to perform construction or operations related to the Project with the District's own forces or to award separate contracts in connection with other portions of the Project or other construction or operations at or about the Site. If the Contractor claims that delay or additional cost is involved because of such action by the District, the Contractor shall seek an adjustment to the Contract Price or the Contract Time as provided for in the Contract Documents. Failure of the Contractor to request such an adjustment of the Contract Time or the Contract Price in strict conformity with the provisions of the Contract Documents applicable thereto shall be deemed a waiver of the same.
- 10.2 District's Coordination of Separate Contractors. The District shall provide for coordination of the activities of the District's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the District in reviewing their respective Construction Schedules when directed to do so. The Contractor shall make any revisions to the Approved Construction Schedule for the Work hereunder deemed necessary after a joint review and mutual agreement. The Construction Schedules shall then constitute the Construction Schedules to be used by the Contractor, separate contractors and the District until subsequently revised.
- 10.3 Mutual Responsibility. The Contractor shall afford the District and separate contractors of the District reasonable opportunity for storage of their materials and equipment and performance of their activities at the Site and shall connect and coordinate the Contractor's Work, construction and operations with theirs as required by the Contract Documents.
- 10.4 Discrepancies or Defects. If part of the Contractor's Work depends for proper execution or results upon construction or operations by the District or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect, Project Manager, if any and the District's Inspector any apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor to so report shall constitute an acknowledgment that the District's or separate contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then discoverable by the Contractor's reasonable diligence.

#### **ARTICLE 11: TESTS AND INSPECTIONS**

- 11.1 Tests; Inspections; Observations.
- 11.1.1 Contractor's Notice. If the Contract Documents, the Laws or any public authority with

jurisdiction over the Work requires the Work, or any portion thereof, to be specially tested, inspected or approved, the Contractor shall give the Architect, the Project Manager and the District's Inspector written notice of the readiness of such Work for observation, testing or inspection at least two (2) working days prior to the time for the conducting of such test, inspection or observation. The Contractor shall not cover up any portion of the Work subject to tests, inspections or observations prior to the completion and satisfaction of the requirements of such test, inspection or observation. If any portion of the Work subject to tests, inspection or approval is covered up by Contractor prior to completion and satisfaction of the requirements of such tests, inspection or approval, Contractor shall be responsible for the uncovering of such portion of the Work as is necessary for performing such tests, inspection or approval without adjustment of the Contract Price or the Contract Time on account thereof.

11.1.2 Cost of Tests and Inspections. The District will pay for fees, costs and expenses for the initial tests/inspections of materials/equipment which are conducted at the Site or locations within a one hundred (100) mile radius of the Site. All fees, costs or expenses for subsequent tests/inspections or for tests/inspections conducted at a location more than a one hundred (100) mile radius from the Site (including without limitation, travel and travel-related expenses) shall be borne solely and exclusively by the Contractor.

11.1.3 Testing/Inspection Laboratory. The District shall select duly qualified person(s) or testing laboratory(ies) to conduct the tests and inspections to be paid for by the District and required by the Contract Documents. All such tests and inspections shall be in conformity with the Laws, including without limitation, Title 24 of the California Code of Regulations. Where inspection or testing is to be conducted by an independent laboratory or testing agency, materials or samples thereof shall be selected by the laboratory, testing agency, the District's Inspector, the Project Manager or the Architect and not by the Contractor.

11.1.4 Additional Tests, Inspections and Approvals. If the Architect, the Project Manager, the District's Inspector or public authorities having jurisdiction over the Work determine that portions of the Work require additional testing, inspection or approval, the Architect or Project Manager, if any will, upon written authorization from the District, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the District, and the Contractor shall give timely notice to the Architect, the Project Manager and the District's Inspector of when and where tests and inspections are to be made so the District's Inspector and the Architect may observe such procedures. The District shall bear the costs of such additional tests, inspections or approvals, except to the extent that such additional tests, inspections or approvals reveal any failure of the Work to comply with the requirements of the Contract Documents, in which case the Contractor shall bear all costs made necessary by such failures, including without limitation, the costs of corrections, repeat tests, inspections or approvals and the fees of the Architect, Project Manager, if any, and the District's Inspector in connection therewith.

11.2 Delivery of Certificates. Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

11.3 Timeliness of Tests, Inspections and Approvals. Tests or inspections required and conducted pursuant to the Contract Documents shall be made or arranged by Contractor to avoid delay in the progress of the Work.

## **ARTICLE 12: UNCOVERING AND CORRECTION OF WORK**

### 12.1 Inspection of the Work.

12.1.1 Access to the Work. All Work and all materials and equipment forming a part of the Work or incorporated into the Work are subject to inspection by the District, the Project Manager, the Architect and the District's Inspector for conformity with the Contract Documents. The Contractor shall, at its cost and without adjustment to the Contract Price or the Contract Time,

furnish any facilities necessary for sufficient and safe access to the Work for purposes of inspection by the District, the Project Manager, the Architect, the District's Inspector, DSA or any other public or quasi-public authority with jurisdiction over the Work or any portion thereof.

12.1.2 Limitations Upon Inspections. Inspections, tests, measurements, or other acts of the Architect and the District's Inspector hereunder are for the sole purpose of assisting them in determining that the Work, materials, equipment, progress of the Work, and quantities generally comply and conform with the requirements of the Contract Documents. These acts or functions shall not relieve the Contractor from performing the Work in full compliance with the Contract Documents. No inspection by the Architect or the District's Inspector shall constitute or imply acceptance of Work inspected. Inspection of the Work hereunder is in addition to, and not in lieu of, any other testing, inspections or approvals of the Work required under the Contract Documents.

12.2 Uncovering of Work. If any portion of the Work is covered contrary to the request of the Architect, the District's Inspector or the requirements of the Contract Documents, it must, if required by the Architect or the District's Inspector, be uncovered for observation by the Architect and the District's Inspector and be replaced at the Contractor's expense without adjustment of the Contract Time or the Contract Price.

12.3 Rejection of Work. Prior to the District's Final Acceptance of the Work, any Work or materials or equipment forming a part of the Work or incorporated into the Work which is defective or not in conformity with the Contract Documents may be rejected by the District, the Project Manager the Architect or the District's Inspector and the Contractor shall correct such rejected Work without any adjustment to the Contract Price or the Contract Time, even if the Work, materials or equipment have been previously inspected by the Architect or the District's Inspector or even if they failed to observe the defective or non-conforming Work, materials or equipment.

12.4 Correction of Work. The Contractor shall promptly correct any portion of the Work rejected by the District, the Project Manager, the Architect or the District's Inspector for failing to conform to the requirements of the Contract Documents, or which is determined by them to be defective, whether observed before or after Completion and whether or not fabricated, installed or completed. The Contractor shall bear all costs of correcting such rejected Work, including additional testing and inspections and compensation for the Architect's services and expenses made necessary thereby. The Contractor shall bear all costs of correcting destroyed or damaged construction, whether completed or partially completed, of the District or separate contractors, caused by the Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents, or which is defective.

12.5 Removal of Non-Conforming or Defective Work. The Contractor shall, at its sole cost and expense, remove from the Site all portions of the Work which are defective or are not in accordance with the requirements of the Contract Documents which are neither corrected by the Contractor nor accepted by the District.

12.6 Failure of Contractor to Correct Work. If the Contractor fails to commence to correct defective or non-conforming Work within three (3) days of notice of such condition and promptly thereafter complete the same within a reasonable time, the District may correct it in accordance with the Contract Documents. If the Contractor does not proceed with correction of such defective or non-conforming Work within the time fixed herein, the District may remove it and store the salvable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage after written notice, the District may sell such materials or equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including without limitation compensation for the Architect's services, attorneys fees and other expenses made necessary thereby. If such proceeds

of sale do not cover costs which the Contractor should have borne, the Contract Price shall be reduced by the deficiency. If payments of the Contract Price then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor and the Surety shall be jointly and severally liable to the District for any such excess amount.

12.7 Acceptance of Defective or Non-Conforming Work. The District may, in its sole and exclusive discretion, elect to accept Work which is defective or which is not in accordance with the requirements of the Contract Documents, instead of requiring its removal and correction, in which case the Contract Price shall be reduced as appropriate and equitable. The District's determination of the extent of reduction of the Contract Price on account of defective or non-conforming Work accepted by the District shall be binding, conclusive, dispositive and not subject to appeal or other dispute resolution procedures, unless such determination is manifestly unreasonable.

### **ARTICLE 13: WARRANTIES**

13.1 Workmanship and Materials. The Contractor warrants to the District that: (i) all materials and equipment furnished under the Contract Documents conform to requirements of the Contract Documents and are new, of good quality and of the most suitable grade and quality for the purpose intended, unless otherwise specified in the Contract Documents; and (ii) all Work and workmanship is of good quality, free from faults and defects and in conformity with the requirements of the Contract Documents. If required by the Architect or the District, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment incorporated into the Work. Any Work or portion thereof not conforming to these requirements, including substitutions or alternatives not properly approved in accordance with the Contract Documents may be deemed defective. Where there is an approved substitution of, or alternative to, material or equipment specified in the Contract Documents, the Contractor warrants to the District that such installation, construction, material, or equipment will equally perform the function and have the quality of the originally specified material or equipment. The Contractor expressly warrants the merchantability, the fitness for use, and quality of all substitute or alternative items in addition to any warranty given by the manufacturer or supplier of such item.

13.2 Warranty Work. If, within one (1) year after the date of Final Acceptance, or such other time frame set forth elsewhere in the Contract Documents, any of the Work is found to be defective or not in accordance with the requirements of the Contract Documents, or otherwise contrary to the warranties contained in the Contract Documents, the Contractor shall commence all necessary corrective action not more than seven (7) days after receipt of a written notice from the District to do so, and to thereafter diligently complete the same. In the event that Contractor shall fail or refuse to commence correction of any such item within said seven (7) day period or to diligently prosecute such corrective actions to completion, the District may, without further notice to Contractor, cause such corrective Work to be performed and completed. In such event, Contractor and Contractor's Performance Bond Surety shall be responsible for all costs in connection with such corrective Work, including without limitation, general administrative overhead costs of the District in securing and overseeing such corrective Work. Nothing contained herein shall be construed to establish a period of limitation with respect to any obligation of the Contractor under the Contract Documents. The obligations of the Contractor hereunder shall be in addition to, and not in lieu of, any other obligations imposed by any special guarantee or warranty required by the Contract Documents, guarantees or warranties provided by any manufacturer of any item or equipment forming a part of, or incorporated into the Work, or otherwise recognized, prescribed or imposed by law. 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.

- 13.3 Guarantee. Upon completion of the Work, Contractor shall execute and deliver to the District the form of Guarantee included with the Contract Documents. The Contractor's execution and delivery of the form of Guarantee is an express condition precedent to any obligation of the District to disburse the Final Payment to the Contractor.
- 13.4 Survival of Warranties; Surety Obligations. The Contractor's warranty obligations hereunder shall survive the Contractor's completion of Work under the Contract Documents, the District's Final Acceptance or the termination of the Contract. The obligations of the Surety issuing the Performance Bond shall include assumption and discharge of the Contractor's warranty obligations if the Contractor fails or refuses to perform its warranty obligations hereunder in strict conformity herewith.

#### **ARTICLE 14: SUSPENSION OF WORK**

- 14.1 District's Right to Suspend Work. The District may, without cause, and without invalidating or terminating the Contract, order the Contractor, in writing, to suspend, delay or interrupt the Work in whole or in part for such period of time as the District may determine. The Contractor shall resume and complete the Work suspended by the District in accordance with the District's directive, whether issued at the time of the directive suspending the Work or subsequent thereto.
- 14.2 Adjustments to Contract Price and Contract Time. If the District directs suspension of the Work, an adjustment shall be made to the Contract Price for increases in the direct cost of performance of the Work of the Contract Documents, actually caused by suspension, delay or interruption ordered by the District; provided however that no adjustment of the Contract Price shall be made to the extent: (i) that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible under the Contract Documents; or (ii) that an equitable adjustment is made or denied under another provision of the Contract Documents. The foregoing notwithstanding, any such adjustment of the Contract Price shall not include any adjustment to increase the Contractor's overhead, general administrative costs or profit, all of which will remain as reflected in the Cost Breakdown submitted by the Contractor pursuant to the Contract Documents. In the event of the District's suspension of the Work, the Contract Time shall be equitably adjusted.

#### **ARTICLE 15: TERMINATION**

##### 15.1 Termination for Cause.

15.1.1 District's Right to Terminate. The District may terminate the Contract upon the occurrence of any one or more of the following events of the Contractor's default: (i) if the Contractor refuses or fails to prosecute the Work with diligence as will insure Completion of the Work within the Contract Time, or if the Contractor fails to One Hundred Percent Complete the Work within the Contract Time; (ii) if the Contractor becomes bankrupt or insolvent, or makes a general assignment for the benefit of creditors, or if the Contractor or a third party files a petition to reorganize or for protection under any bankruptcy or similar laws, or if a trustee or receiver is appointed for the Contractor or for any of the Contractor's property on account of the Contractor's insolvency, and the Contractor or its successor in interest does not provide adequate assurance of future performance in accordance with the Contract Documents within ten (10) days of receipt of a request for such assurance from the District; (iii) if the Contractor repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment; (iv) if the Contractor repeatedly fails to make prompt payments to any Subcontractor, of any tier, or Material Suppliers or others for labor, materials or equipment; (v) if the Contractor disregards laws, ordinances, rules, codes, regulations, orders applicable to the Work or similar requirements of any public entity having jurisdiction over the Work; (iv) if the Contractor disregards proper directives of the Architect, the District's Inspector or District under the Contract Documents; (vii) if the Contractor performs Work which deviates from the

Contract Documents and neglects or refuses to correct such Work; or (viii) if the Contractor otherwise violates in any material way any provisions or requirements of the Contract Documents. Once the District determines that sufficient cause exists to justify the action, the District may terminate the Contract without prejudice to any other right or remedy the District may have, after giving the Contractor and the Surety at least seven (7) days advance written notice of the effective date of termination. The District shall have the sole discretion to permit the Contractor to remedy the cause for the termination without waiving the District's right to terminate the Contract, or otherwise waiving, restricting or limiting any other right or remedy of the District under the Contract Documents or at law.

**15.1.2 District's Rights Upon Termination.** If the Contract is terminated pursuant to this Article 15.1, the District may take over the Work and prosecute it to completion, by contract or otherwise, and may exclude the Contractor from the site. The District may take possession of the Work and of all of the Contractor's tools, appliances, construction equipment, machinery, **materials, and plant which may be on or about the Site, and use the same to the full extent they could be used by the Contractor without liability to the Contractor.** In exercising the District's right to prosecute the completion of the Work, the District may also take possession of all materials and equipment at or about the Site or for which the District has paid the Contractor but which are stored elsewhere, and finish the Work as the District deems expedient. In exercising the District's right to prosecute the completion of the Work, the District shall have the right to exercise its sole discretion as to the manner, methods, and reasonableness of the costs of completing the Work and the District shall not be required to obtain the lowest price for completion of the Work. If the District takes bids for remedial Work or completion of the Work, the Contractor shall not be eligible for the award of such contract(s).

**15.1.3 Completion by the Surety.** If the Contract is terminated pursuant to this Article 15.1, the District may demand that the Surety take over and complete the Work. The District may require that in so doing, the Surety not utilize the Contractor in performing and completing the Work. Upon the failure or refusal of the Surety to take over and begin completion of the Work within twenty (20) days after demand therefor, the District may take over the Work and prosecute it to completion as provided for above.

**15.1.4 Assignment and Assumption of Subcontracts.** The District shall, in its sole and exclusive discretion, have the option of requiring any Subcontractor or Material Supplier to perform in accordance with its Subcontract or Purchase Order with the Contractor and assign the Subcontract or Purchase Order to the District or such other person or entity selected by the District to complete the Work.

**15.1.5 Costs of Completion.** In the event of termination under this Article 15.1, the Contractor shall not be entitled to receive any further payment of the Contract Price until the Work is completed. If the unpaid balance of the Contract Price as of the date of termination exceeds the District's direct and indirect costs and expenses for completing the Work, including without limitation, attorneys' fees, fees for additional professional and consultant services, and the District's administrative costs, such excess shall be used to pay the Contractor for the cost of the Work performed prior to the effective date of termination with a reasonable allowance for overhead and profit. If the District's costs and expenses to complete the Work exceed the unpaid Contract Price, the Contractor and Surety are jointly and severally liable for payment of such difference to the District.

**15.1.6 Contractor Responsibility for Damages.** The Contractor and the Surety shall be jointly and severally liable for all damage sustained by the District resulting from, in any manner, the termination of Contract under this Article 15.1, including without limitation, attorneys' fees, and for all costs necessary for repair and

completion of the Work exceeding the Contract Price.

15.1.7 **Conversion to Termination for Convenience.** In the event the Contract is terminated under this Article 15.1, and it is determined, for any reason, that the Contractor was not in default under the provisions hereof, the termination shall be deemed a Termination for Convenience of the District and thereupon, the rights and obligations of the District and the Contractor shall be determined in accordance with Article 15.2 hereof.

15.1.8 **District's Rights Cumulative.** In the event the Contract is terminated pursuant to this Article 15.1, the termination shall not affect or limit any rights or remedies of the District against the Contractor or the Surety. The rights and remedies of the District under this Article 15.1 are in addition to, and not in lieu of, any other rights and remedies provided by the Laws or under the Contract Documents. Any retention or payment of monies to the Contractor by the District shall not be deemed to release the Contractor or the Surety from any liability hereunder.

15.2 **Termination for Convenience of the District.** The District may at any time, in its sole and exclusive discretion, by written notice to the Contractor, terminate the Contract in whole or in part when it is in the interest of, or for the convenience of, the District. In such case, the Contractor shall be entitled to payment for: (i) Work actually performed and in place as of the effective date of such termination for convenience of the District, with a reasonable allowance for profit and overhead on such Work, and (ii) reasonable termination expenses for reasonable protection of Work in place and suitable storage and protection of materials and equipment delivered to the site of the Work but not yet incorporated into the Work, provided that such payments exclusive of termination expenses shall not exceed the total Contract Price as reduced by payments previously made to the Contractor and as further reduced by the value of the Work as not yet completed. The Contractor shall not be entitled to profit and overhead on Work which was not performed as of the effective date of the termination for convenience of the District. The District may, in its sole discretion, elect to have Subcontracts assigned pursuant to Article 15.1.4 above after exercising the right hereunder to terminate for the District's convenience.

## **ARTICLE 16: MISCELLANEOUS**

16.1 **Governing Law.** This Contract shall be governed by and interpreted in accordance with the laws of the State of California.

16.2 **Marginal Headings; Interpretation.** The titles of the various Articles of these General Conditions and elsewhere in the Contract Documents are used for convenience of reference only and are not intended to, and shall in no way, enlarge or diminish the rights or obligations of the District or the Contractor and shall have no effect upon the construction or interpretation of the Contract Documents. The Contract Documents shall be construed as a whole in accordance with their fair meaning and not strictly for or against the District or the Contractor.

16.3 **Successors and Assigns.** Except as otherwise expressly provided in the Contract Documents, all terms, conditions and covenants of the Contract Documents shall be binding upon, and shall inure to the benefit of the District and the Contractor and their respective heirs, representatives, successors-in-interest and assigns.

16.4 **Cumulative Rights and Remedies; No Waiver.** Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not in lieu of or otherwise a limitation or restriction of duties, obligations, rights and remedies otherwise imposed or available by law. No action or failure to act by the District shall constitute a waiver of a right or remedy afforded it under the Contract Documents or at law nor shall such



an action or failure to act constitute approval of or acquiescence in a breach hereunder, except as may be specifically agreed in writing.

16.5 Severability. In the event any provision of the Contract Documents shall be deemed illegal, invalid, unenforceable and/or void, by a court or any other governmental agency of competent jurisdiction, such provision shall be deemed to be severed and deleted from the Contract Documents, but all remaining provisions hereof, shall in all other respects, continue in full force and effect.

16.6 No Assignment by Contractor. The Contractor shall not sublet or assign the Contract, or any portion thereof, or any monies due thereunder, without the express prior written consent and approval of the District, which approval may be withheld in the sole and exclusive discretion of the District. The District's approval to such assignment shall be upon such terms and conditions as determined by the District in its sole and exclusive discretion.

16.7 Gender and Number. Whenever the context of the Contract Documents so require, the neuter gender shall include the feminine and masculine, the masculine gender shall include the feminine and neuter, the singular number shall include the plural and the plural number shall include the singular.

16.8 Independent Contractor Status. In performing its obligations under the Contract Documents, the Contractor is an independent contractor to the District and not an agent or employee of the District.

16.9 Notices. Except as otherwise expressly provided for in the Contract Documents, all notices which the District or the Contractor may be required, or may desire, to serve on the other, shall be effective only if delivered by personal delivery or by postage prepaid, First Class Certified Return Receipt Requested United States Mail, addressed to the District or the Contractor at their respective address set forth in the Contract Documents, or such other address(es) as either the District or the Contractor may designate from time to time by written notice to the other in conformity with the provisions hereof. In the event of personal delivery, such notices shall be deemed effective upon delivery, provided that such personal delivery requires a signed receipt by the recipient acknowledging delivery of the same. In the event of mailed notices, such notice shall be deemed effective on the third working day after deposit in the mail.

16.10 Disputes; Continuation of Work. Notwithstanding any claim, dispute or other disagreement between the District and the Contractor regarding performance under the Contract Documents, the scope of Work thereunder, or any other matter arising out of or related to, in any manner, the Contract Documents, the Contractor shall proceed diligently with performance of the Work in accordance with the District's written direction, pending any final determination or decision regarding any such claim, dispute or disagreement.

16.11 Dispute/Claims Resolution.

16.11.1 Public Contract Code §9204 Claims Resolution Procedures. Claims of the Contractor are subject to the non-binding dispute resolution procedures set forth in Public Contract Code §9204 ("Section 9204") provided, however, that the Contractor's initiation of Section 9204 procedures is expressly subject to the Contractor's prior full and timely compliance with requirements and procedures of the Contract Documents relating to procedures for resolution of claims, change orders, disputes and other matters in controversy under the Contract Documents.

16.11.1.1 Claim Defined. The term "Claim" shall be as defined in Section 9204.

16.11.1.2 Claim Documentation. The Contractor shall furnish reasonable documentation to support each Claim. "Reasonable documentation" includes, without limitation: (i) contractual and legal basis establishing Claim entitlement or merit; (ii)

factual basis establishing District liability for the Claim; (iii) detailed breakdown of labor, materials, equipment and other costs included in the Claim; and (iv) detailed basis, including Construction Schedule analysis and fragnets supporting any Contract Time adjustment or Liquidated Damages relief included in the scope of a Claim.

16.11.1.3 District Claim Review Statement. Within forty five (45) days (or such other time mutually agreed to by the District and the Contractor) after receipt of a properly submitted and properly documented Claim, the District will conduct a reasonable review of the Claim and provide the Contractor with a written statement identifying the disputed and undisputed portions of the Claim (“Claim Review Statement”). If the District does not provide the Contractor with the Claim Review Statement for any Claim within forty five (45) days (or other time mutually agreed to by the District and the Contractor) after receipt of a properly submitted and properly documented Claim, the Claim is deemed rejected in its entirety and thereupon, the Contractor may initiate the Meet and Confer process described below. A Claim deemed rejected pursuant to the foregoing does not constitute an adverse finding of Claim merit or the Contractor’s responsibility or qualifications. If the Claim Review Statement identifies any undisputed portion of a Claim (“Undisputed Claim”) and payment is due from the District on the Undisputed Claim, the District shall process and make payment on the Undisputed Claim within sixty (60) days after the issuance date of the Claim Review Statement.

16.11.1.4 Meet and Confer.

16.11.1.4.1 Meet and Confer Demand. If the Contractor disputes any portion of the Claim Review Statement, or if a Claim is deemed rejected by the District not providing the Contractor with the Claim Review Statement within the time permitted under Section 9204, the Contractor may demand an informal conference to meet and confer with the District for settlement of the issues in dispute (“Meet and Confer”). The Contractor’s Meet and Confer request must be submitted to the District: (i) in writing; (ii) by registered mail or certified mail, return receipt requested; and (iii) within ten (10) days after the Claim Review Statement is submitted to the Contractor or within ten (10) days after the date the Claim is deemed rejected, as applicable. Failure of the Contractor to strictly comply with the foregoing is deemed a waiver of the Contractor’s right to request the Meet and Confer and the Non-Binding Mediation procedures under Section 9204. If the Contractor strictly complies with the foregoing, the District will schedule the Meet and Confer conference within thirty (30) days of the Contractor’s Meet and Confer request for settlement of disputed portions of the Claim Review Statement.

16.11.1.4.2 Meet and Confer Statement. Within ten (10) business days after conclusion of the Meet and Confer conference, if any portion of a Claim remains disputed, the District shall provide the Contractor a written statement identifying the disputed and undisputed portions of the Claim (“Meet and Confer Statement”). If the Meet and Confer Statement identifies any Undisputed Claim and payment is due from the District on the Undisputed Claim, the District shall process and make payment on the Undisputed Claim within sixty (60) days after date the Meet and Confer Statement is issued.

16.11.1.5 Non-Binding Mediation.

16.11.1.5.1 Contractor Initiation. The Contractor may request nonbinding mediation (“Mediation”) of disputed portions of a Claim identified in the Meet and

Confer Statement. The Contractor's Mediation demand must be submitted to the District: (i) in writing; (ii) by registered mail or certified mail, return receipt requested; (iii) within ten (10) days after the Meet and Confer Statement is submitted to the Contractor; and (iv) with specific identification of the disputed Claims issues subject to Mediation. Failure of the Contractor to strictly comply with the foregoing is deemed a waiver of the Contractor's right to demand Mediation procedures under Section 9204.

16.11.1.5.2 Mediator Selection. The District and Contractor shall mutually agree to a mediator within ten (10) business days after the date of the Contractor's demand for Mediation. If the District and Contractor do not mutually agree to a mediator, the District and Contractor shall each select a mediator and the District/Contractor selected mediators shall select a qualified neutral third party to mediate the disputed portion of the Claim.

16.11.1.5.3 Mediation Procedures. 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 District and Contractor in dispute resolution through negotiation or by issuance of an evaluation.

16.11.1.5.4 Mediation Costs. All costs, fees and expenses of the mediator(s) and mediation administration shall be shared equally by the District and Contractor. The foregoing notwithstanding, the Contractor and District shall each bear the costs, fees and expenses of their own attorneys, experts and consultants.

16.11.1.5.5 Post-Mediation Disputed Claims. Any Claims issues in dispute after Mediation shall be resolved in accordance with the applicable provisions of the Contract Documents.

16.11.1.5.6 Waiver. The District and Contractor may mutually agree to waive, in writing, Mediation under Section 9204 and subject to the Contractor's compliance with Government Code Claim requirements, proceed directly to commencement of a civil action or binding arbitration.

16.11.2 Payments of Undisputed Claims. If a payment due from the District for Undisputed Claims identified in the Claim Review Statement or the Meet and Confer Statement issued for a Claim is not made within the time established under Section 9204 the overdue portion of such payment shall bear interest at the rate of seven percent (7%) per annum from the date due. The District's credit application of any amount due for an Undisputed Claim against amounts due from the Contractor under the Contract Documents shall be deemed payment of the Undisputed Claim.

16.11.3 Subcontractor Claims.

16.11.3.1 Subcontractor Claim Submittal. If a Subcontractor, of any tier (collectively "Subcontractor") lacks legal standing to assert a Claim against the District because privity of contract does not exist, the Contractor may present the District a Claim on behalf of the Subcontractor ("Subcontractor Claim"). Each Subcontractor requesting submittal of a Subcontractor Claim to the District shall furnish reasonable documentation to support the Subcontractor Claim. Within forty-five (45) days of receipt of a Subcontractor's written request to submit a Subcontractor Claim, the Contractor shall notify the Subcontractor in writing as to whether the Contractor presented the Subcontractor Claim to the District. If the Contractor did not present the Subcontractor Claim, the Contractor shall provide the Subcontractor with a statement of the reasons

for not having done so.

16.11.3.2 Contractor Certification of Subcontractor Claim. The District's review of Subcontractor Claims is expressly subject to the Contractor's submittal of a duly completed and executed form of Contractor Certification of Subcontractor Claim certifying that the Contractor has thoroughly reviewed the Subcontractor Claim and based on the Contractor's review, certify that: (i) the Subcontractor Claim is made by the Subcontractor in good faith; (ii) the Subcontractor Claim is supported by reasonable documentation establishing entitlement to the relief requested and District liability therefor; and (iii) the Subcontractor Claim does not incorporate any request constituting a False Claim under applicable law, including the California False Claim Act (Government Code §12650 et seq). The form of Contractor Certification of Subcontractor Claim is included in the Contract Documents.

16.11.3.3 District Review of Subcontractor Claim. Subcontractor Claims presented by the Contractor to the District are subject to the Section 9204 non-binding dispute resolution procedures set forth above, as modified herein. Requests for the District to conduct Meet and Confer and/or non-binding mediation procedures must be submitted jointly by the Contractor and the Subcontractor submitting the Subcontractor Claim. If Mediation proceedings are initiated in connection with a Subcontractor Claim, mediator and mediation administration fees and costs shall be borne equally by the District, Contractor and Subcontractor.

16.11.3.4 Disputed Subcontractor Claims. Subcontractor Claims which are not fully resolved by the Section 9204 non-binding dispute resolution procedures shall be resolved by Section 20104.4 Dispute Resolution Procedures or binding arbitration, as applicable. Commencement of Section 20104.4 Dispute Resolution Procedures or binding arbitration proceedings in connection with any Subcontractor Claim is subject to compliance with Government Code Claims requirements.

16.11.4 Government Code Claim Requirements. Pursuant to Government Code §930.6, any claim, demand, dispute, disagreement or other matter in controversy asserted by the Contractor, whether on behalf of itself or a Subcontractor, against the District for money or damages, including without limitation Claims or portions thereof remaining in dispute after completion of the Section 9204 non-binding dispute resolution procedures described above are deemed a "suit for money or damages" and shall be subject to the provisions of Government Code §§945.4, 945.6 and 946 ("Government Code Claims Process"). An express condition precedent to the Contractor's initiation of Section 20104.4 Dispute Resolution Procedures or binding arbitration proceedings pursuant to the following is the Contractor's compliance with the Government Code Claims Process, including without limitation, presentation of the claim, demand, dispute, disagreement or other matter in controversy between the Contractor and the District seeking money or damages to the District and acted upon or deemed rejected by the District in accordance with Government Code §900, et seq.

16.11.5 Section 20104.4 Dispute Resolution Procedures; Claims Less Than \$375,000. Any Claim, or portion thereof, in dispute after completion of the Section 9204 non-binding dispute resolution procedures and the Government Code Claims Process which is equal to or less \$375,000 shall be resolved in accordance with the civil action procedures established in Public Contract Code §20104.4. Unless otherwise agreed to by the District and the Contractor in writing, the mediation conducted pursuant to Section 9204 procedures shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.

16.11.5.1 Binding Arbitration of Claims Exceeding \$375,000.

16.11.5.1.1 JAMS Arbitration. Any Claim, or portion thereof in dispute after

completion of the Section 9204 procedures and the Government Code Claims Process which exceeds \$375,000 and any other claims, disputes, disagreements or other matters in controversy between the District and the Contractor arising out of, or related, in any manner, to the Contract Documents, or the interpretation, clarification or enforcement thereof shall be resolved by binding arbitration conducted before one (1) retired judge in accordance with the Construction Arbitration Rules and Procedures of Judicial Arbitration Mediation Services (“JAMS”) in effect as of the date that a Demand for Arbitration is filed, except as expressly modified herein. The locale for any arbitration commenced hereunder shall be the regional office of the JAMS closest to the Site.

- 16.11.5.2 Demand for Arbitration. A Demand for Arbitration shall be filed and served within a reasonable time after the occurrence of the claim, dispute or other disagreement giving rise to the Demand for Arbitration, but in no event shall a Demand for Arbitration be filed or served after the date when the institution of legal or equitable proceedings based upon such claim, dispute or other disagreement would be barred by the applicable statute of limitations. If more than one Demand for Arbitration is filed by either the District or the Contractor relating to the Work or the Contract Documents, all Demands for Arbitration shall be consolidated into a single arbitration proceeding, unless otherwise agreed to by the District and the Contractor. The Contractor’s Surety, a Subcontractor or Material Supplier to the Contractor and other third parties may be permitted to join in and be bound by an arbitration commenced hereunder if required by the terms of their respective agreements with the Contractor, except to the extent that such joinder would unduly delay or complicate the expeditious resolution of the claim, dispute or other disagreement between the District and the Contractor, in which case an appropriate severance order shall be issued by the Arbitrator(s).
- 16.11.5.3 Discovery. In connection with any arbitration proceeding commenced hereunder, the discovery rights and procedures provided for in California Code of Civil Procedure §1283.05 shall be applicable, and the same shall be deemed incorporated herein by this reference.
- 16.11.5.4 Arbitration Award. The award rendered by the Arbitrator(s) (“Arbitration Award”) shall be final and binding upon the District and the Contractor only if the Arbitration Award is: (i) supported by One Hundred Percent evidence; (ii) based on applicable legal standards in effect at the time the Arbitration Award is issued; and (iii) supported by written findings of fact and conclusions of law in conformity with California Code of Civil Procedure §1296. Any Arbitration Award that does not conform to the foregoing is invalid and unenforceable. The District and Contractor hereby expressly agree that the Court shall, subject to California Code of Civil Procedure §§1286.4 and 1296, vacate the Arbitration Award if, after review, the Court determines either that the Arbitration Award does not fully conform to the foregoing. The confirmation, enforcement, vacation or correction of an arbitration award rendered hereunder shall be made by the Superior Court of the State of California for the county in which the Site is situated. The substantive and procedural rules for such post-award proceedings shall be as set forth in California Code of Civil Procedure §1285 et seq.
- 16.11.5.5 Arbitration Fees and Expenses. The expenses and fees of the Arbitrator(s) shall be divided equally among all of the parties to the arbitration. Each party to any arbitration commenced hereunder shall be responsible for and shall bear its own attorneys’ fees, witness fees and other costs or expenses incurred in connection with such arbitration. The foregoing notwithstanding, the Arbitrator(s) may award arbitration costs, including Arbitrators’ fees but excluding attorneys’ fees, to the prevailing party. By this arbitration provision, the District and the Contractor acknowledge and agree that neither shall

recover from the other any attorney's fees associated with or arising out of any legal, administrative or other proceedings filed or instituted in connection with or arising out of the Contract Documents or the performance of either the District or the Contractor thereunder. The limited exceptions in the Contract Documents that provide attorney's fees for specific issues shall neither be construed as applying to this arbitration provision under California Civil Code §1717(a) nor be deemed to be "authorized by the Laws."

16.11.5.6 Limitation on Arbitrator. The Superior Court for the State of California for the County in which the Project Site is situated has the sole and exclusive jurisdiction, and an arbitrator has no authority, to hear and/or determine a challenge to the commencement or maintenance of an arbitration proceeding on the grounds that: (i) the subject matter of the arbitration proceeding is barred by the applicable statute of limitations; (ii) the subject matter of the arbitration proceeding is barred by a provision of the California Government Claims Act; (iii) the subject matter of the arbitration proceeding is outside the scope of the arbitration clause; (iv) the Contractor has failed to satisfy all conditions precedent to commencement or maintenance of an arbitration proceeding; (v) waiver of the right to compel arbitration; (vi) grounds exist for the revocation of the arbitration agreement; and/or, (vii) there is the prospect that a ruling in arbitration would conflict or potentially with a ruling in a pending proceeding regarding the Project on a common issue of law or fact.

16.11.6 Inapplicability to Bid Bond. The arbitration proceedings described above are not applicable to disputes, disagreements or enforcement of rights or obligations under the Bid Bond. All claims, disputes and actions to enforce rights or obligations under the Bid Bond shall be adjudicated only by judicial proceedings commenced in a court of competent jurisdiction.

- 16.12 Limitation on Special/Consequential Damages. In the event of the District's breach or default of its obligations under the Contract Documents, the damages, if any, recoverable by the Contractor shall be limited to general damages which are directly caused by the breach or default of the District and shall exclude any and all special or consequential damages, if any. The Contractor expressly acknowledges the foregoing limitation to recovery of only general damages from the District if the District is in breach or default of its obligations under the Contract Documents; the Contractor expressly waives and relinquishes any recovery of special or consequential damages from the District.
- 16.13 Capitalized Terms. Except as otherwise expressly provided, capitalized terms used in the Contract Documents shall have the meaning and definition for such term as set forth in the Contract Documents.
- 16.14 Attorneys' Fees. Except as expressly provided for in the Contract Documents, or authorized by law, neither the District nor the Contractor shall recover from the other any attorney's fees or other costs associated with or arising out of any legal, administrative or other proceedings filed or instituted in connection with or arising out of the Contract Documents or the performance of either the District or the Contractor thereunder.
- 16.15 Provisions Required by Law Deemed Inserted. Each and every provision of law and clause required by law to be inserted in the Contract Documents is deemed to be inserted herein and the Contract Documents shall be read and enforced as though such provision or clause are included herein, and if through mistake, or otherwise, any such provision or clause is not inserted or if not correctly inserted, then upon application of either party, the Contract Documents shall forthwith be physically amended to make such insertion or correction.
- 16.16 Days. Unless otherwise expressly stated, references to "days" in the Contract

Documents shall be deemed to be calendar days.

- 16.17 Entire Agreement. The Contract Documents contain the entire agreement and understanding between the District and the Contractor concerning the subject matter hereof, and supersedes and replaces all prior negotiations, proposed agreements or amendments, whether written or oral. No amendment or modification to any provision of the Contract Documents shall be effective or enforceable except by an agreement in writing executed by the District and the Contractor.

**[END OF SECTION]**

**SPECIAL CONDITIONS**

1. Application of Special Conditions. These Special Conditions for a part of the Contract Documents for the Work described as **BID #2024-06 Los Banos - Entrance Signs and Marquee Sign**
2. Project Manager. The District will manage the project.
3. Drawings and Specifications. (Available Electronically), The number of sets of the Drawings and Specifications which the District will provide to the Contractor, pursuant to Article 2.1.3 of the General Conditions is **Choose an item.** Additional sets of the Drawings and Specifications may be obtained by the Contractor from the District at the cost of reproduction.

4. Insurance Coverages.
  - 4.1. Contractor Insurance. Pursuant to Article 6 of the General Conditions, the Contractor shall obtain and maintain the following insurance coverages with minimum coverage amounts as set forth below:

| Policy of Insurance                    | Minimum Coverage Amount                                                |
|----------------------------------------|------------------------------------------------------------------------|
| Commercial General Liability Insurance | Per Occurrence: Two Million Dollars (\$2,000,000)                      |
|                                        | Aggregate: Four Million Dollars (\$4,000,000)                          |
| Workers Compensation                   | In accordance with the Laws                                            |
| Employers Liability                    | One Million Dollars (\$1,000,000)                                      |
| Builders Risk                          | Full insurable value of the Work;<br>Seismic coverage: Choose an item. |

- 4.2. Subcontractor Insurance. Pursuant to Article 6 of the General Conditions, each Subcontractor shall obtain and maintain the following insurance coverages with minimum coverage amounts as set forth below

| Policy of Insurance                    | Minimum Coverage Amount                           |
|----------------------------------------|---------------------------------------------------|
| Commercial General Liability Insurance | Per Occurrence: One Million Dollars (\$1,000,000) |
|                                        | Aggregate: Two Million Dollars (\$2,000,000)      |
| Workers Compensation                   | In accordance with the Laws                       |
| Employers Liability                    | One Million Dollars (\$1,000,000)                 |

5. Contract Time. The commencement date of the Contract Time of the Work shall be as set forth in the Notice to Proceed issued by or on behalf of the District. The Contractor shall achieve One Hundred Percent (100%) Completion of the Work by **90 days of the Notice to Proceed.** The Contract Time shall not be extended if the Contractor commences Work after the date established in the Notice to Proceed for commencement of Work without fault or neglect of the District.

6. Liquidated Damages. The per diem rate of Liquidated Damages for delayed One Hundred Percent Completion, delayed submission of Submittals and delayed completion of Punchlist shall be as set forth herein.

- 6.1. Delayed One Hundred Percent Completion. If Completion is not achieved on or before expiration of the Contract Time, the Contractor shall be liable to the District for Liquidated



Damages from the date of expiration of the Contract Time to the date that the Contractor achieves Completion of the Work at the per diem rate of Five Hundred Dollars (\$500.00).

- 6.2. Delayed Submission of Submittals. If the Contractor fails to submit a Submittal in accordance with the Submittal Schedule, the Contractor shall be liable to the District for Liquidated Damages for each delayed Submittal at the per diem rate of Five Hundred Dollars (\$500.00) from the date that such Submittal was due to be submitted pursuant to the Submittal Schedule and the date that the Contractor actually submits the Submittal to the Architect.
- 6.3. Delayed Punchlist Completion. If the Contractor fails to complete Punchlist within the time established pursuant to the Contract Documents, the Contractor shall be liable to the District for Liquidated Damages from the date established for completion of Punchlist until the date that all Punchlist is actually completed at the per diem rate of Five Hundred Dollars (\$500.00).
- 6.4. Surety Liability. Subject only to limitations established by the penal sum of the Performance Bond, the Surety issuing the Performance Bond shall be liable to the District for Liquidated Damages due from the Contractor.

7. Mark-Ups on Changes to the Work. In the event of Changes to the Work, pursuant to Article 9 of the General Conditions, the mark-up for all overhead (including home and field office overhead), general conditions costs and profit, shall not exceed the percentage of allowable direct actual costs for performance of the Change as set forth below.

- 7.1. Subcontractor Performed Changes. For the portion of any Change performed by Subcontractors of any tier, the percentage mark-up on allowable actual direct labor and materials costs incurred by all Subcontractors of any tier shall be **Ten Percent (10%)**. In addition, for the portion of any Change performed by a Subcontractor of any tier, the Contractor may add an amount equal to Choose an item. of the allowable actual direct labor and materials costs of Subcontractors performing the Change; the foregoing mark-up shall not be applied to the Subcontractor mark-up.
- 7.2. Contractor Performed Changes. For the portion of any Change performed by the Contractor's own forces, the mark-up on the allowable actual direct labor and materials costs of such portion of a Change shall be **Ten Percent (10%)**.
- 7.3. Bond Premium Costs. In addition to the foregoing mark-ups on the direct costs of labor and materials, a bond premium expense in an amount equal to the lesser of the Contractor's actual bond premium rate of One Percent (1%) of the total actual direct costs of labor and materials (before Subcontractor and Contractor mark-ups) will be allowed.
- 7.4. Exclusions From Mark-Up of Actual Costs. Mark-ups on the actual cost of materials/equipment incorporated into a Change or for purchase/rental of Construction Equipment shall not be applied to any portion of such costs which are for sales, use or other taxes arising out of the purchase of materials/equipment and/or for purchase/rental of Construction Equipment.

8. Rain Days.

- 8.1. Rain Days Defined and Limitations on Rain Days. In addition to the requirements and limitations set forth in the Contract Documents, including without limitation Article 7.4.1 of the General Conditions, the Contract Time will be adjusted for unusually severe weather conditions resulting from rainfall only if: (i) the Contractor has taken reasonable measures to proceed with the Work notwithstanding inclement weather conditions; (ii) the Contractor demonstrates (by schedule analysis or other means) to the reasonable satisfaction of the District that the progress of Work on the critical path of the then current Construction Schedule was affected by unusually severe weather conditions resulting from rainfall; and (iii) the Contractor demonstrates to the reasonable satisfaction of the District that the Contractor could not re-sequence Work so that Work activities (whether or not on the

critical path of the then current Construction Schedule) not affected by rainfall could have been performed on a Rain Day. The occurrence of precipitation by itself shall not constitute a Rain Day. For purposes of the Contract Documents, a Rain Day occurs when: (i) there is measurable rainfall occurring on a day when Work is scheduled to be performed at the Site; (ii) there is rainfall sufficiently continuous for at least a three (3) hour period; (iii) the rainfall is sufficiently severe to prevent performance of Work at the Site (rainfall is not deemed sufficiently severe to prevent Work at the Site if there are Work activities which are not materially affected by rainfall and which can be reasonably performed by the Contractor by re-sequencing Work activities); and (iv) after a Rain Day (as defined in (i), (ii) and (iii) above) has occurred, the conditions at the Site are adversely affected by rainfall so that a period of time is necessary to permit sufficient “drying out” of wet conditions at the Site sufficient to permit the continuation of Work.

- 8.2. Rain Days Incorporated Into Construction Schedules. Construction Schedules prepared by the Contractor shall incorporate the following Rain Days. The Contract Time shall not be subject to adjustment for unusually severe weather conditions until the number of Rain Days noted below are exceeded.

| Month     | Rain Days |
|-----------|-----------|
| January   | four (4)  |
| February  | four (4)  |
| March     | three (3) |
| April     | two (2)   |
| May       | two (2)   |
| June      | none      |
| July      | none      |
| August    | none      |
| September | none      |
| October   | two (2)   |
| November  | three (3) |
| December  | four (4)  |

9. Hours and Days of Work at the Site.

- 9.1. Work Hours/Days. Subject to limitations set forth elsewhere in the Contract Documents and below, the hours/days of Work at the Site are: 7am – 5pm Mondays through Fridays, except for holiday days.
- 9.2. Limitations on Work Hours/Days. Work activities at the Site will be limited or prohibited on days: (i) devoted to student testing or when testing of students may be adversely affected by Work activities at the Site; or (ii) when other special events or functions are scheduled. The Contractor shall familiarize itself with District activities at the Site to avoid Work activity interferences or disturbances to such District activities. The Contractor’s Construction Schedule shall take into account the District activities which limit or preclude Work activities at the Site.
- 9.3. Facilities/Services for District Inspector. Unless otherwise expressly provided in the Contract Documents, pursuant to Article 4.14.2 of the General Conditions, the Contractor, without adjustment of the Contract Price, shall provide, or cause to be provided, for use by the District Inspector during prosecution of the Work, the following: (i) lockable temporary office space consisting of sufficient space to accommodate Project Inspectors assigned to the Work; (ii) furniture and furnishings consisting of desks and chairs for use by Project Inspectors assigned to the Work, file storage, one (1) conference table and seating sufficient to accommodate seating for at least four (4) people; (iii) landline phone; (iv) plain paper fax machine; (v) landline telephone and fax service; (vi) internet service;

and (vii) plain paper copier with copy speed of no greater than thirty five (35) pages per minute.

10. Permits, Fees and Approvals. In addition to permits or approvals obtained by the District for the Work, the Contractor shall obtain the following permits, approvals and other authorizations from any public agency with jurisdiction over any portion of the Work. The Contractor shall obtain the permits, approvals and/or authorizations set forth below: (i) without adjustment of the Contract Price, unless otherwise indicated below; and (ii) without adjustment of the Contract Time.

| Contractor Obtained Permit, Approval or Authorization | Cost Reimbursement                                               |
|-------------------------------------------------------|------------------------------------------------------------------|
| Deferred Approval Items (N/A)                         | No reimbursement to Contractor; cost included in Contract Price. |
|                                                       | No reimbursement to Contractor, cost included in Contract Price. |
|                                                       | Choose an item.                                                  |

For any off-site work requiring City or County review and/or approval, Contractor shall coordinate and schedule inspections with City or County.

11. Construction Utilities. The Contractor shall obtain and pay for all site utilities required to complete the Work.

12. Use of Site.

12.1. Staging/Storage. Staging/storage areas shall be restricted to areas designated in the Contract Documents for such purposes. The Contractor, without adjustment of the Contract Price or the Contract Time, shall secure and pay for the use of additional storage, staging areas, or work areas needed for operations. The Contractor and Subcontractors are responsible for following the requirements established in the Contract Documents for deliveries, storage trailers, office trailers and temporary utilities. The Contractor and Subcontractors shall coordinate material and equipment deliveries with the District and to ensure that materials can be off-loaded efficiently and that Site use operations are maintained in an orderly fashion. If any materials or equipment stored at the Site obstruct the performance of any portion of the Project or otherwise interfere with District operations or activities, these materials shall be removed and relocated by the Contractor without adjustment of the Contract Price or the Contract Time. If the Contractor fails or refuses to comply with the foregoing staging/storage requirements and limitations within a reasonable time, but not more than twenty four (24) hours after notice, the District reserves the right to take measures to comply with such requirements or limitations, with the costs of such measures being the sole responsibility of the Contractor.

12.2. Site Logistics Plan. Prior to commencement of Work at the Contractor, the Contractor prepare a Site Logistics Plan which include, without limitation: delivery routes, storage/staging areas, jobsite trailer locations, wash out areas, and other similar activities. The Site Logistics Plan shall: (i) take into account emergency vehicle ingress/egress; pedestrian paths of travel and disabled persons paths of travel; (ii) be subject to review and acceptance by the District; and (iii) be subject to modification during performance of the Work.

12.3. Parking. Personnel of the Contractor, Subcontractors and others performing Work at the Site will be allowed to park vehicles in areas outside the Site, with a valid District parking permit, in the parking spaces at a location designated by the District. Parking permit charges, if any, shall be borne and paid by the Contractor without adjustment of the Contract Price. The foregoing notwithstanding, the extent or location of parking for such

personnel may be limited, restricted, eliminated or modified by the District as reasonably necessary to facilitate and accommodate necessary parking for the District's students, staff and visitors. Neither the Contract Price nor the Contract Time shall be adjusted as a result of any such District modifications to the extent or location of parking.

- 12.4. Prohibition on Smoking. The District has implemented policies and practices limiting and restricting smoking on District property, including the Site. The Contractor is solely responsible for obtaining the District's current non-smoking policy and: (i) notifying Subcontractors of the District's non-smoking policies; (ii) informing employees of the Contractor and Subcontractors of the District's non-smoking policies; (iii) posting notices at the Site summarizing the District's non-smoking policies; (iv) complying with the Laws relating to smoking limitations and restrictions; and (v) taking appropriate actions if the District's non-smoking policies are violated or limitations/restrictions imposed by the Laws are violated, including without limitation, removal of personnel violating such policies, limitations or restrictions.

**[END OF SECTION]**



## **SECTION 03 10 00 CONCRETE FORMING AND ACCESSORIES**

### **PART 1 GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section is related to concrete forming and accessories and includes:
  - 1. Formwork for cast-in-place concrete, with shoring, bracing, and anchorage.
  - 2. Installation of items to be embedded in concrete, such as anchor bolts, inserts, embeds, and sleeves.
  - 3. Openings for other work.
  - 4. Form accessories.
  - 5. Form stripping.
- B. Related Sections:
  - 1. Section 03 20 00: Concrete Reinforcing.
  - 2. Section 03 30 00: Cast-in-Place Concrete.
- C. Reference Standards:
  - 1. ACI 117 Standard Specifications for Tolerances for Concrete Construction and Materials.
  - 2. ACI 301 Specifications for Structural Concrete.
  - 3. ACI 318-14 Building Code Requirements for Structural Concrete and Commentary.
  - 4. ACI 347 Guide to Formwork for Concrete.
  - 5. National Institute of Standards and Technology - PS 1 Structural Plywood.
  - 6. 2022 California Building Code, Chapter 19A.
  - 7. APA American Plywood Association Design and Construction Guide.
  - 8. Local AQMD - XXAir Quality Management District.

#### **1.3 SUBMITTALS**

- A. Product Data: Provide data on void form materials and installation requirements.
- B. Shop Drawings: Indicate pertinent dimensions, materials, bracing, and arrangement of joints and ties. Review and approval will not include form strength and adequacy.
- C. Keep an accurate record of the dates of removal of forms, form shores and reshores, and furnish copies to the SEOR.

#### **1.4 QUALITY ASSURANCE**

- A. Comply with the pertinent provisions of Division 01: General Requirements.
- B. Construct forms according to ACI 347, "Guide to Formwork for Concrete," and conforming to tolerances of ACI 117, "Standard Specifications for Tolerances for Concrete Construction and Materials."

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Comply with pertinent provisions of Division 01: General Re, delivering materials in a timely manner to ensure uninterrupted progress.
- B. Store prefabricated forms off ground in ventilated and protected manner to prevent deterioration from moisture.

## **PART 2 PRODUCTS**

### **2.1 FORMWORK - GENERAL**

- A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.
- B. Design and construct to provide resultant concrete that conforms to design with respect to shape, lines, and dimensions.
- C. Comply with applicable state and local codes with respect to design, fabrication, erection, and removal of formwork.
- D. Comply with relevant portions of ACI 347, ACI 301, and ACI 318.

### **2.2 WOOD FORM MATERIALS**

- A. Softwood Plywood: PS 1, B-B Medium or High Density Concrete Form Overlay, Class I, grade marked, not mill oiled.
- B. Lumber: DF species; WCLIB Construction grade or better, WWPA No. 1 grade or better; with grade stamp clearly visible.

### **2.3 REMOVABLE PREFABRICATED FORMS**

- A. Void Forms: Moisture resistant treated paper faces, biodegradable, structurally sufficient to support weight of wet concrete mix until initial set; two inches (2") thick.

### **2.4 FORMWORK ACCESSORIES**

- A. Form Ties: Prefabricated rod, flat band, wire, internally threaded disconnecting type, or equal, not leaving metal within 1-1/2 inches of concrete surface.
- B. Form Release Agent:
  - 1. Capable of releasing forms from hardened concrete without staining or discoloring concrete or forming bug holes and other surface defects, compatible with concrete and form materials, and not requiring removal for satisfactory bonding of coatings to be applied:
    - a. Composition: Colorless reactive, mineral oil-based, soy-based, or vegetable oil-based compound.
    - b. Do not use materials containing diesel oil or petroleum-based compounds.
    - c. VOC content: In compliance with applicable local, state, and federal regulations.
- C. Embedded Anchor Shapes, Plates, Angles and Bars: As specified in Division 05: Metals.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify lines, levels, and centers before proceeding with formwork. Ensure that dimensions agree with Drawings.

### **3.2 EARTH FORMS**

- A. Hand trim sides and bottom of earth forms. Remove loose soil prior to placing concrete. Sides of all footings and grade beams shall be formed, unless the member detail provides at least three inches (3") clear cover to reinforcement and indicates the member is cast against earth. Remove formwork prior to backfilling operations.

### **3.3 ERECTION - FORMWORK**

- A. Erect formwork, shoring, and bracing to achieve design requirements, in accordance with requirements of ACI 301.
- B. Rigidly construct forms to prevent mortar leakage, sagging, displacement, or bulging between studs. Use clean, sound, approved form material, coated with specified materials only, not oil. Provide backing on all plywood joints.
- C. Coat forms with the specified resin coating, not form oil. Construct forms to exact shapes, sizes, lines, and dimensions required to obtain level, plumb, and straight surfaces. Provide openings, offsets, keys, reglets, anchorages, recesses, moldings, chamfers, blocking, screeds, drips, bulkheads, and all other required features. Make forms easily removable without hammering or prying against concrete. Space forms apart with metal spreaders. Construct forms to accurate alignment, locations, and grades, and provide against sagging, leakage of concrete mortar, or displacement occurring during and after placing of concrete. Coordinate installation of inserts and anchors in forms according to shop drawings and requirements for Work of other Sections.
- D. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.
- E. Corners and angles: Provide 3/4-inch by 3/4-inch beveled chamfer strips for all exposed concrete corners and angles square unless indicated otherwise.
- F. Reglets and Rebates: Form required reglets and rebates to receive frames, flashing, and other equipment. Obtain required dimensions, details, and precise positions for Work to be installed under other Sections and form concrete accordingly.
- G. Form Joints: Align joints and make watertight. Keep form joints to a minimum. Fill joints to produce smooth surfaces, intersections, and arises. Use polymer foam or equivalent fillers at joints and where forms abut or overlap existing concrete to prevent leakage of mortar.
- H. Recesses, Drips, and Profiles: Provide smooth milled wood or pre-formed rubber or plastic shapes of types shown and required.
- I. Cleanouts and Cleaning: Provide temporary openings in all wall forms and other vertical forms for cleaning and inspection. Clean forms and surfaces to receive concrete prior to placing.
- J. Re-Use: Clean and recondition form material before re-use.

### **3.4 APPLICATION - FORM RELEASE AGENT**

- A. Apply form release agent on formwork in accordance with manufacturer's



recommendations.

- B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- C. Do not apply form release agent where concrete surfaces will 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.

### **3.5 INSERTS, EMBEDDED PARTS, AND OPENINGS**

- A. All necessary pipe sleeves, anchors, or other required inserts shall be accurately installed as part of the work of other Sections, according to Section 03 30 00: Cast-In-Place Concrete, for submittal requirements related to this scope.
- B. Obtain approval before framing openings in structural members that are not indicated on Drawings.
- C. Provide formed openings where required for items to be embedded in passing through concrete work.
- D. Locate and set in place items that will be cast directly into concrete.
- E. Conduits or Pipes:
  - 1. Locate so as not to reduce strength of the concrete.
  - 2. Do not place pipes, other than conduits, in a slab 4-1/2 inches thick or less in any case. Conduit buried in a concrete slab shall not have an outside dimension greater than 1/3 the slab thickness nor be placed below the bottom reinforcing or over the top reinforcing.
  - 3. Sleeves: Pipe sleeves may pass through the slab or walls if not exposed to rusting or other deterioration and are of uncounted or galvanized iron or steel. Provide sleeves of diameter large enough to pass any hub or coupling on pipe, including any insulation.
  - 4. Conduits may be embedded in walls only if the outside diameter does not exceed 1/3 the wall thickness, are spaced no closer than three (3) diameters on centers, and not impair the strength of the structure.
- F. Coordinate with work of other Sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other Work.
- G. Install accessories in accordance with manufacturer's instructions so they are straight, level, and plumb. Ensure items are not disturbed during concrete placement.
- H. Install waterstops in accordance with manufacturer's instructions, so they are continuous without displacing reinforcement. Heat seal joints so they are watertight.
- I. 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.
- J. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fit so joints will not be apparent in exposed concrete surfaces.

### **3.6 FORM CLEANING**

- A. Clean forms as erection proceeds to remove foreign matter within forms.
- B. Clean formed cavities of debris prior to placing concrete.

### 3.7 FORMWORK TOLERANCES

- A. Construct formwork to maintain tolerances required by ACI 117, unless otherwise indicated.
- B. Deflection: Limit deflection of forming surfaces from concrete pressure to L/240.
- C. Finish Lines:
  - 1. Position formwork to maintain hardened concrete finish lines within following permissible deviations:
    - a. Variation from plumb:

|                        |          |
|------------------------|----------|
| In 10'-0"              | 1/4 inch |
| In any story or 20'-0" | 3/8 inch |
| In 40'-0" or more      | 3/4 inch |
    - b. Variation from level or grades indicated:

|                        |          |
|------------------------|----------|
| In 10'-0"              | 1/4 inch |
| In any story or 20'-0" | 3/8 inch |
| In 40'-0" or more      | 3/4 inch |
    - c. Cross-sectional dimensions:

|       |          |
|-------|----------|
| Minus | 1/4 inch |
| Plus  | 1/2 inch |

### 3.8 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Division 01: General Requirements.
- 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.

### 3.9 FORM REMOVAL

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and all superimposed loads as determined by testing field cured cylinders, but not sooner than specified in ACI 347. Load supporting forms may be removed when concrete has attained 75 percent of required 28-day compressive strength, but no sooner than three (3) days, provided construction is reshored. Vertical formwork for cast-in-place concrete walls may be removed no sooner than one (1) day following concrete placement, provided that Contractor can demonstrate that no sloughing or sagging of concrete will occur:
  - 1. Reshore structural members as specified per ACI 347.
  - 2. Remove formwork progressively so unbalanced loads are not imposed on the structure.
  - 3. Avoid damage to concrete surfaces during removal.
  - 4. Remove formwork in same sequence as concrete placement to achieve similar concrete surface coloration.

**END OF SECTION 03 10 00**

## **SECTION 03 20 00 CONCRETE REINFORCING**

### **PART 1 GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section is related to concrete reinforcement and includes:
  - 1. Reinforcing steel for cast-in-place concrete foundations.
  - 2. Reinforcing steel for cast-in-place concrete slabs-on-grade.
  - 3. Supports and accessories for steel reinforcement.
- B. Reference Standards:
  - 1. ACI 301 Specifications for Structural Concrete.
  - 2. ACI 318 Building Code Requirements for Structural Concrete and Commentary.
  - 3. ACI SP-066 ACI Detailing Manual.
  - 4. ASTM A615/A615M Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
  - 5. ASTM A706/A706M Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement.
  - 6. ASTM A775/A775M Standard Specification for Epoxy-Coated Steel Reinforcing Bars.
  - 7. ASTM D3963/D3963M Standard Specification for Fabrication and Jobsite Handling of Epoxy-Coated Steel Reinforcing Bars.
  - 8. AWS D1.4 Structural Welding Code - Reinforcing Steel.
  - 9. CRSI Concrete Reinforcing Steel Institute Manual of Standard Practice.
  - 10. CRSI Concrete Reinforcing Steel Institute Placing Reinforcing Bars.

#### **1.3 SUBMITTALS**

- A. See Section 00 72 13: General Conditions, Submittal.
- B. Shop Drawings:
  - 1. Comply with requirements of ACI SP-066. Include the following:
    - a. Complete bar layout.
    - b. Representative sections.
    - c. Details for congested conditions.
    - d. Proposed layout where vertical and horizontal bars intersect.
    - e. Bar schedules.
    - f. Typical bending diagrams and offsets.
    - g. Shapes of bent bars.
    - h. Spacing of bars.
    - i. Splice lengths and locations.
- C. Where welding is proposed:
  - 1. Detail welding to conform to AWS D1.4.
  - 2. Submit copies of welding operator's certificate.
  - 3. Where reinforcement complying with ASTM A615 is to be welded, chemical tests shall be performed to determine the weldability in accordance with ACI 318.
  - 4. Weld procedure specifications (WPS):
    - a. All WPS's shall be submitted to the Structural Engineer of Record (SEOR) for

- review and approval prior to use.
- b. For WPS's that have been qualified by test, the supporting Procedure Qualification Record (PQR) shall be submitted to the SEOR for review and approval.
- c. Included shall be WPS for repair welds.

D. Reports: Submit certified copies of mill test report of reinforcement materials analysis.

#### 1.4 QUALITY ASSURANCE

- A. Comply with the pertinent provisions of Section 00 72 13: General Conditions.
- B. Perform work of this Section in accordance with ACI 301.
- C. Welders' Certificates: Submit certifications for welders employed on the Project, verifying AWS qualification within the previous 12 months.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with pertinent provisions of Section 00 72 13: General Conditions, delivering materials in a timely manner to ensure uninterrupted progress.
- B. Bundle bars, tag with identification, and transport and store so as not to damage any material. Use metal tags indicating size, length, and other marking shown on placement drawings. Maintain tags after bundles are broken.
- C. Avoid exposure to dirt, moisture, or conditions harmful to reinforcement.
- D. Extra Material:
  - 1. Provide an allowance of an additional ten percent (10%) of the total reinforced steel tonnage in addition to the quantities shown on the Drawings. This additional steel shall be installed in sizes and locations as directed by the structural Engineer.

### PART 2 PRODUCTS

#### 2.1 REINFORCEMENT

- A. Reinforcing Steel:
  - 1. ASTM A615/A615M, Grade 60 (60,000 psi):
    - a. Deformed billet-steel bars.
    - b. Unfinished.
    - c. Only to be used for conditions where bars will not be welded.
- B. Reinforcing Steel:
  - 1. ASTM A706/A706M, Grade 60 (60,000 psi) deformed low-alloy steel bars:
    - a. Unfinished.
    - b. Used in all cases where welding of bars is required.
- C. Reinforcement Accessories:
  - 1. Tie wire: ASTM A1064, annealed copper bearing steel, minimum 16 gage, 0.0508 inch.
  - 2. Chairs, bolsters, bar supports, spacers:
    - a. Sized and shaped for adequate support of reinforcement during concrete placement. Standard manufactured products shall conform to the Concrete Reinforcing Institute Manual of Standard Practice, latest edition.
  - 3. Use dense precast concrete supports with embedded wire ties for reinforcement placed on grade. Elsewhere, use wire bar supports.

- D. Welding electrodes: AWS D1.4, Table 5.1 and 5.3, low hydrogen electrodes, E8018 for Grade 60 steel.

## 2.2 REBAR SPLICING

- A. Coupler Systems: Mechanical devices for splicing reinforcing bars conforming to the requirements of ACI 318; capable of developing 1.25fy of the steel reinforcing yield strength in tension and compression.
- B. For reinforcement, all mechanical splices in Special Structural Walls, Special Moment Frames, and Concrete Diaphragms shall be Type 2, conforming to the requirements of ACI 318, capable of developing 1.25fy of the steel reinforcing yield strength in tension and compression, and develop the specified tensile strength of the spliced bar:
  - 1. Products:
    - a. Dayton Superior Corporation; Bar Lock Coupler System: [www.daytonsuperior.com](http://www.daytonsuperior.com) (ICC-ESR 2481).
    - b. Lenton Lock Couplers (IAPMO-ES 129).
- C. Dowel Bar Splicer with Dowel-Ins:
  - 1. Mechanical devices for connecting dowels; capable of developing full steel reinforcing design strength in tension and compression.
    - a. Products:
      - 1) Dayton Superior Corporation; Dowel Bar Splicer D101A with Straight Dowel-In: [www.daytonsuperior.com](http://www.daytonsuperior.com).
      - 2) Lenton Form Savers (IAPMO-ES 129).

## 2.3 FABRICATION

- A. Fabricate concrete reinforcing in accordance with CRSI - Manual of Standard Practice.
- B. Bending and Forming:
  - 1. Fabricate bars of the indicated sizes and bend and form to required shapes and lengths by methods not injurious to materials.
  - 2. Do not heat reinforcement for bending.
  - 3. Bend bars No. 6 size and larger in the shop only.
  - 4. Bars with unscheduled kinks or bends are subject to rejection.
  - 5. Use only tested and approved bar materials.
- C. Welding:
  - 1. Use only ASTM A706 steel where welding is proposed:
    - a. Perform welding where shown or approved, by the direct electric arc process in accordance with AWS D1.4 using specified low hydrogen electrodes.
    - b. Preheat six inches (6") each side of joint.
    - c. Protect joints from drafts during the cooling process; accelerated cooling is prohibited.
    - d. Do not tack weld bars.
    - e. Welding shall not be done on or within two (2) bar diameters of any bent portion of a bar that has been bent cold.
    - f. Welding of crossing bars shall not be permitted for assembly reinforcement unless authorized by the SEOR.
    - g. Clean metal surfaces to be welded of all loose scale and foreign material.
    - h. Clean welds each time electrode is changed and chip burned edges before placing welds.
    - i. When wire brushed, the completed welds must exhibit uniform section, smooth welded metal, feather edges without undercuts or overlays, freedom from porosity and clinkers, and good fusion and penetration to the base metal.

- j. Cut out welds or parts of welds found defective with chisel and replace with proper welding.
  - k. Fillet welds may be considered prequalified per AWS D1.4.
  - l. Other welds are to be qualified per AWS D1.4.
- D. Where ASTM A615 steel is to be used or occurs in existing elements and is to be welded:
- 1. Complete chemical analyses shall be performed to determine chemical composition and, for a new bar, provided in the mill certifications to determine weldability in accordance with ACI 318 with modifications per AWS D1.4.
  - 2. The carbon equivalency (CE) shall be clearly defined and bars with a CE above 0.75 shall not be welded.
  - 3. Welding Procedure Specifications and supporting PQRs with required testing per AWS D1.4 shall be provided for review and approval prior to welding.
  - 4. These WPS and PQRs shall be specific to the CE as determined above, and shall, in addition to the other AWS requirement, include minimum and maximum preheat and interpass temperatures that are specified to the CE. This preheat and interpass temperature shall be strictly enforced in the field.
  - 5. If separate shipments of bars vary the weldability, the process listed in the above requirements shall be repeated for these new bars.
- E. Locate reinforcing splices not indicated on Drawings at point of minimum stress. Review locations of splices with SEOR.

### **PART 3 EXECUTION**

#### **3.1 PLACEMENT**

- A. Before placing bars, and again before concrete is placed, clean bars of loose rust and/or mill scale, dirt, oil, or any other coating that may be deleterious or could reduce bond with the concrete.
- B. Securing in place:
- 1. Accurately place bars and wire tie in precise position where bars cross.
  - 2. Bend ends of wire ties away from the forms.
  - 3. Wire tie bars to the corners of ties and stirrups.
  - 4. Support bars according to the Concrete Reinforcing Steel Institute (CRSI) "Placing Reinforcing Bars," using approved accessories and chairs.
  - 5. Place precast concrete cubes with embedded wire ties to supporting reinforcing steel bars in concrete placed on grade and in footings.
  - 6. Take adequate precautions to ensure that reinforcing bar position and spacing is maintained during concrete placement.
- C. Do not displace or damage vapor barrier.
- D. Maintain concrete cover around reinforcing per requirements on Drawings.
- E. Splices:
- 1. Do not splice reinforcing bars at the points of maximum stress except where indicated.
  - 2. Lap splices as shown or required to develop the full strength or stress of the bars.
  - 3. Stagger splices in horizontal wall bars at least 48 inches longitudinally in alternate bars and opposite faces.
- F. Field Welding: As specified for fabrication.

#### **3.2 FIELD QUALITY CONTROL**

- A. Comply with all pertinent provisions of Section 00 72 13: General Conditions.
- B. Supervision: Perform Work to this Section under supervision of a capable superintendent.
- C. An independent testing agency, as specified in Section 00 72 13: General Conditions shall inspect installed reinforcement for conformance to Contract Documents before concrete placement.
- D. Where welding is done in the shop or at the site, perform welding of reinforcing bars under inspection of the testing laboratory welding inspector in accordance with Chapter 17 of the CBC. The welding inspector shall make a systematic record of all welds:
  - 1. Identification marks of welders.
  - 2. List of defective welds.
  - 3. Manner of correction of defects:
    - a. The welding inspector shall check the material, equipment details of construction and procedures, as well as the welds. The inspector shall check the ability of the welder. The welding inspector shall furnish the structural Engineer and the enforcement agency with a verified report that the welding required to be inspected is proper and has been done in conformity with the approved Plans and Specifications. The welding inspector shall use all means necessary to determine the quality of the weld. The inspector may use gamma ray, magnaflux, trepanning, sonics, or any other aid to visual inspection, which the inspector may deem necessary to assure the adequacy of the welding.

**END OF SECTION 03 20 00**

## **SECTION 03 30 00**

### **CAST-IN-PLACE CONCRETE**

#### **PART 1 GENERAL**

##### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Division 01 Specification Sections, apply to this Section.

##### **1.2 SUMMARY**

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
  - 1. Footings and foundation walls.
  - 2. Interior slabs-on-grade.
  - 3. Exterior slabs-on-grade.
- B. Special Coordination Requirements: Coordinate with the work of the following Sections to identify the finish flooring manufacturer's concrete slab requirements. Such requirements may be over and above the requirements of the Contract Documents and may require additional materials, means, or methods, which shall be included as part of the Work.
- C. Related Sections:
  - 1. Section 03 10 00: Concrete Forming and Accessories.
  - 2. Section 03 20 00: Concrete Reinforcing.
  - 3. Section 03 35 00: Concrete Finishing.
  - 4. Division 26: Electrical.

##### **1.3 DEFINITIONS**

- A. Cementitious Materials:
  - 1. Portland cement alone or in combination with one or more of the following, subject to compliance with requirements:
    - a. Blended hydraulic cement.
    - b. Fly ash and other pozzolans.
    - c. Ground granulated blast-furnace slag.
    - d. Silica fume.

##### **1.4 SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Certificates: Weighmaster's certificates.



- E. Material Certificates:
  - 1. For each of the following, signed by manufacturers:
    - a. Cementitious materials.
    - b. Admixtures.
    - c. Waterstops.
    - d. Curing materials.
    - e. Floor and slab treatments.
    - f. Bonding agents.
    - g. Adhesives.
    - h. Vapor retarders.
    - i. Semi-rigid joint filler.
    - j. Joint-filler strips.
    - k. Repair materials.
  
- F. Material Test Reports:
  - 1. For the following, from a qualified testing agency, indicating compliance with requirements:
    - a. Aggregates: Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.
    - b. Vapor retarder: Provide third part documentation that all testing was performed on a single production roll and a summary of test results per ASTM E1745.

## 1.5 QUALITY ASSURANCE

- A. Codes and Standards:
  - 1. Comply with provisions of following codes, specifications, and standards, except where more stringent requirements are shown or specified:
    - a. 2022 California Building Code (CBC) (CCR Title 24, Part 2, as adopted and amended by DSA).
    - b. American Concrete Institute (ACI) Publications:
      - 1) Comply with the following unless modified by requirements in the Contract Documents:
        - a) ACI 301, "Specifications for Structural Concrete."
        - b) ACI 117, "Specification for Tolerances for Concrete Construction and Materials and Commentary."
        - c) ACI 302.1R, "Guide to Concrete Floor and Slab Construction."
        - d) ACI 302.2R, "Guide for Concrete Slabs that receive Moisture-Sensitive Flooring Materials."
        - e) ACI 305R, "Guide to Hot Weather Concreting."
        - f) ACI 306R, "Guide to Cold Weather Concreting."
        - g) ACI 318, "Building Code Requirements for Structural Concrete and Commentary."
    - 2. Floor leveling to be FF50 (Minimum FF35, approval by Architect) and tested per ASTM E1155 following ACI 117 using 3D laser imaging to meet requirement unless otherwise noted on Drawings.
  
- B. Manufacturer Qualifications:
  - 1. A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment:
    - a. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
  
- C. Source Quality Control: Furnish Weighmaster's certificates for all concrete.
  
- D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D1.4M, "Structural Welding Code - Reinforcing Steel."

- E. Concrete Testing Service: Engage a qualified independent testing agency approved by DSA to perform material evaluation tests and to design concrete mixtures.
- F. Pre-Installation Meeting: Conduct meeting onsite. Include product and material manufacturers.

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

## **PART 2 PRODUCTS**

### **2.1 FORM-FACING MATERIALS**

- A. Smooth-Formed Finished Concrete:
  - 1. Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in large sizes to minimize number of joints:
    - a. Plywood, metal, or other approved panel materials.
    - b. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
      - 1) High-density overlay, Class 1 or better.
      - 2) Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
      - 3) Structural 1, B-B or better; mill oiled and edge sealed.
      - 4) B-B (concrete form), Class 1 or better; mill oiled and edge sealed.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4-inch by 3/4-inch minimum.
- D. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- E. Form-Release Agent:
  - 1. Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces:
    - a. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- F. Form Ties:
  - 1. Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal:
    - a. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

### **2.2 STEEL REINFORCEMENT**

- A. Reinforcing Bars: ASTM A615/A615M, Grade 60.
- B. Welded Reinforcing Bars: Low-alloy-steel reinforcing bars, ASTM A706/A706M, deformed.
- C. Do not use reinforcement having any of the following defects:
  - 1. Bar lengths, depths, or bends exceeding the specified fabricating tolerances.

2. Bends or kinks not indicated on the Drawings or required for this Work.
3. Bars with cross-section reduced due to excessive rust or other causes.

### 2.3 REINFORCEMENT ACCESSORIES

- A. Bar Supports:
1. Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
    - a. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

### 2.4 CONCRETE MATERIALS

- A. Cementitious Material:
1. Use the following cementitious materials, of the same type, brand, and source, throughout Project:
    - a. Portland Cement - ASTM C150, Type I/II. Supplement with the following:
      - 1) Fly Ash: ASTM C618, Class F.
- B. Normal-Weight Aggregates:
1. ASTM C33:
    - a. Maximum coarse-aggregate size: Per plan.
    - b. Fine aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C94 and potable.

### 2.5 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C260.
- B. Chemical Admixtures:
1. Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride:
    - a. Water-reducing admixture: ASTM C494/C494M, Type A.
    - b. Retarding admixture: ASTM C494/C494M, Type B.
    - c. Water-reducing and retarding admixture: ASTM C494/C494M, Type D.
    - d. High-range, water-reducing admixture: ASTM C494/C494M, Type F.
    - e. High-range, water-reducing and retarding admixture: ASTM C494/C494M, Type G.
    - f. Plasticizing and retarding admixture: ASTM C1017/C1017M, Type II.
- C. Integral Waterproofing Admixtures:
1. ASTM C494, Type S, complex catalyzed hydrous silicate, water and vapor proofing liquid admixture:
    - a. Product: Subject to compliance with requirements, provide Moxie International Inc.; Moxie Shield 1800 Concrete Admixture, P.O. Box 838 Loomis, CA 95650; Contact Manufacturer's representative: P:916-251-0825, F: 877-330-1930 Email: info@moxieshield.com.
    - b. Properties:
      - 1) Water/cement ratio: Maximum 0.52.
      - 2) Water vapor transmission: Less than 0.1 perms (5.7 g/Pa-s-m<sup>2</sup>).

- 3) Water seepage or permeability: Not to exceed  $7.00 \times 10^{-9}$  cm/s @ 50psi ( $2.3 \times 10^{-10}$  ft/s).
2. Products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

## 2.6 VAPOR RETARDERS

- A. Sheet Vapor Retarder:
  1. ASTM E1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape:
    - a. Products are subject to compliance with requirements. Acceptable products:
      - 1) Stego Industries, LLC: Stego Wrap 15 mil Class A.
      - 2) Grace Construction Products: Florprufe 120.
      - 3) W. R. Meadows, Inc.: Perminator 15 mil.
      - 4) Substitutions with Architect's approval, and pursuant to conditions of Divisions 00 and 01.
- B. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D448, Size 57, with 100 percent passing a 1-1/2-inch sieve and zero to five percent (0%-5%) passing a No. 8 sieve.

## 2.7 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately nine-ounces-per-square-yard when dry.
- B. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.

## 2.8 RELATED MATERIALS

- A. Non-Shrink Grout:
  1. Factory premixed grout; ASTM C1107.
  2. Compressive strength: 7,000 psi at 28 days.
- B. Exterior Concrete Walks: Provide a capillary break consisting of two inches (2") of clean dry sand, ASTM C33, evenly spread on top of the compacted subgrade.

## 2.9 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301:
  1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
  2. All concrete mix designs shall be prepared and stamped by a California registered civil Engineer.
- B. Cementitious Materials:
  1. Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
    - a. Fly Ash: 15 to 25 percent.

- C. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

## 2.10 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Footings and Foundation Walls, Concrete Stairs, and Concrete Walls:
  - 1. Proportion normal-weight concrete mixture as follows:
    - a. Minimum compressive strength: 3,000 psi at 28 days unless otherwise noted.
    - b. Maximum water-cementitious materials ratio: 0.55.
    - c. Minimum cementitious materials content: 5.5 sacks of cement per cubic yard.
    - d. Slump limit: Four inches (4"), plus or minus one inch (1").
- B. Interior Slabs-on-Grade:
  - 1. Proportion normal-weight concrete mixture as follows:
    - a. Minimum compressive strength: 4,000 psi at 28 days.
    - b. Maximum water-cementitious materials ratio: 0.45.
    - c. Minimum cementitious materials content: Six (6) sacks of cement per cubic yard.
    - d. Slump limit: Four inches (4"), plus or minus one inch (1").
- C. Exterior Slabs-on-Grade:
  - 1. Proportion normal-weight concrete mixture as follows:
    - a. Minimum compressive strength: 3,000 psi at 28 days.
    - b. Maximum water-cementitious materials ratio: 0.55.
    - c. Minimum cementitious materials content: 5.5 sacks of cement per cubic yard.
    - d. Slump limit: Four inches (4"), plus or minus one inch (1").

## 2.11 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

## 2.12 CONCRETE MIXING

- A. Ready-Mixed Concrete:
  - 1. Measure, batch, mix, and deliver concrete according to ASTM C94/C94M, and furnish batch ticket information:
    - a. When air temperature is between 85 and 90 degrees F, reduce mixing and delivery time from 90 minutes to 75 minutes; when air temperature is above 90 degrees F reduce mixing and delivery time to 60 minutes.

## 2.13 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment:
  - 1. Clear, chemically reactive, waterborne solution of inorganic silicate or silicate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces:
    - a. Basis-of-design product: Subject to compliance with requirements, provide Moxie International Inc.; **Moxie Shield 1500 Concrete Sealer or Moxie Shield MFSII Flooring Sealer**, P.O. Box 838 Loomis, CA 95650; Contact Manufacturer's representative: P:916-251-0825, F: 877-330-1930 Email: info@moxieshield.com.
    - b. Products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

## PART 3 EXECUTION

### 3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Construct forms tight enough to prevent loss of concrete mortar.
- D. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- E. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

### 3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded. In no case shall any bolt or anchor be stabbed in place while or after the concrete is poured:
  - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

### 3.3 REMOVING AND REUSING FORMS

- A. General:
  - 1. Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 degrees F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained:
    - a. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 75 percent of its 28-day design compressive strength.
    - b. Do not strip vertical concrete in less than seven (7) days.
    - c. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

### 3.4 SHORES AND RESHORES

- A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring:
  - 1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.

- B. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

### 3.5 VAPOR RETARDERS

- A. Sheet Vapor Retarders:
  - 1. Place, protect, and repair sheet vapor retarder according to ASTM E1643 and manufacturer's written instructions:
    - a. Lap joints six inches (6") and seal with manufacturer's recommended tape.
    - b. Seal all penetrations (including pipes) per manufacturer's tape.
    - c. No penetration of the vapor barrier is allowed except for reinforcing and permanent utilities.
    - d. Repair damaged areas by cutting patches of vapor barrier, overlapping damaged area six inches (6") and taping all four sides with tape.
    - e. Do not saturate the sand cushion.
    - f. If sand is saturated prior to placement of concrete, remove the sand and replace.
    - g. Protect all installed moisture barrier construction from precipitation and water penetration by covering and providing positive drainage away from the moisture barrier.
    - h. Cover slab openings and block-outs around columns to prevent water penetration of moisture barrier.

### 3.6 STEEL REINFORCEMENT

- A. General:
  - 1. Comply with CRSI's "Manual of Standard Practice" for placing reinforcement:
    - a. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
    - b. Clean reinforcement and remove loose dust and mill scale, earth, oil, and other materials that reduce bond or destroy bond with concrete.
    - c. Position, support, and secure reinforcement against displacement by forms, construction, and the concrete placement operations. Provide metal chairs, dobies, or other aids manufactured for this purpose.
    - d. Place reinforcement to obtain the required concrete coverages for concrete protection.

### 3.7 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
- C. Contraction Joints in Slabs-on-Grade:
  - 1. Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one inch (1") as follows:
    - a. Grooved joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
    - b. Sawed joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide, 1/3-inch depth joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks. Saw cut slab as soon as surface has hardened to where it can support the equipment and operator, normally within two (2) hours after finishing. Use saw designed for cutting fresh concrete, such as "Soff-Cut" or equal.

- D. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate 1/2 of dowel length to prevent concrete bonding to one side of joint.

### 3.8 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Deposit concrete continuously in one (1) layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation:
  - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
  - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
  - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least six inches (6") into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- D. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete:
  - 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  - 2. Maintain reinforcement in position on chairs during concrete placement.
  - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
  - 4. Slope surfaces uniformly to drains where required.
  - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- E. Cold-Weather Placement:
  - 1. Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures:
    - a. When average high and low temperature is expected to fall below 40 degrees F for three (3) successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
    - b. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
    - c. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- F. Hot-Weather Placement:
  - 1. Comply with ACI 301 and as follows:
    - a. Maintain concrete temperature below 90 degrees F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
    - b. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.



### 3.9 FINISHING FORMED SURFACES

- A. Rough-Formed Finish:
  - 1. As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities:
    - a. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish:
  - 1. As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities:
    - a. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete.
- C. Rubbed Finish:
  - 1. Apply the following to smooth-formed finished as-cast concrete where indicated:
    - a. Smooth-rubbed finish: Not later than one (1) day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
    - b. Grout-cleaned finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one-part portland cement to 1-1/2-parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
    - c. Cork-floated finish: Wet concrete surfaces and apply a stiff grout. Mix one-part portland cement and one-part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

### 3.10 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Except as may be shown otherwise on Drawings, provide the following finishes at the indicated locations.
- B. Scratch Finish:
  - 1. While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction:
    - a. Apply scratch finish to surfaces that are to receive concrete floor toppings or mortar setting beds for bonded cementitious floor finishes.
- C. Float Finish:
  - 1. Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats. Restraighten, cut down high spots, and fill low

spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture:

- a. Apply float finish to surfaces to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.
- D. Trowel Finish:
1. After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings:
    - a. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic, or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
    - b. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, ten-foot-long (10') straightedge resting on two (2) high spots and placed anywhere on the surface does not exceed 1/8 inch.
    - c. Contractor shall anticipate that grinding will be required as a result of curling or other slab defects. Grinding required to bring the slab surface into acceptable tolerances for finished flooring installation shall be included as part of the Work.
- E. Trowel and Fine-Broom Finish:
1. Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom:
    - a. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

### **3.11 CONCRETE PROTECTING AND CURING**

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
  1. Moisture curing: Keep surfaces continuously moist for not less than seven (7) days.
  2. Moisture-retaining-cover curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven (7) days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

### **3.12 CONCRETE SURFACE REPAIRS**

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

### **3.13 FIELD QUALITY CONTROL**

- A. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Inspections:
  - 1. Steel reinforcement placement.
  - 2. Steel reinforcement welding.
  - 3. Headed bolts and studs.
  - 4. Verification of use of required design mixture.
  - 5. Concrete placement, including conveying and depositing.
  - 6. Curing procedures and maintenance of curing temperature.
  - 7. Verification of concrete strength before removal of shores and forms from beams and slabs.
- C. Concrete Tests:
  - 1. Testing of composite samples of fresh concrete obtained according to ASTM C172 shall be performed according to the following requirements:
    - a. Testing frequency: Obtain one (1) composite sample for each day's pour of each concrete mixture exceeding five (5) cubic yards, but less than 25 cubic yards, plus one (1) set for each additional 50 cubic yards or fraction thereof.
    - b. Testing frequency:
      - 1) Obtain at least one (1) composite sample for each 50 cubic yards or fraction thereof of each concrete mixture placed each day, but not less than once for each 2,000 square feet of surface area for slabs or walls:
        - a) When frequency of testing will provide fewer than five (5) compressive-strength tests for each concrete mixture, testing shall be conducted from at least five (5) randomly selected batches or from each batch if fewer than five (5) are used.
    - c. Slump: ASTM C143/C143M; one (1) test at point of placement for each composite sample, but not less than one (1) test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
    - d. Air content: ASTM C231, pressure method, for normal-weight concrete; one (1) test for each composite sample, but not less than one (1) test for each day's pour of each concrete mixture.
    - e. Concrete temperature: ASTM C1064/C1064M; one (1) test hourly when air temperature is 40 degrees F and below and when 80 degrees F and above, and one test (1) for each composite sample.
    - f. Unit weight: ASTM C567, fresh unit weight of structural lightweight concrete; one (1) test for each composite sample, but not less than one (1) test for each day's pour of each concrete mixture.
    - g. Compression Test Specimens:
      - 1) ASTM C31/C31M:
        - a) Cast and laboratory cure two (2) sets of two (2) standard cylinder specimens for each composite sample.
        - b) Cast and field cure two (2) sets of two (2) standard cylinder specimens for each composite sample.
    - h. Compressive-strength tests:
      - 1) ASTM C39/C39M; test one (1) set of two (2) laboratory-cured specimens at seven (7) days and one (1) set of two (2) specimens at 28 days:
        - a) Test one (1) set of two (2) field-cured specimens at seven (7) days and one (1) set of two (2) specimens at 28 days.
        - b) A compressive-strength test shall be the average compressive strength from a set of two (2) specimens obtained from same composite sample and tested at age indicated.
    - i. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.

- j. Strength of each concrete mixture will be satisfactory if every average of any three (3) consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength.
- k. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both seven (7) and 28-day tests.
- l. Nondestructive testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
- m. Additional tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Architect.
- n. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- o. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

**END OF SECTION 03 30 00**

## **SECTION 03 35 00 CONCRETE FINISHING**

### **PART 1 GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes requirements including but not limited to:
  - 1. Deep penetrating concrete floor sealer.
  - 2. Accessories necessary for a complete installation
- B. Related Sections:
  - 1. Section 03 20 00: Concrete Reinforcing.

#### **1.3 SUBMITTALS**

- A. Product Data: Submit manufacturer's specifications, application instructions, and recommendations. Include data substantiating product complies with requirements of the Contract Documents.

#### **1.4 QUALITY ASSURANCE**

- A. Regulatory Requirements:
  - 1. Building Code: Comply with applicable requirements for interior finishes in 2022 California Building Code (CBC) (CCR Title 24, Part 2, as adopted and amended by DSA).
- B. Accessibility Requirements:
  - 1. Comply with applicable requirements:
    - a. Americans with Disabilities Act of 1990, as amended:
      - 1) ADA Title II Regulations and the 2010 ADA Standards for Accessible Design.
    - b. 2022 California Building Code (CBC) (CCR Title 24, Part 2, as adopted and amended by DSA).
    - c. CBC Chapter 11B, Access to Public Buildings, Public Accommodations, Commercial Buildings and Public Housing.
- C. Manufacturer Qualifications: Provide products produced by a company specializing in production of concrete sealers for minimum of five (5) years.

### **PART 2 PRODUCTS**

#### **2.1 MATERIAL**

- A. Concrete Sealer: Deep penetrating sealer, water based, clear, non-yellowing, nontoxic, VOC compliant concrete sealer, integral with concrete through chemical reaction forming nonsoluble seal within pores and capillaries of concrete and sealing it against ingress of moisture while allowing concrete to breathe.
- B. Basis of Design:

1. Product: Subject to compliance with requirements and as per indicated by Client/Designer/Architect.
  - a. W.R. Meadows VOCOMP-20 curing/sealing compound.
  
- C. Physical Properties:
  1. Permeability: Maximum 0.093 ml/m<sup>2</sup>/s.
  2. Specific gravity: 1.094.
  3. PH: 11.50.
  4. Flash point: Nonflammable.
  5. Chemical identity: Mixture containing silicates, bonding catalysts, and inert materials.

## **PART 3 EXECUTION**

### **3.1 PROJECT CONDITIONS**

- A. Environmental Requirements: Do not proceed with installation until areas to receive work are enclosed and temperature and relative humidity are stabilized and maintained for optimum quality control.
  
- B. Environmental Limitations:
  1. Comply with coating manufacturer's written instructions for substrate temperature, ambient temperature, humidity, ventilation, and conditions affecting floor treatment application. Do not apply coating until wet work in spaces is complete and dry; and overhead work, including installing mechanical systems, lighting, and athletic equipment, is complete:
    - a. Apply floor coatings when substrate temperature and surrounding air temperatures are between 50 degrees F and 95 degrees F (10 degrees C and 35 degrees C).
    - b. Do not apply floor coatings in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F (3 degrees C) above the dew point; or to damp or wet surfaces.

### **3.2 EXAMINATION**

- A. Examine substrates for conditions affecting performance and conditions of floor treatment:
  1. Verify compatibility with and suitability of substrates, including existing finishes or primers.
  2. Verify plasticizers in existing concrete substrate will not impair bond.
  3. Proceed with installation after correcting unsatisfactory conditions

### **3.3 PREPARATION**

- A. Clean substrate, removing projections and substances detrimental to the work; comply with recommendations of manufacturer of products to be installed for proper preparation procedures. Mask off or protect adjacent surfaces not scheduled to receive sealer.

### **3.4 APPLICATION**

- A. Spray apply sealer to comply with manufacturer's instructions except where Project conditions require extra precautions or provisions to ensure satisfactory performance of the Work:
  1. Apply sealer to produce surface without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or surface imperfections. Produce sharp glass lines and color breaks.

### **3.5 CLEANING**

- A. After completing application, clean spattered surfaces. Remove spattered sealer by washing or other appropriate methods for coating. Do not scratch or damage adjacent finished surfaces.
- B. Clean Up: Remove rubbish, empty cans, rags, and discarded materials from site daily. Rinse and recycle or legally dispose of sealer and coating containers.

### **3.6 PROTECTION**

- A. Institute protective procedures and install protective materials as required to ensure that work of this Section will be without damage or deterioration at substantial completion.

**END OF SECTION 03 35 00**

## **SECTION 04 05 00 MORTAR AND GROUT**

### **PART 1 GENERAL**

#### **1.1 GENERAL REQUIREMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section is related to mortar and grout installation and includes:
  - 1. Provisions of all materials, labor, and accessories as required and specified for complete mortar and grout installation in masonry walls.
- B. Related Sections:
  - 1. Section 03 30 00: Cast-In-Place Concrete.
  - 2. Section 04 22 00: Concrete Unit Masonry.
- C. Reference Standards:
  - 1. ASTM C144 Aggregate for Masonry Mortar.
  - 2. ASTM C150 Portland Cement.
  - 3. ASTM C207 Hydrated Lime for Masonry Purposes.
  - 4. ASTM C270 Standard Specification for Mortar For Unit Masonry.
  - 5. ASTM C404 Aggregates for Grout.
  - 6. ASTM C476 Standard Specification for Grout for Masonry.
  - 7. ASTM C1019 Method of Sampling and Testing Grout.
  - 8. 2022 California Building (CBC), with State of California Amendments:
    - a. 2022 California Building (CBC), Section 2103A.
  - 9. Masonry Standards Joint Committee (MSJC).

#### **1.3 SUBMITTALS**

- A. Mix design for mortar and grout shall be submitted for review.
- B. Supplier's certificates indicating materials comply with the specifications below. They shall include, but are not necessarily limited to:
  - 1. Aggregates.
  - 2. Cement.
  - 3. Admixtures.

#### **1.4 QUALITY ASSURANCE**

- A. Tests and Inspections:
  - 1. A testing program is required prior to start of construction. Testing program to be done in compliance with the 2022 CBC requirements and in collaboration with the testing laboratory, design team, Contractor, and Owner, and submitted for review by the agency in charge of building enforcement. Requirements below are minimum requirements; additional requirements may be required in final testing program.
  - 2. All tests and inspections herein are to be performed by an independent testing laboratory approved by the building official.
  - 3. Mortar and grout tests:
    - a. At the beginning of masonry work, at least one (1) test sample each of mortar and grout shall be taken on three (3) successive working days, then once per week with



at least one sample taken for each 5,000 square feet of wall area, or fraction thereof:

- 1) Test specimens shall be made in accordance with ASTM C1019 for grout and ASTM C780 for mortar.
  - 2) Test specimens shall be continuously stored in moist air until tested.
  - 3) Mortar shall show a compressive strength of not less than 1,800 psi at 28 days. Grout shall show a compressive strength of not less than 2,000 psi at 28 days.
4. A special inspector shall be employed per CBC Section 1705A.4 during the placement of all units, placement of all reinforcing steel, during all grouting operations, and during taking of all test specimens.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. Cement: ASTM C150, Type I or II, low alkali; natural gray.
- B. Hydrated Lime: ASTM C207, Type S.
- C. Quicklime: ASTM C5.
- D. Lime Putty:
  1. Made from hydrated lime or quicklime:
    - a. If made from quicklime, other than processed pulverized quicklime, slake lime and then screen through a No. 16 mesh sieve. Before using, store and protect slaked and screened lime putty for not less than ten (10) days.
    - b. Processed pulverized quicklime shall be slaked for not less than 48 hours, and shall be cool when used.
    - c. Lime putty prepared from hydrated lime may be used immediately after mixing.
    - d. Lime putty prepared from quicklime or pulverized quicklime shall have a plasticity figure, after slaking and screening, of not less than 200, and shall weigh not less than 83 pounds per cubic foot. Lime putty prepared from hydrated lime shall conform to ASTM C207, Type S.
- E. Aggregate:
  1. For mortar: ASTM C144.
  2. For grout: ASTM C404.
- F. Admixture: **Sika Grout Aid by Sika Corporation U.S.**
  1. Substitutions with Architect's approval, pursuant to conditions of Divisions 00 and 01.
- G. Water: Suitable for domestic consumption.

### 2.2 MORTAR

- A. Mortar shall be Type S having a 28-day compressive strength of not less than 1,800 psi and shall conform to CBC Section 2103A.9.
- B. Mortar shall be made with admixtures that are proportioned, added and mixed in strict accordance with manufacturer's directions.
- C. Mortar mix shall be proportioned by volume; one-part portland cement, not less than 1/4-part nor more than 1/2-part lime putty, and sand totaling not less than 2-1/4 nor more than three (3) times sum of volumes of cement and lime used:

1. Total clay content shall not exceed two percent (2%) of sand content or six percent (6%) of cement content.

### **2.3 GROUT**

- A. Grout shall have a 28-day compressive strength of not less than 2,000 psi. Proportion by volume, and with sufficient water to produce consistency for pouring without segregation so that grout will flow into masonry joints. Grout shall conform to CBC Section 2103A.13.
- B. Fine Grout:
  1. One-part portland cement, to which may be added not more than 1/10-part lime putty, and three-parts sand.
  2. Fine grout shall be used for all grout spaces less than three inches (3") wide.
- C. Coarse Grout:
  1. One-part portland cement, to which may be added not more than 1/10-part lime putty, three-parts sand, and not less than one-part nor more than two-parts pea gravel (3/8-inch maximum aggregate size).
  2. Coarse grout shall be used in grout spaces three inches (3") wide or more.
- D. Add Sika Grout Aid admixture to grout at the rate of one (1) pound per 100 pounds cementitious material.

## **PART 3 EXECUTION**

### **3.1 MIXING MORTAR AND GROUT**

- A. Accurately measure materials in suitably calibrated devices; shovel measurements are not acceptable. Each 94-pound sack of portland cement will be considered as one (1) cubic foot.
- B. Place sand, cement, and water in mixer, in that order, and mix for at least two (2) minutes. Add lime putty and continue mixing as long as necessary to secure a uniform mass, but in no case less than ten (10) minutes.
- C. Use mixers of at least one (1) sack capacity; batches requiring fractional sacks will not be permitted unless cement is weighed for each batch.

### **3.2 GROUTING PROCEDURES**

- A. Specified under Sections 04 21 13: Brick Masonry and 04 22 00: Concrete Unit Masonry.

### **3.3 RETEMPERING**

- A. When necessary to retemper mortar, add water and remix; retempering by dashing water over mortar will not be permitted.
- B. Any mortar that is unused within 30 minutes after initial mixing and any mortar that has begun to set shall not be used.

### **3.4 DEFECTIVE MORTAR OR GROUT**

- A. Should the strength of mortar or grout fall below that specified, remainder of Work shall be adjusted to reach required strength. Work in place representing inferior grout and mortar and indicating a strength less than the minimum specified shall be tested by taking and

testing core samples. Number and location of cores shall be determined by the structural Engineer.

- B. Should compression tests of cores fail to meet required strength, masonry shall be deemed to be defective and shall be removed and replaced at no cost to Owner.
- C. Costs relative to taking and testing of core samples shall be paid by Owner and will be deducted from Contract amount. Cost of patching core holes shall be borne by Contractor.

**END OF SECTION 04 05 00**

## **SECTION 04 22 00 CONCRETE MASONRY UNIT**

### **PART 1 GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes requirements including, but not limited to:
  - 1. Concrete masonry units.
  - 2. Mortar and grout.
  - 3. Steel reinforcement.
  - 4. Masonry insulation.
  - 5. Accessories necessary for a complete installation.
- B. Related Sections:
  - 1. Section 03 20 00: Concrete Reinforcing.
- C. Reference Standards:
  - 1. ACI: American Concrete Institute.
  - 2. ASTM: American Society of Testing Materials.
  - 3. CMACN: Concrete Masonry Association of California and Nevada.
  - 4. NCMA: National Concrete Masonry Association.
  - 5. TEK Bulletins.
  - 6. TMS: The Masonry Society.

#### **1.3 DEFINITIONS**

- A. CMU: Concrete Masonry Unit.
- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

#### **1.4 PERFORMANCE REQUIREMENTS**

- A. Provide unit masonry and structural unit masonry that develops indicated net-area compressive strengths at 28 days:
  - 1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to TMS 402/602.
  - 2. Determine net-area compressive strength of masonry by testing masonry prisms according to ASTM C1314.

#### **1.5 SUBMITTALS**

- A. Product Data: Technical data including schedules and illustrations to indicate the performance, fabrication procedures, product variations, and accessories for each type of product.
- B. Shop Drawings:
  - 1. Masonry units: Show sizes, profiles, coursing, and locations of special shapes.
  - 2. Reinforcing steel: Detail bending, lap lengths, and placement of unit masonry

- reinforcing bars. Show elevations of reinforced walls.
3. Fabricated flashing: Detail corner units, end dam units, and other special applications.
- C. Samples:
1. Submit each type and color of the following:
    - a. Exposed or decorative CMU.
- D. Material Certificates:
1. Submit for each type and size:
    - a. Masonry units: Include data on material properties and material test reports substantiating compliance with requirements.
    - b. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.
    - c. Integral water repellent used in CMU.
    - d. Cementitious materials: Include name of manufacturer, brand name, and type.
    - e. Mortar admixtures.
    - f. Preblended, dry mortar mixes: Include description of type and proportions of ingredients.
    - g. Grout mixes: Include description of type and proportions of ingredients.
    - h. Reinforcing bars.
    - i. Joint reinforcement.
    - j. Anchors, ties, and metal accessories.
- E. Mix Designs:
1. Submit for each type of mortar and grout with description of type and proportions of ingredients:
    - a. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C109/C109M for compressive strength, ASTM C1506 for water retention, and ASTM C91/C91M for air content.
    - b. Include test reports, according to ASTM C1019, for grout mixes required to comply with compressive strength requirement.
- F. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to TMS 402/602.
- G. Cold Weather and Hot Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.
- H. Statement of Understanding: Provide statement signed by Contractor and masonry subcontractors that for high-lift Grouting, the contractor has read, understood, and will follow all requirements of DSA Interpretation of Regulations (IR) 21-2.13. A copy of the IR shall be on site for review.

## 1.6 QUALITY ASSURANCE

- A. Regulatory Requirements:
1. Building Code:
    - a. Comply with applicable requirements of Chapter 21A of the 2022 California Building Code: (CBC).
      - 1) Masonry standard: Comply with TMS 402/602 unless modified by requirements in the Contract Documents.
- B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture

and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

- C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source.
- D. Testing Agency Qualifications: Qualified according to ASTM C1093 for testing indicated.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

## PART 2 PRODUCTS

### 2.1 UNIT MASONRY

- A. Masonry Standard: Comply with TMS 402/602, except as modified by requirements in the Contract Documents.
- B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed work or within 20 feet (6 m) vertically and horizontally of a walking surface.
- C. Fire Resistance Ratings:
  - 1. Comply with requirements for fire resistance rated assembly designs indicated:
    - a. Where fire resistance rated construction is indicated, units shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction.

### 2.2 CONCRETE MASONRY UNITS

- A. Shapes:
  - 1. Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated:
    - a. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
    - b. Provide bullnose units for outside corners unless otherwise indicated.
- B. Integral Water Repellent:

1. Provide units made with integral water repellent for exposed units and where indicated:
  - a. Liquid polymeric, integral water repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested according to ASTM E514/E514M as a wall assembly made with mortar containing integral water repellent manufacturer's mortar additive, with test period extended to 24 hours, shall show no visible water or leaks on the back of test specimen:
    - 1) Manufacturers are subject to compliance with requirements; provide products by one of the following:
      - a) Moxie International
      - b) BASF Corporation.
      - c) GCP Applied Technologies.
- C. CMU:
  1. ASTM C90, loadbearing and/or ASTM C129 non-load bearing:
    - a. Fire Rating: Two (2) hours or four (4) hours.
    - b. Unit compressive strength: Provide units with minimum average net-area compressive strength of 2,150 psi (14.8 MPa).
    - c. Density classification: Lightweight unless otherwise indicated.
    - d. Size (width): Manufactured to dimensions 3/8-inch (10 mm) less than nominal dimensions.
    - e. Exposed faces: Provide color and texture matching the range represented by Architect's sample.
    - f. Faces to receive plaster: Where units are indicated to receive a direct application of plaster, provide textured-face units made with gap-graded aggregates.

### 2.3 MASONRY LINTELS

- A. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam CMU matching adjacent CMU in color, texture, and density classification with reinforcing bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.

### 2.4 MORTAR AND GROUT MATERIALS

- A. Comply with 2022 CBC Chapter 21A for masonry mortar and grout.
- B. Portland Cement:
  1. ASTM C150/C150M, Type I or II, except Type III may be used for cold weather construction. Provide natural color or white cement as required to produce mortar color indicated:
    - a. Alkali content shall not be more than 0.1 percent when tested according to ASTM C114.
- C. Hydrated Lime: ASTM C207, Type S (loadbearing).
- D. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- E. Mortar Pigments:
  1. Natural and synthetic iron oxides and chromium oxides compounded for use in mortar mixes and complying with ASTM C979/C979M. Use only pigments with a record of satisfactory performance in masonry mortar:
    - a. Manufacturers are subject to compliance with requirements; provide products by one of the following:
      - 1) Davis Colors.

- 2) Lanxess Corporation.
  - 3) Solomon Colors, Inc.
- F. Colored Cement Products:
1. Packaged blend made from portland cement and hydrated lime and mortar pigments, all complying with specified requirements and containing no other ingredients:
    - a. Colored portland cement-lime mix:
      - 1) Manufacturers are subject to compliance with requirements; provide products by one of the following:
        - a) Lehigh Hanson.
        - b) LafargeHolcim.
      - b. Formulate blend to produce color selected.
      - c. Pigments shall not exceed ten percent (10%) of portland cement by weight.
- G. Aggregate for Mortar: ASTM C144.
- H. Aggregate for Grout: ASTM C404.
- I. Cold Weather Admixture:
1. Nonchloride, noncorrosive, accelerating admixture complying with ASTM C494/C494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated:
    - a. Manufacturers are subject to compliance with requirements; provide products by one of the following:
      - 1) BASF Corporation.
      - 2) Euclid Chemical.
      - 3) GCP Applied Technologies.
- J. Water Repellent Admixture:
1. Liquid water repellent mortar admixture intended for use with CMUs containing integral water repellent from same manufacturer:
    - a. Manufacturers are subject to compliance with requirements; provide products by one of the following:
      - 1) BASF Corporation; Construction Systems.
      - 2) Euclid Chemical Company (The); an RPM company.
      - 3) Grace Construction Products.
- K. Water: Potable.

## 2.5 REINFORCEMENT

- A. Uncoated Steel Reinforcing Bars: ASTM A615/A615M or ASTM A996/A996M, Grade 60 (Grade 420).
- B. Reinforcing Bar Positioners:
1. Wire units designed to fit into mortar bed joints spanning masonry unit cells and to hold reinforcing bars in center of cells. Form units from 0.148-inch (3.77 mm) steel wire, hot dip galvanized after fabrication. Provide units designed for number of bars indicated:
    - a. Manufacturers are subject to compliance with requirements; provide products by one of the following:
      - 1) Heckmann Building Products, Inc.
      - 2) Hohmann & Barnard, Inc.
      - 3) Wire-Bond.

## 2.6 TIES AND ANCHORS



- A. Ties and Anchors: Extend ties and anchors a minimum 1-1/2 inches (38 mm) into veneer but with at least a 5/8-inch (16 mm) cover on outside face.
- B. Materials:
  - 1. Provide ties and anchors made from materials complying with the following unless otherwise indicated:
    - a. Hot dip galvanized, carbon steel wire: ASTM A1064/A1064M, with ASTM A153/A153M, Class B-2 coating.
    - b. Stainless steel wire: ASTM A580/A580M, Type 306.
- C. Individual Wire Ties:
  - 1. W-shaped ties with ends bent 90 degrees to provide hooks not less than two inches (50 mm) long may be used for rock veneer.
  - 2. Wire: Fabricate from #9AWG corrosion resistant wire.

## 2.7 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1, compressible up to 35 percent, of width and thickness indicated, formulated from urethane or PVC.
- B. Preformed Control Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D2000, designation M2AA-805 or PVC, complying with ASTM D 2287, Type PVC-65406 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
- C. Bond Breaker Strips: Asphalt saturated felt complying with ASTM D226/D226M, Type I (No. 15 asphalt felt).

## 2.8 MASONRY CLEANERS

- A. Detergent Cleaner: Bucket and brush hand cleaning method, BIA Technical Notes 20.
- B. Proprietary Acidic Cleaner:
  - 1. Cleaner designed for removing mortar/grout stains, efflorescence, and construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned:
    - a. Manufacturers are subject to compliance with requirements; provide products by one of the following:
      - 1) PROSOCO, Inc.
      - 2) Diedrich Technologies, Inc.

## 2.9 MORTAR AND GROUT MIXES

- A. Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated:
  - 1. Do not use calcium chloride in mortar or grout.
  - 2. Use portland cement-lime mortar unless otherwise indicated.
  - 3. For exterior masonry, use portland cement-lime mortar.
  - 4. For reinforced masonry, use portland cement-lime mortar.
  - 5. Add cold weather admixture (if used) at same rate for mortar exposed to view, regardless of weather conditions to ensure that mortar color is consistent.

- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to site.
- C. Mortar for Unit Masonry: Comply with ASTM C270, Type S.
- D. Grout for Unit Masonry - Comply with ASTM C476:
  - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that complies with TMS 402/602 for dimensions of grout spaces and pour height.
  - 2. Proportion grout in accordance with ASTM C476, for specified 28-day compressive strength not less than 2,000 psi (14 MPa).

## 2.10 LIQUID SURFACE TREATMENTS

- A. Penetrating Liquid Treatment:
  - 1. Clear, chemically reactive, waterborne solution of inorganic silicate or silicate materials and proprietary components, odorless, that penetrates, hardens, and densifies concrete surfaces:
    - a. Basis-of-design product: Subject to compliance with requirements, provide Moxie International Inc.; **Moxie Shield 1400 Surface Sealer or Moxie Shield 1300 Sealer**, P.O. Box 838 Loomis, CA 95650. Contact manufacturer's representative: P:916-251-0825, F: 877-330-1930 Email: info@moxieshield.com.
    - b. Products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

## PART 3 EXECUTION

### 3.1 FIELD CONDITIONS

- A. Protection of Masonry:
  - 1. During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress:
    - a. Extend cover a minimum of 24 inches (600 mm) down both sides of walls, and hold cover securely in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three (3) days after building masonry walls or columns.
- C. Stain Prevention:
  - 1. Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry:
    - a. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
    - b. Protect sills, ledges, and projections from mortar droppings.
    - c. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
    - d. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- D. Cold Weather Requirements:
  - 1. Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by

freezing conditions. Comply with cold-weather construction requirements contained in TMS 402/602:

- a. Cold weather cleaning: Use liquid cleaning methods only when air temperature is 40 degrees F (4 degrees C) and higher and will remain so until masonry has dried, but not less than seven (7) days after completing cleaning.
- E. Hot Weather Requirements: Comply with hot weather construction requirements contained in TMS 402/602.

### 3.2 COORDINATION

- A. Build openings and chases for heating, plumbing, electrical ducts, pipes, and conduits into masonry walls as necessary. Install bolts, toggles, flashings, beams, anchors, hangers, nailing strips, wall plugs, and frames as necessary:
1. Coordinate related work incorporating installation of work to prevent subsequent cutting and patching.
  2. Coordinate installation of steel reinforcement for reinforced masonry.
  3. Coordinate dampproofing, waterproofing, and air infiltration membrane activities with masonry construction.
  4. Coordinate placement of concrete in masonry beams, lintels, soffits, and pilasters.

### 3.3 EXAMINATION

- A. Examine conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the work:
1. For the record, prepare written report, endorsed by installer, listing conditions detrimental to performance of the work.
  2. Verify foundations are within tolerances specified.
  3. Verify reinforcing dowels are properly placed.
  4. Verify substrates are free of substances that impair mortar bond.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
- C. Proceed with installation after correcting unsatisfactory conditions.

### 3.4 INSTALLATION

- A. Thickness: Build single wythe walls to actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this and other Sections.
- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match construction immediately adjacent to opening.
- D. Use full size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.
- F. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing

masonry.

### 3.5 TOLERANCES

- A. Dimensions and Locations of Elements:
1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch (12 mm) or minus 1/4 inch (6 mm).
  2. For location of elements in Plan, do not vary from that indicated by more than plus or minus 1/2 inch (12 mm).
  3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch (6 mm) in a story height or 1/2 inch (12 mm) total.
- B. Lines and Levels:
1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in ten feet (6 mm in 3 m), or 1/2-inch (12 mm) maximum.
  2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in ten feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.
  3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in ten feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.
  4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in ten feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.
  5. For lines and surfaces, do not vary from straight by more than 1/4 inch in ten feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.
  6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in ten feet (6 mm in 3 m), or 1/2-inch (12-mm) maximum.
  7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch (1.5 mm) except due to warpage of masonry units within tolerances specified for warpage of units.
- C. Joints:
1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm).
  2. For exposed bed joints, do not vary from bed joint thickness of adjacent courses by more than 1/8 inch (3 mm).
  3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch (9 mm) or minus 1/4 inch (6 mm).
  4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm).
  5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch (1.5 mm) from one masonry unit to the next.

### 3.6 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement type joints, returns, and offsets. Avoid using less than half size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond. Do not use units with less than nominal four-inch (100 mm) horizontal face dimensions at corners or jambs.
- C. Stopping and Resuming Work: Stop work by stepping back units in each course from those in course; do not tooth. When resuming work, clean masonry surfaces that are to receive

mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

- D. Built-in Work: As construction progresses, build in items specified. Fill in solidly with masonry around built-in items.
- E. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.
- F. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below, and rod mortar or grout into core.
- G. Fill all cores in hollow CMU with grout.

### **3.7 MORTAR BEDDING AND JOINTING**

- A. Lay CMU:
  - 1. Bed face shells in mortar and make head joints of depth equal to bed joints.
  - 2. Bed webs in mortar in all courses of piers, columns, and pilasters.
  - 3. Bed webs in mortar in grouted masonry, including starting course on footings.
  - 4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.
  - 5. Fully bed units and fill cells with mortar at anchors and ties as needed to fully embed anchors and ties in mortar.
- B. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
- C. Cut joints flush for masonry walls to receive plaster or other direct applied finishes (other than paint) unless otherwise indicated.

### **3.8 ANCHORED ROCK VENEERS**

- A. Anchor rock veneers to concrete masonry backup with masonry anchor ties and veneer ties as indicated on the Drawings. Comply with the following requirements:
  - 1. Embed anchor ties in masonry joints per Drawings.
  - 2. Fasten veneer ties to masonry backup through loops of anchor ties projecting from masonry surface.
  - 3. Space anchors ties as indicated, but not more than 12 inches o.c. vertically and 12 inches o.c. horizontally, with not less than one (1) anchor for each one (1) square foot of wall area. Install additional anchors at openings and at intervals, not exceeding eight inches (203 mm), around perimeter.
- B. Provide not less than 1/2 inch of airspace between back of masonry veneer and face of masonry:
  - 1. Keep airspace clean of mortar droppings and other materials during construction. Bevel beds away from airspace, to minimize mortar protrusions into airspace. Do not attempt to trowel or remove mortar fins protruding into airspace.

### **3.9 CONTROL AND EXPANSION JOINTS**

- A. Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.
- B. Form control joints in concrete masonry:

1. Fit bond breaker strips into hollow contour in ends of CMU on one side of control joint. Fill resultant core with grout and rake out joints in exposed faces for application of sealant.
2. Install preformed control joint gaskets designed to fit standard sash block.
3. Install interlocking units designed for control joints. Install bond breaker strips at joint. Keep head joints free and clear of mortar or rake out joint for application of sealant.
4. Install temporary foam plastic filler in head joints and remove filler when unit masonry is complete for application of sealant.

### 3.10 LINTELS

- A. Provide masonry lintels where shown and where openings of more than 24 inches (610 mm) for block size units are shown without structural steel or other supporting lintels.
- B. Provide minimum bearing of eight inches (200 mm) at each jamb unless otherwise indicated.

### 3.11 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores:
  1. Construct formwork and shores as needed to support reinforced masonry elements during construction:
    - a. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
    - b. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and that of other loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in TMS 402/602.
- C. Grouting:
  1. Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure:
    - a. Comply with requirements in TMS 402/602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.

### 3.12 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.
- B. Inspections:
  1. Special inspections according to Level C in TMS 402/602:
    - a. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
    - b. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
    - c. Place grout only after inspectors have verified proportions of site-prepared grout.
- C. Testing Prior to Construction: One (1) set of tests.

- D. Testing Frequency: One (1) set of tests for each 5,000 square feet (464 sq. m) of wall area or portion thereof.
- E. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C140 for compressive strength.
- F. Mortar Test (Property Specification): For each mix provided, according to ASTM C780. Test mortar for compressive strength.
- G. Grout Test (Compressive Strength): For each mix provided, according to ASTM C1019.

### **3.13 REPAIRING, POINTING, AND CLEANING**

- A. Remove and replace masonry units that are loose, chipped, broken, stained, damaged, or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning:
  - 1. After mortar is thoroughly set and cured, clean exposed masonry:
    - a. Remove large mortar particles by hand with wooden paddles and non-metallic scrape hoes or chisels.
    - b. Test cleaning methods on sample wall panel; leave 1/2 of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
    - c. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
    - d. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
    - e. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.
    - f. Clean stone trim to comply with stone supplier's written instructions.

### **3.14 MASONRY WASTE DISPOSAL**

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from site.
- B. Waste Disposal as Fill Material:
  - 1. Dispose of clean masonry waste, including excess or soil contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed:
    - a. Crush masonry waste to less than four inches (100 mm) in each dimension.
    - b. Mix masonry waste with at least two (2) parts of specified fill material for each part of masonry waste. Fill material is specified in Division 31: Earthwork.
    - c. Do not dispose of masonry waste as fill within 18 inches (450 mm) of finished grade.

- C. Masonry Waste Recycling: Return broken CMU not used as fill to manufacturer for recycling.
- D. Excess Masonry Waste: Remove and legally dispose excess clean masonry waste that cannot be used as fill or otherwise recycled, and masonry waste.

**END OF SECTION 04 22 00**



## SECTION 04 73 00 MANUFACTURED MASONRY VENEER

### PART 1 - GENERAL

#### 1.01 SUMMARY

- A. Section Includes: Portland cement based manufactured [stone] [and] [brick] veneer and trim.
- B. Related Sections:
  - 1. 09 24 00–Portland Cement Plastering.

#### 1.02 REFERENCES

- A. American National Standards Institute (ANSI):
  - 1. ANSI A118.4 – Specifications for Latex-Portland Cement Mortar.
- B. American Society for Testing and Materials (ASTM):
  - 1. ASTM C 39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
  - 2. ASTM C 67 – Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
  - 3. ASTM C 144 – Standard Specification for Aggregate for Masonry Mortar.
  - 4. ASTM C 177 – Standard Test Method for Steady-State Head Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
  - 5. ASTM C 207 – Standard Specification for Hydrated Lime for Masonry Purposes.
  - 6. ASTM C 270 – Standard Specification for Mortar for Unit Masonry.
  - 7. ASTM C 482 – Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement.
  - 8. ASTM C 567 – Standard Test Method for Determining Density of Structural Lightweight Concrete.
  - 9. ASTM C 847 – Standard Specification for Metal Lath.
  - 10. ASTM C 932 – Standard Specification for Surface-Applied Bonding Compounds for Exterior Plastering.
  - 11. ASTM C 979 – Standard Specification for Pigments for Integrally Colored Concrete.
  - 12. ASTM C 1032 – Standard Specification for Woven Wire Plaster Base.
  - 13. ASTM C 1059 – Standard Specification for Latex Agents for Bonding Fresh To Hardened Concrete.
  - 14. ASTM D 226 – Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
  - 15. ASTM C1063 – Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster
  - 16. ASTM C1329 – Standard specification for Portland cement
  - 17. ASTM C578 – Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation

18. ASTM C1289 – Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
19. ASTM E2556/E2556M – Standard Specification for Vapor Permeable Flexible Sheet Water-Resistive Barriers Intended for Mechanical Attachment

C. Other Standards:

1. UBC Standard No. 14-1, Kraft Waterproof Building Paper
2. ICC AC38 Acceptance Criteria for Water Resistive Barriers
3. UU-B-790 Building Paper, Vegetable Based, Kraft, waterproofed, water repellent and fireproof

D. City of Los Angeles: Research Report (LARR)

1. Research Report #25589

E. International Code Council (ICC):

G. Underwriter's Laboratory (UL): Building Materials Directory.

H. US Department of Housing and Urban Development (HUD): Material Release Numbers 910Fs.

1.03 SUBMITTALS

A. Reference Section 01 33 00 Submittal Procedures; submit following items:

1. Product Data.
2. Samples:
  - a. Standard sample board consisting of small-scale pieces of veneer units showing full range of textures and colors.
  - b. Full range of mortar colors.
3. Verification Samples: Following initial sample selection submit "laid-up" sample board using the selected stone and mortar materials and showing the full range of colors expected in the finished Work; minimum sample size: 3 by 3 feet (1 by 1 m).
4. Quality Assurance/Control Submittals:
  - a. Qualifications:
    - 1) Proof of manufacturer qualifications.
    - 2) Proof of installer qualifications.
  - b. Regulatory Requirements: Evaluation reports.
  - c. Veneer manufacturer's installation instructions.

B. Closeout Submittals: Reference Section 01 78 00-Closeout Submittals; submit following items:

1. Maintenance Instructions.
2. Special Warranties.

1.04 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer Qualifications: Eldorado Stone, LLC.
2. Installer Qualifications: Experienced mason familiar with installation procedures and related local, state and federal codes masonry.

B. Certifications:

1. ICC Evaluation Service - Evaluation Report ESR-1215
2. ICC ESR-1215, Florida Building Code Supplement
3. ASTM C1670
4. LARR – Research Report RR25589
5. HUD - Material Release Number 910F
6. UL - Classification listing in Building Materials Directory: UL 546T(F8002)

C. Field Sample:

1. Prepare [4 by 4 foot (1200 by 1200 mm)] sample at a location on the structure as selected by the Architect. Use approved selection sample materials and colors.
2. Obtain Architect's approval.
3. Protect and retain sample as a basis for approval of completed manufactured stone work. Approved sample may be incorporated into completed work.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Reference Section 01 66 00-Product Storage and Handling Requirements.
- B. Follow manufacturer's instructions.

1.06 PROJECT/SITE CONDITIONS

- A. Environmental Requirements: When air temperature is 40 degrees F (4.5 degrees C) or below, consult local building code for Cold-Weather Construction requirements.

1.07 WARRANTY

- A. Special Warranty: Manufacturer's standard warranty coverage against defects in materials when installed in accordance with manufacturer's installation instructions.

**PART 2 - PRODUCTS**

2.01 MANUFACTURER

- A. Eldorado Stone, LLC  
(800) 925-1491 1370 Grand Ave., Bldg. B  
(760) 736-3840  
San Marcos, CA 92069
- Tel:  
Fax:  
E-Mail:

[customerservice@eldoradostone.com](mailto:customerservice@eldoradostone.com)  
[www.eldoradostone.com](http://www.eldoradostone.com)

1. Manufacturer's Distributor:

B. Product: [Cypress Ridge "Orchard" veneer].

C. Substitutions: None Allowed.

## 2.02 MATERIALS

A. Stone Veneer:

1. Profile: Cypress Ridge "Orchard". Include matching corner pieces.

2. Stone Accents: Flat concrete cap.

a. Color: [Earth].

b. Texture: Smooth.

B. Veneer Unit properties: Precast veneer units consisting of portland cement, lightweight aggregates, and mineral oxide pigments.

1. Compressive Strength: ASTM C 192 and ASTM C 39, 5 sample average: greater than 1,800 psi (12.4MPa).

2. Shear Bond: ASTM C 482: 50 psi (345kPa), minimum.

3. Freeze-Thaw Test: ASTM C 67: Less than 3 percent weight loss and no disintegration.

4. Thermal Resistance: ASTM C 177: 0.473 at 1.387 inches thick

5. Weight per square foot: 2012 IBC and 2012 IRC, ASTM C1670, 15 pounds, saturated.

C. Reinforcing: [ ASTM C 847, 2.5lb/yd<sup>2</sup> (1.4kg/m<sup>2</sup>) galvanized expanded metal lath ] complying with code agency requirements for the type of substrate over which stone veneer is installed.

D. Mortar:

1. Cement: Portland cement complying with ASTM C 1329.

2. Lime: ASTM C 207.

3. Sand: ASTM C 144, natural or manufactured sand.

4. Color Pigment: ASTM C 979, mineral oxide pigments.

5. Water: Potable.

6. Pre-Packaged Latex-Portland Cement Mortar: ANSI A118.4.

E. Bonding Agent: Exterior integral bonding agent meeting [ASTM C 932]

**MANUFACTURED MANSORY VENEER**

04 73 01 - 4

- F. Water Repellent: Water based silane or siloxane masonry water repellent

## 2.03 MORTAR MIXES

### A. Standard Installation (Grouted Joints):

1. Mix mortar in accordance with ASTM C 270,
2. Polymer modified mortar complying with ANSIA118.4
  - a. Add color pigment in grout joint mortar in accordance with pigment manufacturer's instructions not to exceed 10% by weight of cement.

### A. Jointless/Dry-Stacked Installation:

1. Polymer modified mortar complying with ANSIA118.4
2. Mortar prepared to comply with ASTM C270. Type S mortar.
  - a. Add color pigment in accordance with pigment manufacturer's instructions.

## **PART 3 - EXECUTION**

### 3.01 EXAMINATION

- A. Examine substrates upon which work will be installed.
- B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.
- C. Commencement of work by installer is acceptance of substrate.

### 3.02 PREPARATION

- A. Protection: Protect adjacent work from contact with mortar.
- B. Surface Preparation: Prepare substrate in accordance with manufacturer's installation instructions for the type of substrate being covered.

### 3.03 INSTALLATION

- A. Install and clean stone in accordance with manufacturer's installation instructions for Standard Installation (Grouted Joint) or Jointless/Dry-Stacked installation as specified above.
- B. Apply repellent in accordance with repellent manufacturer's application instructions.

### 3.04 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services: Manufacturer's Field Service Representative shall make [one] [two] [one] periodic site visits review of on-going installation process but is not responsible for any errors or omissions that are not observed or are previously completed.

3.05 CLEANING

- A. Reference Section 01 74 00□Cleaning and Waste Management.
- B. Remove protective coverings from adjacent work.
- C. Cleaning Veneer Units:
  - 1. Wash with soft bristle brush and water/granulated detergent solution
  - 2. Rinse immediately with clean water
- D. Removing Efflorescence:
  - 1. Allow veneer to dry thoroughly
  - 2. Scrub with soft bristle brush and clean water
  - 3. Rinse immediately with clean water; allow to dry
  - 4. If efflorescence is still visible, contact ES Customer Service for assistance

END OF SECTION 04 73 00

## SECTION 04 73 00 MANUFACTURED MASONRY VENEER

### PART 1 - GENERAL

#### 1.01 SUMMARY

- A. Section Includes: Portland cement based manufactured [stone] [and] [brick] veneer and trim.
- B. Related Sections:
  - 1. 09 24 00–Portland Cement Plastering.

#### 1.02 REFERENCES

- A. American National Standards Institute (ANSI):
  - 1. ANSI A118.4 – Specifications for Latex-Portland Cement Mortar.
- B. American Society for Testing and Materials (ASTM):
  - 1. ASTM C 39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
  - 2. ASTM C 67 – Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
  - 3. ASTM C 144 – Standard Specification for Aggregate for Masonry Mortar.
  - 4. ASTM C 177 – Standard Test Method for Steady-State Head Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
  - 5. ASTM C 207 – Standard Specification for Hydrated Lime for Masonry Purposes.
  - 6. ASTM C 270 – Standard Specification for Mortar for Unit Masonry.
  - 7. ASTM C 482 – Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement.
  - 8. ASTM C 567 – Standard Test Method for Determining Density of Structural Lightweight Concrete.
  - 9. ASTM C 847 – Standard Specification for Metal Lath.
  - 10. ASTM C 932 – Standard Specification for Surface-Applied Bonding Compounds for Exterior Plastering.
  - 11. ASTM C 979 – Standard Specification for Pigments for Integrally Colored Concrete.
  - 12. ASTM C 1032 – Standard Specification for Woven Wire Plaster Base.
  - 13. ASTM C 1059 – Standard Specification for Latex Agents for Bonding Fresh To Hardened Concrete.
  - 14. ASTM D 226 – Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
  - 15. ASTM C1063 – Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster
  - 16. ASTM C1329 – Standard specification for Portland cement
  - 17. ASTM C578 – Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation

18. ASTM C1289 – Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
19. ASTM E2556/E2556M – Standard Specification for Vapor Permeable Flexible Sheet Water-Resistive Barriers Intended for Mechanical Attachment

C. Other Standards:

1. UBC Standard No. 14-1, Kraft Waterproof Building Paper
2. ICC AC38 Acceptance Criteria for Water Resistive Barriers
3. UU-B-790 Building Paper, Vegetable Based, Kraft, waterproofed, water repellent and fireproof

D. City of Los Angeles: Research Report (LARR)

1. Research Report #25589

E. International Code Council (ICC):

G. Underwriter's Laboratory (UL): Building Materials Directory.

H. US Department of Housing and Urban Development (HUD): Material Release Numbers 910Fs.

1.03 SUBMITTALS

A. Reference Section 01 33 00 Submittal Procedures; submit following items:

1. Product Data.
2. Samples:
  - a. Standard sample board consisting of small-scale pieces of veneer units showing full range of textures and colors.
  - b. Full range of mortar colors.
3. Verification Samples: Following initial sample selection submit "laid-up" sample board using the selected stone and mortar materials and showing the full range of colors expected in the finished Work; minimum sample size: 3 by 3 feet (1 by 1 m).
4. Quality Assurance/Control Submittals:
  - a. Qualifications:
    - 1) Proof of manufacturer qualifications.
    - 2) Proof of installer qualifications.
  - b. Regulatory Requirements: Evaluation reports.
  - c. Veneer manufacturer's installation instructions.

B. Closeout Submittals: Reference Section 01 78 00-Closeout Submittals; submit following items:

1. Maintenance Instructions.
2. Special Warranties.

1.04 QUALITY ASSURANCE

A. Qualifications:



1. Manufacturer Qualifications: Eldorado Stone, LLC.
2. Installer Qualifications: Experienced mason familiar with installation procedures and related local, state and federal codes masonry.

B. Certifications:

1. ICC Evaluation Service - Evaluation Report ESR-1215
2. ICC ESR-1215, Florida Building Code Supplement
3. ASTM C1670
4. LARR – Research Report RR25589
5. HUD - Material Release Number 910F
6. UL - Classification listing in Building Materials Directory: UL 546T(F8002)

C. Field Sample:

1. Prepare [4 by 4 foot (1200 by 1200 mm)] [\_\_\_\_by\_\_\_\_foot (\_\_\_\_by mm)] sample at a location on the structure as selected by the Architect. Use approved selection sample materials and colors. Include \_\_\_\_\_.
2. Obtain Architect's approval.
3. Protect and retain sample as a basis for approval of completed manufactured stone work. Approved sample may be incorporated into completed work.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Reference Section 01 66 00-Product Storage and Handling Requirements.
- B. Follow manufacturer's instructions.

1.06 PROJECT/SITE CONDITIONS

- A. Environmental Requirements: When air temperature is 40 degrees F (4.5 degrees C) or below, consult local building code for Cold-Weather Construction requirements.

1.07 WARRANTY

- A. Special Warranty: Manufacturer's standard warranty coverage against defects in materials when installed in accordance with manufacturer's installation instructions.

**PART 2 - PRODUCTS**

2.01 MANUFACTURER

- A. Eldorado Stone, LLC  
(800) 925-1491 1370 Grand Ave., Bldg. B  
(760) 736-3840  
Tel:  
Fax:

San Marcos, CA 92069

E-Mail:

[customerservice@eldoradostone.com](mailto:customerservice@eldoradostone.com)

Website:

[www.eldoradostone.com](http://www.eldoradostone.com)

1. Manufacturer's Distributor:

B. Product: [ \_\_\_\_\_ veneer ] [ Veneer types as shown on Drawings ].

C. Substitutions: None Allowed.

## 2.02 MATERIALS

A. Stone Veneer:

1. Profile: \_\_\_\_\_ . Include matching corner pieces.

2. Stone Accents: \_\_\_\_\_ .

a. Color: [ Buckskin ] [ Earth ] [ Smoke ] [ Taupe ] [ As shown on Drawings ].

b. Texture: \_\_\_\_\_ .

B. Brick Veneer:

1. Profile: \_\_\_\_\_ . Include matching corner pieces.

a. Color: \_\_\_\_\_ .

2. Brick Accents: \_\_\_\_\_ .

a. Color: [ Match brick ] [ \_\_\_\_\_ ] [ As shown on Drawings ].

C. Veneer Unit properties: Precast veneer units consisting of portland cement, lightweight aggregates, and mineral oxide pigments.

1. Compressive Strength: ASTM C 192 and ASTM C 39, 5 sample average: greater than 1,800 psi (12.4MPa).

2. Shear Bond: ASTM C 482: 50 psi (345kPa), minimum.

3. Freeze-Thaw Test: ASTM C 67: Less than 3 percent weight loss and no disintegration.

4. Thermal Resistance: ASTM C 177: 0.473 at 1.387 inches thick

5. Weight per square foot: 2012 IBC and 2012 IRC, ASTM C1670, 15 pounds, saturated.

D. Weather Barrier: [ ASTM D 226, Type 1, No. 15, non-perforated asphalt-saturated felt paper ] [ UBC Standard 14-1, kraft waterproof building paper ] or [ UBC Standard No. 14-1, Kraft Waterproof Building Paper ] or [ ICC AC-38, synthetic house wrap

MANUFACTURED MASONRY VENEER

00 00 01 - 4

]

- E. Reinforcing: [ ASTM C 847, 2.5lb/yd<sup>2</sup> (1.4kg/m<sup>2</sup>) galvanized expanded metal lath ] [ ASTM C 847, 3.4lb (1.8 kg/m<sup>2</sup>) galvanized 3/8" rib lath ] [ ASTM C 1032, 17 gauge (1.3 mm) woven wire mesh] [ ASTM C933 Welded Wire Lath] complying with code agency requirements for the type of substrate over which stone veneer is installed.
- F. Mortar:
  - 1. Cement: Portland cement complying with ASTM C 1329.
  - 2. Lime: ASTM C 207.
  - 3. Sand: ASTM C 144, natural or manufactured sand.
  - 4. Color Pigment: ASTM C 979, mineral oxide pigments.
  - 5. Water: Potable.
  - 6. Pre-Packaged Latex-Portland Cement Mortar: ANSIA118.4.
- G. Bonding Agent: Exterior integral bonding agent meeting [ASTM C 932] [ASTM C 1059 Type II]
- H. Water Repellent: Water based silane or siloxane masonry water repellent

## 2.03 MORTAR MIXES

- A. Standard Installation (Grouted Joints):
  - 1. Mix mortar in accordance with ASTM C 270,
  - 2. Polymer modified mortar complying with ANSIA118.4
    - a. Add color pigment in grout joint mortar in accordance with pigment manufacturer's instructions not to exceed 10% by weight of cement.
  
- A. Jointless/Dry-Stacked Installation:
  - 1. Polymer modified mortar complying with ANSIA118.4
  - 2. Mortar prepared to comply with ASTM C270. Type S mortar.
    - a. Add color pigment in accordance with pigment manufacturer's instructions.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates upon which work will be installed.
- B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.
- C. Commencement of work by installer is acceptance of substrate.

### 3.02 PREPARATION

- A. Protection: Protect adjacent work from contact with mortar.

## MANUFACTURED MASONRY VENEER

- B. Surface Preparation: Prepare substrate in accordance with manufacturer's installation instructions for the type of substrate being covered.

3.03 INSTALLATION

- A. Install and clean stone in accordance with manufacturer's installation instructions for Standard Installation (Grouted Joint) or Jointless/Dry-Stacked installation as specified above.
- B. Apply repellent in accordance with repellent manufacturer's application instructions.

3.04 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services: Manufacturer's Field Service Representative shall make [one] [two] [ ] periodic site visits review of on-going installation process but is not responsible for any errors or omissions that are not observed or are previously completed.

3.05 CLEANING

- A. Reference Section 01 74 00 □ Cleaning and Waste Management.
- B. Remove protective coverings from adjacent work.
- C. Cleaning Veneer Units:
  - 1. Wash with soft bristle brush and water/granulated detergent solution
  - 2. Rinse immediately with clean water
- D. Removing Efflorescence:
  - 1. Allow veneer to dry thoroughly
  - 2. Scrub with soft bristle brush and clean water
  - 3. Rinse immediately with clean water; allow to dry
  - 4. If efflorescence is still visible, contact ES Customer Service for assistance

END OF SECTION 04 73 00

## **SECTION 05 12 13 ARCHITECTURALLY EXPOSED STRUCTURAL STEEL FRAMING**

### **PART 1 GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes Architecturally Exposed Structural Steel (AESS):
  1. Structural steel elements of special shapes and conditions requiring care for erecting.
  2. Architecturally structural steel detailed elements and exposed surfaces.
  3. Requirements in Section 05 12 00: Structural Steel Framing also apply to AESS.
- B. Related Sections:
  1. Division 05: Metals
  2. Division 09: Finishes.

#### **1.3 DEFINITIONS**

- A. AESS: Structural steel designated as "architecturally exposed structural steel" or "AESS" in the Contract Documents.
- B. Category 1 AESS: AESS that is within 96 inches vertically and 36 inches horizontally of a walking surface and that is visible to a person standing on that walking surface or is designated as "Category 1 architecturally exposed structural steel" or "AESS-1" in the Contract Documents.
- C. Category 2 AESS: AESS that is within 20 feet vertically and horizontally of a walking surface and that is visible to a person standing on that walking surface or is designated as "Category 2 architecturally exposed structural steel" or "AESS-2" in the Contract Documents.
- D. Category 3 AESS: AESS that is not defined as Category 1 or Category 2 or that is designated as "Category 3 architecturally exposed structural steel" or "AESS-3" in the Contract Documents or that is indicated to receive intumescent mastic fireproofing.

#### **1.4 SUBMITTALS**

- A. Shop Drawings:
  1. Show fabrication of AESS components. Shop Drawings for structural steel may be used for AESS provided items of AESS are specifically identified and requirements below are met for AESS:
    - a. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
    - b. Include embedment drawings.
    - c. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain. Indicate grinding, finish, and profile of welds.
    - d. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections. Indicate

orientation of bolt heads.

- e. Indicate exposed surfaces and edges and surface preparation being used.
- f. Indicate special tolerances and erection requirements.

B. Samples:

- 1. Submit samples of AESS to set quality standards for exposed welds:
  - a. Two (2) steel plates, 3/8 by eight (8) by four (4) inches, with long edges joined by a groove weld and with weld ground smooth.
  - b. Steel plate, 3/8 by eight (8) by eight (8) inches, with one end of a short length of rectangular steel tube, four (4) by six (6) by 3/8 inches, welded to plate with a continuous fillet weld and with weld ground smooth and blended.
  - c. Round steel tube or pipe, minimum eight inches (8") in diameter, with end of another round steel tube or pipe, approximately four inches (4") in diameter, welded to its side at a 45-degree angle with a continuous fillet weld and with weld ground smooth and blended.

C. Qualification Data: For installer and fabricator.

D. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

## 1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD, or is accredited by the IAS Fabricator Inspection Program for Structural Steel (AC 172).

B. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category CSE.

C. Mockups:

- 1. Build mockups of AESS to set quality standards for fabrication and installation:
  - a. Build mockup of typical portion of AESS as shown on Drawings.
  - b. Coordinate painting requirements with Division 09: Finishes.
  - c. Coordinate high-performance coatings requirements with Division 09: Finishes.
  - d. Coordinate intumescent mastic fireproofing requirements with Division 09: Finishes.
  - e. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

D. Pre-Installation Conference: Conduct conference at Project site.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Use special care in handling to prevent twisting, warping, nicking, and other damage. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration:
- 1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

## PART 2 PRODUCTS

### 2.1 BOLTS, CONNECTORS, AND ANCHORS

- A. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies:
  - 1. Type 1, round-head assemblies, consisting of steel structural bolts with splined ends, heavy-hex carbon-steel nuts, and hardened carbon-steel washers:
    - a. Finish: Mechanically deposited zinc coating.
- B. Corrosion-Resisting (Weathering Steel), Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: Type 3, round-head assemblies, consisting of steel structural bolts with splined ends, heavy-hex carbon-steel nuts, and hardened carbon-steel washers.

## 2.2 FILLER

- A. Filler: Polyester filler intended for use in repairing dents in automobile bodies.

## 2.3 PRIMER

- A. Primer: Comply with Division 09: Finishes
- B. Etching Cleaner for Galvanized Metal: MPI#25.
- C. Galvanizing Repair Paint: ASTM A780/A780M.
- D. Shop Primer for Galvanized Steel: MPI#26, cementitious galvanized metal primer.

## 2.4 FABRICATION

- A. Shop fabricate and assemble AESS to the maximum extent possible. Locate field joints at concealed locations if possible. Detail assemblies to minimize handling and to expedite erection.
- B. In addition to special care used to handle and fabricate AESS, comply with the following:
  - 1. Fabricate with exposed surfaces smooth, square, and free of surface blemishes including pitting, rust, scale, and roughness.
  - 2. Grind sheared, punched, and flame-cut edges of Category 1 AESS to remove burrs and provide smooth surfaces and edges.
  - 3. Fabricate Category 1 AESS with exposed surfaces free of mill marks, including rolled trade names and stamped or raised identification.
  - 4. Fabricate Category 1 and Category 2 AESS with exposed surfaces free of seams to maximum extent possible.
  - 5. Remove blemishes by filling or grinding or by welding and grinding before cleaning, treating, and shop priming.
  - 6. Fabricate with piece marks fully hidden in the completed structure or made with media that permits full removal after erection.
  - 7. Fabricate Category 1 AESS to the tolerances specified in AISC 303 for steel that is designated AESS.
  - 8. Fabricate Category 2 and Category 3 AESS to the tolerances specified in AISC 303 for steel that is not designated AESS.
  - 9. Seal-weld open ends of hollow structural sections with 3/8-inch closure plates for Category 1 AESS.
- C. Curved Members:
  - 1. Fabricate indicated members to curved shape by rolling to final shape in fabrication shop:
    - a. Distortion of webs, stems, outstanding flanges, and legs of angles shall not be visible from a distance of 20 feet under any lighting conditions.
    - b. Tolerances for walls of hollow steel sections after rolling shall be approximately 1/2

inch.

- D. Coping, Blocking, and Joint Gaps: Maintain uniform gaps of 1/8 inch with a tolerance of 1/32 inch for Category 1 AESS.
- E. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.
- F. Cleaning Corrosion-Resisting Structural Steel: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
- G. Holes:
  - 1. Provide holes required for securing other work to structural steel and for other work to pass through steel members:
    - a. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
    - b. Baseplate holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
    - c. Weld threaded nuts to framing and other specialty items indicated to receive other work.

## 2.5 SHOP CONNECTIONS

- A. High-Strength Bolts:
  - 1. Shop install high-strength bolts according to RCSC's Specification for Structural Joints Using ASTM F3125 Bolts for type of bolt and type of joint specified:
    - a. Joint type: Snug tightened or slip critical as indicated.
- B. Weld Connections:
  - 1. Comply with AWS D1.8/D1.8M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work, and comply with the following:
    - a. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding specified tolerances.
    - b. Use weld sizes, fabrication sequence, and equipment for AESS that limit distortions to allowable tolerances.
    - c. Provide continuous, sealed welds at angle to gusset-plate connections and similar locations where Category 1 AESS is exposed to weather.
    - d. Provide continuous welds of uniform size and profile where Category 1 AESS is welded.
    - e. Grind butt and groove welds flush to adjacent surfaces within tolerance of plus 1/16 inch, minus zero inch (0") for Category 1 and Category 2 AESS.
    - f. Make butt and groove welds flush to adjacent surfaces within tolerance of plus 1/16 inch, minus zero inch (0") for Category 1 and Category 2 AESS. Do not grind unless required for clearances or for fitting other components, or unless directed to correct unacceptable work.
    - g. Remove backing bars or runoff tabs; back-gouge and grind steel smooth for Category 1 and Category 2 AESS.
    - h. At locations where welding on the far side of an exposed connection of Category 1 and Category 2 AESS occurs, grind distortions and marking of the steel to a smooth profile aligned with adjacent material.
    - i. Make fillet welds for Category 1 and Category 2 AESS oversize and grind to uniform profile with smooth face and transition.
    - j. Make fillet welds for Category 1 and Category 2 AESS of uniform size and profile with exposed face smooth and slightly concave. Do not grind unless directed to correct unacceptable work.



## 2.6 GALVANIZING

- A. Hot-Dip Galvanized Finish:
  - 1. Apply zinc coating by the hot-dip process to structural steel according to ASTM A123/A123M:
    - a. Do not quench or apply post-galvanizing treatments that might interfere with paint adhesion.
    - b. Fill vent and drain holes that are exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.
    - c. Galvanize lintels attached to structural-steel frame and located in exterior walls.

## 2.7 SHOP PRIMING

- A. Shop prime steel surfaces except the following:
  - 1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of two inches (2").
  - 2. Surfaces to be field welded.
  - 3. Surfaces to be high-strength bolted with slip-critical connections.
  - 4. Surfaces to receive sprayed fire-resistive materials.
  - 5. Galvanized surfaces.
- B. Surface Preparation for Non-Galvanized Steel:
  - 1. Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:
    - a. SSPC-SP 2 Hand Tool Cleaning.
    - b. SSPC-SP 3 Power Tool Cleaning.
    - c. SSPC-SP 7/NACE No. 4 Brush-off Blast Cleaning.
    - d. SSPC-SP 14/NACE No. 8 Industrial Blast Cleaning.
    - e. SSPC-SP 11 Power Tool Cleaning to Bare Metal.
    - f. SSPC-SP 6/NACE No. 3 Commercial Blast Cleaning.
    - g. SSPC-SP 10/NACE No. 2 Near-White Blast Cleaning.
    - h. SSPC-SP 5/NACE No. 1 White Metal Blast Cleaning.
    - i. SSPC-SP 8 Pickling.
- C. Preparing Galvanized Steel for Shop Priming: After galvanizing, thoroughly clean steel of grease, dirt, oil, flux, and other foreign matter, and treat with etching cleaner.
- D. Priming:
  - 1. Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces:
    - a. Stripe paint corners, crevices, bolts, welds, and sharp edges.
    - b. Apply two (2) coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

## PART 3 EXECUTION

### 3.1 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

### 3.2 FIELD CONDITIONS

- A. Field Measurements: Where AESS is indicated to fit against other construction, verify actual dimensions by field measurements before fabrication.

### **3.3 EXAMINATION**

- A. Verify, with steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedment's for compliance with requirements:
  - 1. Prepare a certified survey of bearing surfaces, anchor rods, bearing plates, and other embedment's showing dimensions, locations, angles, and elevations.
- B. Examine AESS for twists, kinks, warping, gouges, and other imperfections before erecting.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.4 PREPARATION**

- A. Provide temporary shores, guys, braces, and other supports during erection to keep AESS secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated:
  - 1. If possible, locate welded tabs for attaching temporary bracing and safety cabling where they will be concealed from view in the completed Work.
  - 2. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

### **3.5 ERECTION**

- A. Set AESS accurately in locations and to elevations indicated and according to AISC 303 and AISC 360:
  - 1. Erect Category 1 AESS to the tolerances specified in AISC 303 for steel that is designated AESS.
  - 2. Erect Category 2 and Category 3 AESS to the tolerances specified in AISC 303 for steel that is not designated AESS.
- B. Do not use thermal cutting during erection unless approved by Architect.

### **3.6 FIELD CONNECTIONS**

- A. High-Strength Bolts:
  - 1. Install high-strength bolts according to RCSC's Specification for Structural Joints Using ASTM F3125 Bolts for type of bolt and type of joint specified:
    - a. Joint type: Snug tightened or slip critical as indicated.
    - b. Orient bolt heads in same direction for each connection and to maximum extent possible in same direction for similar connections.
- B. Weld Connections:
  - 1. Comply with requirements in "Weld Connections" paragraph in "Shop Connections" article:
    - a. Remove backing bars or runoff tabs; back-gouge and grind steel smooth for Category 1 and Category 2 AESS.
    - b. Remove erection bolts in Category 1 and Category 2 AESS, fill holes, and grind smooth.
    - c. Fill weld access holes in Category 1 and Category 2 AESS and grind smooth.

### **3.7 FIELD QUALITY CONTROL**

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to inspect AESS as specified in Division 05: Metals. The testing agency is not responsible for enforcing requirements relating to aesthetic effect.
- B. Architect will observe AESS in place to determine acceptability relating to aesthetic effect.

### **3.8 REPAIRS AND PROTECTION**

- A. Remove welded tabs that were used for attaching temporary bracing and safety cabling and that are exposed to view in the completed Work. Grind steel smooth.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.
- C. Touchup Painting:
  - 1. Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces:
    - a. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.
- D. Touchup Painting: Cleaning and touchup painting are specified in Division 09: Finishes
- E. Touchup Priming: Cleaning and touchup priming are specified in Division 09: Finishes

**END OF SECTION 05 12 13**

## **SECTION 09 24 00 CEMENT PLASTERING**

### **PART 1 GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes requirements including but not limited to:
  1. Exterior plasterwork (stucco).
  2. Metal framing and accessories.
  3. Metal lath and furring.
  4. Accessories necessary for a complete installation.

#### **1.3 SUBMITTALS**

- A. Product Data: Submit technical data for product and accessory, including construction details and material descriptions.
- B. Shop Drawings: Show locations and installation of control and expansion joints, including plans, elevations, sections, details of components, and attachments to other work.

#### **1.4 QUALITY ASSURANCE**

- A. Regulatory Requirements:
  1. Building Code:
    - a. Comply with applicable provisions of the California Building Code (CBC) (CCR Title 24, Part 2, as adopted and amended by DSA):
      - 1) CBC, 2507.3 Attachment requirements.
  2. Fire Resistance Ratings: Where indicated, provide cement plaster assemblies identical to those of assemblies tested for fire resistance according to ASTM E119 by a qualified testing agency.
- B. Pre-installation Conference: Conduct conference at site.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver cementitious materials in original packages, containers, or bundles, labeled with manufacturer's name, product brand name, and lot number.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, moisture, direct sunlight, surface contamination, corrosion, construction traffic, and other causes.

### **PART 2 PRODUCTS**

#### **2.1 MATERIALS**

- A. Manufacturers are subject to compliance with requirements; provide products of one of the following:
  1. Metal Lath and Accessories:

- a. Alabama Metal Industries.
  - b. CEMCO.
  - c. ClarkDietrich Building Systems.
  - d. Marino/WARE.
  - e. Phillips Manufacturing.
  2. Wire Fabric Lath:
    - a. Davis Wire.
    - b. Jaenson Wire Company.
    - c. Keystone Steel and Wire Co.
    - d. K-Lath.
  3. Plastic Accessories:
    - a. Alabama Metal Industries.
    - b. Phillips manufacturing.
    - c. Plastic Components.
    - d. Vinyl Corp.
  4. Ready Mixed Finish Coat Plaster:
    - a. Omega Products International.
    - b. California Stucco Product.
    - c. El Rey Solutions.
    - d. Florida Stucco.
    - e. Quikrete.
    - f. Shamrock Stucco.
  5. Acrylic Based Finish Coat:
    - a. California Stucco Product.
    - b. Dryvit Systems.
    - c. El Rey Solutions.
    - d. Finestone, BASF Corp.
    - e. Omega Products International.
    - f. Senergy, BASF Corp.
    - g. Sto Corp.
- B. Cold Formed Steel Framing: Refer to Division 05: Metals for steel Fabrications and Division 09: Finishes, for Gypsum Board Assemblies framing for exterior plaster.
- C. Steel Studs and Runners: Refer to Division 09: Finishes for steel partition framing for interior plaster.
- D. Soffit Framing: Refer to Division 06: Wood, Plastics, and Composites and Division 09: Finishes.
- E. Metal Lath:
  1. Expanded Metal Lath:
    - a. ASTM C847, cold rolled carbon steel sheet with ASTM A653/A653M, G60 (Z180), hot dip galvanized zinc coating:
      - 1) Diamond Mesh Lath: Self furring, 3.4 lb/sq. yd. (1.8 kg/sq. m).
      - 2) Comply with DSA IR 25-4 for the installation of Self-Furring Metal Lath.
  2. Paper Backing:
    - a. FS UU-B-790a, Type I, Grade D, Style 1a vapor retardant paper:
      - 1) Provide paper backed lath at exterior locations.
  3. Building Wrap:
    - a. Spun-bounded high density polyethylene fibers. No binders or fillers. As manufactured by: Dupont Tyvek Commercial Type D Building Wrap or approved equal. Install per manufacturer's instructions (Installation to meet CBC 2510.6).
- F. Accessories:
  1. Comply with ASTM C1063, and coordinate depth of trim and accessories with

thicknesses and number of plaster coats required:

- a. Metal Accessories:
  - 1) Foundation Weep Screed: Fabricated from hot dip galvanized steel sheet, ASTM A653/A653M, G60 (Z180) zinc coating.
  - 2) Cornerite: Fabricated from metal lath with ASTM A653/A653M, G60 (Z180), hot dip galvanized-zinc coating.
  - 3) Outside Corner Reinforcement: Fabricated from metal lath with ASTM A653/A653M, G60 (Z180), hot dip galvanized zinc coating.
  - 4) Cornerbeads - Fabricated from zinc or zinc coated (galvanized) steel:
    - a) Smallnose cornerbead with expanded flanges; use unless otherwise indicated.
    - b) Smallnose cornerbead with expanded flanges reinforced by perforated stiffening rib; use on columns and for finishing unit masonry corners.
  - 5) Casing Beads: Fabricated from zinc or zinc coated (galvanized) steel; square edged style; with expanded flanges.
  - 6) Control Joints: Fabricated from zinc or zinc coated (galvanized) steel; one piece type, folded pair of unperforated screeds in M shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.
  - 7) Expansion Joints: Fabricated from zinc or zinc coated (galvanized) steel; folded pair of unperforated screeds in M shaped configuration; with expanded flanges.
  - 8) Two Piece Expansion Joints: Fabricated from zinc or zinc coated (galvanized) steel; formed to produce slip joint and square edged reveal adjustable from 1/4 to 5/8-inch (6 to 16 mm) wide; with perforated flanges.
- b. Plastic Accessories - Manufactured from high impact PVC:
  - 1) Cornerbeads - With perforated flanges:
    - a) Smallnose cornerbead; use unless otherwise indicated.
    - b) Bullnose cornerbead, radius 3/4 inch (19 mm) minimum; use at locations indicated on Drawings.
  - 2) Casing Beads - With perforated flanges in depth required to suit plaster bases indicated and flange length required to suit applications indicated:
    - a) Square edge style, unless otherwise indicated.
    - b) Bullnose style, radius 3/4 inch (19 mm) minimum; use at locations indicated on Drawings.
  - 3) Control Joints: One piece type, folded pair of unperforated screeds in M shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.
  - 4) Expansion Joints: Two piece type, formed to produce slip joint and square edged 1/2 inch (13 mm) wide reveal; with perforated concealed flanges, unless otherwise detailed or noted in Division 07: Thermal and Moisture Protection.
- c. Aluminum Reveals and Moldings, where applicable:
  - 1) Manufacturer: Fry Reglet
  - 2) Width: 2 inch
  - 3) Material: Extruded 6063 T5 Aluminum
  - 4) Finish: Kynar - Silver Satin.
  - 5) Provide all required accessories, moldings, and prefabricated intersection/corner transition pieces for a complete installation.
- d. Aluminum Soffit Vents:
  - 1) Manufacturer: Fry Reglet
  - 2) Width: 3 inch
  - 3) Material: Extruded 6063 T5 Aluminum
  - 4) Finish: Kynar - Silver Satin
  - 5) Provide all required accessories, moldings, and prefabricated intersection/corner transition pieces for a complete installation.

- G. Miscellaneous Materials:
1. Water for Mixing and Finishing Plaster: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.
  2. Fiber for Base Coat: Alkaline resistant glass or polypropylene fibers, 1/2-inch (13 mm) long, free of contaminants, manufactured for use in cement plaster.
  3. Bonding Compound: ASTM C932.
  4. Fasteners for Attaching Metal Lath to Substrates: ASTM C1063.
  5. Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, not less than 0.0475-inch (1.21 mm) diameter unless otherwise indicated.
  6. Building Wrap: Spun-bounded high density polyethylene fibers. No binders or fillers. As manufactured by: Dupont Tyvek Commercial Type D Building Wrap or approved equal. Install per manufacturer's instructions.
  7. Sound Attenuation Blankets:
    - a. ASTM C665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool:
      - 1) Fire Resistance Rated Assemblies: Comply with mineral-fiber requirements of assembly.
- H. Plaster Materials:
1. Portland Cement - ASTM C150/C150M, Type I or II:
    - a. Color for Finish Coats: Match existing.
  2. Colorants for Job Mixed Finish Coats: Colorfast mineral pigments that produce finish plaster color selected by Architect.
  3. Lime: ASTM C206, Type S; or ASTM C207, Type S.
  4. Sand Aggregate - ASTM C897:
    - a. Color for Job Mixed Finish Coats: White.
  5. Exposed Aggregates for Finish Coats: Match existing.
  6. Ready Mixed Finish Coat Plaster:
    - a. Mill mixed portland cement, aggregates, coloring agents, and proprietary ingredients.
      - 1) Color: Selected by Architect.
  7. Acrylic Based Finish Coatings:
    - a. Factory mixed acrylic emulsion coating systems formulated with colorfast mineral pigments and fine aggregates; for use over cement plaster base coats. Include manufacturer's recommended primers and sealing topcoats for acrylic based finishes:
      - 1) Color: Selected by Architect.

## 2.2 PLASTER MIXES

- A. Comply with ASTM C926 for applications indicated:
1. Fiber Content: Add fiber to base coat mixes after ingredients have mixed at least two minutes. Comply with fiber manufacturer's written instructions for fiber quantities in mixes, but do not exceed 1 lb of fiber/cu. yd. (0.6 kg of fiber/cu. m) of cementitious materials.
- B. Base Coat Mixes for Use over Metal Lath:
1. Scratch and brown coats for three coat plasterwork:
    - a. Portland Cement Mix:
      - 1) Scratch Coat: For cementitious material, mix 1-part portland cement and 3/4 to 1-1/2 parts lime. Use 2-1/2 to 4 parts aggregate per part of cementitious material.
      - 2) Brown Coat: For cementitious material, mix 1-part portland cement and 3/4 to 1-1/2 parts lime. Use 3 to 5 parts aggregate per part of cementitious material, but not less than volume of aggregate used in scratch coat.

- C. Job Mixed Finish Coat Mixes:
  - 1. Portland Cement Mix: For cementitious materials, mix 1-part portland cement and 3/4 to 1-1/2 parts lime. Use 1-1/2 to 3 parts aggregate per part of cementitious material.
- D. Factory Prepared Finish Coat Mixes: For ready mixed finish coat plasters or acrylic based finish coatings, comply with manufacturer's written instructions.

## **PART 3 EXECUTION**

### **3.1 PROJECT CONDITIONS**

- A. Comply with applicable requirements of ASTM C926.
- B. Environmental Requirements: Comply with requirements of referenced plaster application standards and recommendations of plaster manufacturer for environmental conditions before, during, and after plaster application.
- C. Cold Weather Requirements: Provide heat and protection, temporary or permanent, as required to protect each coat of plaster from freezing for at least 24 hours after application. Distribute heat uniformly to prevent concentration of heat on plaster near heat sources; provide deflection or protective screens.
- D. Warm Weather Requirements: Protect plaster against uneven and excessive evaporation and from strong flows of dry air, both natural and artificial. Apply and cure plaster as required by climatic and job conditions to prevent dry out during cure period. Provide suitable coverings, moist curing, barriers to deflect sunlight and wind, or combinations of these, as required.
- E. Ventilation: Provide natural or mechanical means of ventilation to properly dry interior spaces after portland cement plaster has cured.
- F. Exterior Plasterwork:
  - 1. Apply and cure plaster to prevent plaster drying out during curing period. Use procedures required by climatic conditions, including moist curing, providing coverings, and providing barriers to deflect sunlight and wind.
  - 2. Apply plaster when ambient temperature is greater than 40 degrees F (4.4 degrees C).
  - 3. Protect plaster coats from freezing for not less than 48 hours after set of plaster coat has occurred.
- G. Protect contiguous Work from soiling and moisture deterioration caused by plastering. Provide temporary covering and take precautions necessary to minimize spattering of plaster on adjacent Work.
- H. Factory Prepared Finishes: Comply with manufacturer's written recommendations for environmental conditions for applying finishes.

### **3.2 EXAMINATION**

- A. Examine substrates and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the Work. Proceed with installation after correcting unsatisfactory conditions.

### **3.3 PREPARATION**

- A. Protect adjacent Work from soiling, spattering, moisture deterioration, and other harmful



effects caused by plastering.

- B. Prepare smooth, solid substrates for plaster according to ASTM C926.

### 3.4 INSTALLATION

- A. Metal Lath:
1. Install according to ASTM C1063:
    - a. Partition Framing and Vertical Furring: Flat diamond mesh lath.
    - b. Horizontal Framing: Flat diamond mesh lath.
- B. Accessories:
1. Install according to ASTM C1063 and at locations indicated on Drawings:
    - a. Reinforcement for External (Outside) Corners:
      - 1) Install [lath type, external corner reinforcement] [cornerbead] at exterior locations.
      - 2) Install cornerbead at interior locations.
    - b. Control Joints - Locate as approved by Architect for visual effect:
      - 1) As required to delineate plasterwork into areas (panels) of the following maximum sizes:
        - a) Vertical Surfaces: 144 sq. ft. (13.4 sq. m).
        - b) Horizontal and Other Nonvertical Surfaces: 100 sq. ft. (9.3 sq. m).
      - 2) At distances between control joints of not greater than 18 feet (5.5 m) o.c.
      - 3) As required to delineate plasterwork into areas (panels) with length-to-width ratios of not greater than 2-1/2:1.
      - 4) Where control joints occur in surface of construction directly behind plaster.
      - 5) Where plasterwork areas change dimensions, to delineate rectangular shaped areas (panels) and to relieve the stress that occurs at the corner formed by the dimension change.

### 3.5 PLASTER APPLICATION

- A. Comply with ASTM C926:
1. Do not deviate more than plus or minus 1/4 inch in 10 feet (6 mm in 3 m) from a true plane in finished plaster surfaces when measured by a 10-foot (3-m) straightedge placed on surface.
  2. Finish plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground unless otherwise indicated. Where casing bead does not terminate plaster at metal frame, cut base coat free from metal frame before plaster sets and groove finish coat at junctures with metal.
  3. Provide plaster surfaces ready to receive field applied finishes indicated.
- B. Flat Surface Tolerances: Do not deviate more than plus or minus 1/8 inch in 10 feet (3 mm in 3 m) from a true plane in finished plaster surfaces, measured by a 10 foot (3m) straightedge placed at any location on surface.
- C. Walls; Base Coat Mixes for Use over Metal Lath:
1. For scratch and brown coats, for three coat plasterwork with 3/4 inch (19 mm) total thickness:
    - a. Portland cement mixes.
- D. Plaster Finish Coats: Apply to provide dash finish.
- E. Acrylic Based Finish Coatings (Contractor Option to Plaster Finish Coat): Apply coating system, including primers, finish coats, and sealing topcoats, according to manufacturer's

written instructions.

- F. Concealed Exterior Plasterwork: Where plaster application is used as a base for adhered finishes, omit finish coat.

### **3.6 PLASTER REPAIRS**

- A. Repair or replace Work to eliminate cracks, dents, blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.
- B. Cut, patch, replace, repair, and point up plaster as necessary to accommodate other Work. Repair cracks and indented surfaces. Point up finish plaster surfaces around items that are built into or penetrate plaster surfaces. Repair or replace Work to eliminate blisters, buckles, check cracking, dry outs, efflorescence, excessive pinholes, and similar defects. Repair or replace work as necessary to comply with required visual effects.

### **3.7 TOLERANCES**

- A. Maximum Variation from True Lines and Levels: 1/8 inch in 10 feet (3mm in 3 m).
- B. Maximum Variation from True Position: 1/8 inch (3mm).

### **3.8 CLEANING AND PROTECTION**

- A. Remove temporary protection and enclosure of Work after plastering is complete. Promptly remove plaster from door frames, windows, and other surfaces not indicated to be plastered. Repair floors, walls, and other surfaces stained, marred, or otherwise damaged during plastering.
- B. Remove unused materials, containers, equipment, and plaster debris.
- C. Protect plaster and maintain conditions ensuring finished plaster is without damage or deterioration at time of Substantial Completion.

**END OF SECTION 09 24 00**

## **SECTION 10 14 00 GRAPHICS AND SIGNAGE**

### **PART 1 GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 00 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes requirements including but not limited to:
  - 1. Informational signs (not identification signs).
  - 2. Accessories necessary for a complete installation.
- B. Related Sections:
  - 1. Section 03 30 00: Cast-In-Place Concrete.
  - 2. Division 26: Electrical.

#### **1.3 SUBMITTALS**

- A. Product Data: Technical data for each type of signage.
- B. Shop Drawings:
  - 1. Submit fabrication and installation details and attachments to other work:
    - a. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.
    - b. Show message list, typestyles, graphic elements, including raised characters and Braille, and layout for each sign at least half size.
    - c. Exterior applied signage on face of wall to include mounting brackets and support anchorage to fit condition.
- C. Samples: Submit one sample of each specified sign type, full-sized.

#### **1.4 WARRANTY**

- A. Written warranty signed by manufacturer in which manufacturer and installer agree to repair or replace components of signs that fail in materials within specified warranty period:
  - 1. Failures include, but are not limited to, the following:
    - a. Paint Color
    - b. Sign Construction
    - c. LED Lighting
    - d. Power Supplies
    - e. Installation
  - 2. Warranty Period: Five years on parts and labor

### **PART 2 PRODUCTS**

#### **2.1 MATERIALS**

- A. Manufacturers:
  - 1. Subject to compliance with requirements, provide products by the following:
    - a. CaSignCompany, (877) 965-2121

- B. Aluminum Castings: ASTM B26/B26M, alloy and temper recommended by sign manufacturer for casting process used and for type of use and finish indicated. Refer to drawings for location.
- C. Aluminum Sheet and Plate: ASTM B209, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated. Refer to drawings for location.
- D. Aluminum Extrusions: ASTM B221, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated.
- E. Acrylic Sheet: ASTM D4802, category standard with manufacturer for each sign, Type UVF (UV filtering).
- F. Plastic Laminate Sheet: NEMA LD 3, general purpose HGS grade, 0.048-inch (1.2-mm) nominal thickness.
- G. Vinyl Film: UV resistant vinyl film of nominal thickness indicated, with pressure sensitive, permanent adhesive on back; die cut to form characters or images indicated and suitable for exterior applications.
- H. Paints and Coatings for Sheet Materials: Inks, dyes, and paints that are recommended by manufacturer for optimum adherence to surface and are UV and water resistant for colors and exposure indicated.
- I. Accessories:
  - 1. Fasteners and Anchors:
    - a. As necessary for secure anchorage of signage, noncorrosive and compatible with each material joined, and complying with the following:
      - 1) Use concealed fasteners and anchors unless indicated to be exposed.
      - 2) Exposed Metal Fastener Components: Fabricated from same basic metal and finish of fastened metal unless otherwise indicated.
  - 2. Sign Mounting Fasteners: Recommended by sign manufacturer.
  - 3. Adhesive: Recommended by sign manufacturer.
  - 4. Two Face Tape: Recommended by sign manufacturer.
  - 5. Bituminous Paint: Cold applied asphalt emulsion complying with ASTM D1187.

## 2.2 SIGNAGE

- A. Cast Characters:
  - 1. Characters with uniform faces, sharp corners, and precisely formed lines and profiles:
    - a. Character Material: Cast aluminum.
    - b. Character Height: Indicated on Drawings.
    - c. Finishes:
      - 1) Baked Enamel or Powder Coat Finish: Color to be selected by the Architect from manufacture's full range of standard colors.
      - 2) Overcoat: Baked on clear coating.
    - d. Mounting: Concealed studs.
    - e. Typeface: Selected by Architect.

## 2.3 FABRICATION

- A. Provide sign assemblies according to requirements indicated:
  - 1. Preassemble signs and assemblies in the shop to greatest extent possible. Disassemble signs and assemblies as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation; apply markings in locations

- concealed from view after final assembly.
2. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
  3. Comply with AWS for recommended practices in welding and brazing. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed connections of flux, and dress exposed and contact surfaces.
  4. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
  5. Internally brace signs for stability and for securing fasteners.
  6. Provide rebates, lugs, and brackets necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.
  7. Castings: Fabricate castings free of warp, cracks, blowholes, pits, scale, sand holes, and other defects that impair appearance or strength. Grind, wire brush, sandblast, and buff castings to remove seams, gate marks, casting flash, and other casting marks before finishing.
- B. Brackets:
1. Fabricate brackets, fittings, and hardware for bracket mounted signs to suit sign construction and mounting conditions indicated. Modify brackets as necessary:
    - a. Aluminum Brackets: Factory finish brackets with baked enamel or powder coat finish to match sign background color unless otherwise indicated.

## 2.4 FINISH REQUIREMENTS

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Directional Finishes: Run grain with long dimension of each piece and perpendicular to long dimension of finished trim or border surface unless otherwise indicated.
- D. Organic, Anodic, and Chemically Produced Finishes: Apply to formed metal after fabrication but before applying contrasting polished finishes on raised features unless otherwise indicated.
- E. Aluminum Finishes:
  1. Clear Anodic Finish: AAMA 611, Class I, 0.018 mm or thicker.
  2. Baked Enamel or Powder Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils (0.04 mm). Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

## PART 3 EXECUTION

### 3.1 FIELD CONDITIONS

- A. Field Measurements: Verify locations of anchorage devices and electrical service embedded in permanent construction by other installers by field measurements before fabrication and indicate measurements on Shop Drawings.

### 3.2 EXAMINATION

- A. Examine substrates, areas, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of signage work. Verify sign support surfaces are within tolerances to accommodate signs without gaps or irregularities between backs of signs and support surfaces unless otherwise indicated.
- B. Proceed with installation after correcting unsatisfactory conditions.

### **3.3 INSTALLATION**

- A. Install signs using mounting methods indicated and according to manufacturer's written instructions:
  - 1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
  - 2. Before installation, verify sign surfaces are clean and free of materials or debris that impair installation.
  - 3. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
- B. Mounting Methods:
  - 1. Exposed Fastener: Install vandal-resistant fastener; set screw head flush with sign face.
  - 2. Concealed Studs:
    - a. Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface:
      - 1) Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place sign in position and push until flush to surface, embedding studs in holes. Temporarily support sign in position until adhesive fully sets.
      - 2) Thin or Hollow Surfaces: Place sign in position and flush to surface, install washers and nuts on studs projecting through opposite side of surface, and tighten.
  - 3. Brackets: Remove loose debris from substrate surface and install backbar or bracket supports in position so that signage is correctly located and aligned.
  - 4. Shim Plate Mounting: Provide 1/8 inch (3 mm) thick, concealed aluminum shim plates with predrilled and countersunk holes, at locations indicated, and where other direct mounting methods are impractical. Attach plate with fasteners and anchors suitable for secure attachment to substrate. Attach signs to plate using method specified above.

### **3.4 ADJUSTING AND CLEANING**

- A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. Remove temporary protective coverings and strippable films as signs are installed.
- C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

**END OF SECTION 10 14 00**

## **SECTION 10 14 25 POST AND PANEL/PYLON SIGNAGE**

### **PART 1 GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 00 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes requirements including but not limited to:
  - 1. Integrated internal LED display cabinet.
  - 2. Accessories necessary for a complete installation.
  - 3. Pylon support Structure.
- B. Related Sections:
  - 1. Section 03 30 00: Cast-In-Place Concrete.
  - 2. Division 26: Electrical.

#### **1.3 PERFORMANCE REQUIREMENTS**

- A. Delegated Design: Engage a qualified professional engineer, licensed in the State of California to design sign structure and anchorage of panel marquee sign type(s) according to structural performance requirements.
- B. Structural Performance:
  - 1. Signs and supporting elements shall withstand the effects of gravity and other loads within limits and under conditions indicated:
    - a. Uniform Wind Load: Indicated on Structural Drawings.
    - b. Concentrated Horizontal Load: Indicated on Drawings.
    - c. Other Design Load: Indicated on Drawings.
    - d. Uniform and concentrated loads need not be assumed to act concurrently.
- C. Thermal Movements:
  - 1. Allow for thermal movements from ambient and surface temperature changes:
    - a. Temperature Change: 120 degrees F (67 degrees C), ambient; 180 degrees F (100 degrees C), material surfaces.

#### **1.4 SUBMITTALS**

- A. Product Data: Technical data including construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings:
  - 1. Submit fabrication and installation details and attachments to other work:
    - a. Show sign mounting heights, locations of supplementary supports to be provided by other installers, and accessories.
    - b. Show message list, typestyles, graphic elements, and layout for each sign at least half size.
- C. Samples:
  - 1. Submit for each type of sign assembly, showing components and with required finish, in size indicated:

- a. Panel Sign: Not less than 12 inches (300 mm) square, including corner and post.
  - b. Variable Component Materials: 8 inch (200 mm) Sample of each base material, character or graphic element, in each exposed color and finish not included in other Samples.
  - c. Exposed Accessories: Submit half size sample of each accessory type.
- D. Delegated Design Submittal: Submit structural analysis calculations for signs indicated to comply with design loads; signed and sealed by the qualified professional engineer responsible for the preparation.

## 1.5 QUALITY ASSURANCE

- A. Regulatory Requirements:
- 1. Building Code: Comply with the applicable provisions of the CBC, CEC and local Jurisdictions.
  - 2. Welding Qualifications:
    - a. Qualify procedures and personnel according to AWS:
      - 1) D1.1/D1.1M Structural Welding Code – Steel.
      - 2) D1.2/D1.2M Structural Welding Code – Aluminum.
      - 3) D1.3 Structural Welding Code - Sheet Steel.
      - 4) D1.4/D1.4M Structural Welding Code - Reinforcing Steel.
  - 3. Accessibility Requirements:
    - b. Comply with applicable requirements:
      - 1) U.S. Architectural and Transportation Barriers Compliance Board Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG).
      - 2) ICC/ANSI A117.1 Accessible and Useable Building and Facilities.
- B. Signage and work under this section shall be manufactured by vendors dealing extensively in this type of work and capable in producing first quality work
- C. Signage provider shall have at least ten (10) years of experience providing LED products and services for other organizations
- D. All work and installation shall be in accordance with the requirements of these specifications and manufacturer's recommendations. In the event of disagreement between these specifications and the manufacturer's recommendations, these specifications shall govern.

## 1.6 WARRANTY

- A. Written warranty signed by manufacturer in which manufacturer and installer agree to repair or replace components of signs that fail in materials within specified warranty period:
- 1. Failures include, but are not limited to, the following:
    - a. Deterioration of finishes beyond normal weathering.
    - b. Deterioration of embedded graphic image.
    - c. Separation or delamination of sheet materials and components.
  - 2. Warranty Period: Five years gold parts warranty

## PART 2 PRODUCTS

### 2.1 MANUFACTURER

- A. Manufacturer (Basis of Design):
- 1. **Daktronics, Inc.**, 201 Daktronics Drive, P.O. Box 5128, Brookings, SD 57006-5128 or approved equal prior to Bid.



## 2.2 PRODUCT

### A. Marquee Panel Sign:

1. Daktronics, Inc., GT6x-8 MM Outdoor Display - GT6x-8-135x360-RGB-SF display 4'2" x 9'11"
  - a. LED Color: RGB
  - b. Lines x Columns: 135 x 360 Sing/FT
  - c. Cabinet Dimensions: 4'2" x 9'11" x 7"
  - d. Cabinet (Square Feet): 40.4 SF
  - e. Active Area (Square Feet): 34.6 SF
  - f. Cabinet Weight Pounds: 365 LBS
  - g. Lines/Characters per line: 16/72
  - h. Character Height: 2"-43"
  - i. Maximum Watts RGB: 2510
  - j. Power: 120, 120/240 VAC Single Phase
  - k. Communication Options: Ethernet Fiber Optic, Ethernet Bridge Radio, Remote Cellular, Ethernet CAT5

## PART 3 EXECUTION

### 3.1 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and are packaged with protective covering for storage and identified with labels describing contents:
  1. Variable Component Materials: Integrated LED Display Cabinet and Identification Cabinet.
  2. Tools: One set(s) of specialty tools for assembling signs and replacing variable sign components.

### 3.2 COORDINATION

- A. Furnish templates and tolerance information for placement of sign anchorage devices embedded in permanent construction by other installers.

### 3.3 FIELD CONDITIONS

- A. Field Measurements: Verify locations of anchorage devices and electrical service embedded in permanent construction by other installers by field measurements before fabrication, and indicate measurements on Shop Drawings.

### 3.4 EXAMINATION

- A. Examine substrates, areas, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the work.
- B. Verify that sign support surfaces are within tolerances to accommodate signs.
- C. Verify anchorage devices embedded in permanent construction are correctly sized and located to accommodate signs.
- D. Proceed with installation after correcting unsatisfactory conditions.

### 3.5 INSTALLATION

- A. Install signs using installation methods indicated and according to manufacturer's written

instructions:

1. Install signs level, plumb, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
  2. Install signs so they do not protrude or obstruct according to the accessibility standard.
  3. Before installation, verify that sign components are clean and free of materials or debris that would impair installation.
  4. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
- B. Mounting: Set signage plumb and level to masonry structure using manufacturer recommended fasteners and bolts to prevent to prevent movement. Fill shim space with nonshrink, nonmetallic grout, mixed and placed to comply with manufacturer's written instructions.

### **3.6 ADJUSTING AND CLEANING**

- A. Remove and replace damaged or deformed signage or signage that does not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. Remove temporary protective coverings and strippable films as signs are installed.
- C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

**END OF SECTION 10 14 25**

## SECTION 26 05 00 - COMMON WORK RESULTS FOR ELECTRICAL

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUBSTITUTIONS OF PRODUCTS

- A. The products described in the Proposal Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. The materials and equipment named in, and the procedures covered by these specifications have been selected as a standard because of quality, particular suitability or record of satisfactory performance. It is not intended to preclude the use of equal or better materials or equipment provided that same meets the requirements of the particular project and is approved in an Addendum as a substitution prior to the submission of proposals.
- B. No substitution will be considered prior to receipt of proposals unless written request for approval has been received by the Architect and Engineer at a minimum of seven (7) business days prior to the date for receipt of proposals. Each such request shall include a specification line by line review annotated to certify compliance, the name of the manufacturer and model, material or equipment for which it is to be substituted and a complete description of the proposed substitute including dimensional drawings, cutsheets, performance and test data and any other information necessary for an evaluation. The Engineers decision of approval or disapproval of a proposed substitution shall be final.
- C. If the Engineer approves any proposed substitution prior to receipt of proposals, such approval will be set forth in an Addendum. Offerors shall not rely upon approvals made in any other manner.
- D. The Engineer and Owner reserve the right to disapprove the use of any manufacturer who in their judgment is unsuitable for use on the Project and that decision will be final.
- E. Availability of specified items:
  - 1. Verify prior to submittal of Proposal that all specified items will be available in time for installation during orderly and timely progress of the work.
  - 2. In the event specified items will not be so available, notify the Architect / Engineer prior to receipt of Proposals. Submit Request for Substitutions in accordance with this section.
  - 3. The request will not be considered if the product or method cannot be provided as a result of the Contractor's failure to pursue the work promptly or coordinate activities properly.

4. Costs of delays because of non-availability of specified items, when such delays could have been avoided by the Contractor, will be back-charged as necessary and shall not be borne by the Owner.
- F. A request constitutes a representation that Offeror:
1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
  2. Will provide same warranty for Substitution as for specified product, except when inability to provide specified Warranty is reason for request for substitution as described above.
  3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
  4. Waives claims for additional costs or time extension which may subsequently become apparent.
  5. Will reimburse the Owner and pay for all costs, including Architect/Engineer's redesign and evaluation costs resulting from the use of the proposed substitution, or for review or redesign services associated with re-approval by authorities having jurisdiction.
- G. **No substitutions will be considered after the Award of Contract.**

### 1.3 SUMMARY

- A. Provide all work for electrical systems required in the project to be properly installed, tested and performing their intended function.

### 1.4 QUALITY ASSURANCE

- A. Perform all work in accordance with the latest edition of the national electrical code, and local codes.
- B. All electrical materials and distribution, and utilization equipment shall be UL Listed.
- C. All equipment and materials shall be new and unused and of United States Domestic manufacture unless approved otherwise by engineer or owner.
- D. Eliminate any abnormal sources of noise that are considered by the architect not to be an inherent part of the electrical systems as designed.

### 1.5 COORDINATION WITH OTHER TRADES

- A. Coordinate the work of this division with all other divisions to ensure that all components of the electrical system will be installed at the proper time and fit the available space.
- B. Locate and size all openings in work of other trades required for the proper installation of the electrical system components.
- C. Make all electrical connections to all equipment furnished by this division and any other division.

- D. Make all electrical connections from all 120 volt and greater dampers and switches to associated exhaust fan(s) furnished by any other division.

## **1.6 DRAWINGS**

- A. The drawings are schematic in nature, but show the various components of the systems approximately to scale and attempt to indicate how they are to be integrated with other parts of the building. Determine exact locations by review of equipment manufacturer's data, by job site measurements, by checking the requirements of other trades, and by reviewing all Contract Documents. The size of the electrical equipment indicated on the Drawings may be based on the dimensions of a particular manufacturer. While other listed manufacturers will be acceptable, it is the responsibility of the Contractor to determine if the equipment that Contractor proposes to furnish will fit in the space. The drawings are not intended to show exact locations of conduit and wire, or to indicate all wire terminators, connectors, conduit fittings, boxes or supports, but rather to indicate distribution, circuitry, and control.
- B. The Electrical Drawings are necessarily diagrammatic in character and cannot show every connection in detail or conduit in its exact location. These details are subject to the requirements of ordinances and also structural and architectural conditions. The Contractor shall carefully investigate structural and finish conditions and shall coordinate the separate trades in order to avoid interference between the various phases of work. Work shall be laid out so that it will be concealed in furred chases and suspended ceilings, etc., in finished portions of the building, unless specifically noted to be exposed. Work shall be installed to avoid crippling of structural members. All exposed work shall be installed parallel or perpendicular to the lines of the building unless otherwise noted.
- C. When the mechanical and electrical Drawings do not give exact details as to the elevation of pipe, conduit and ducts, physically arrange the systems to fit in the space available at the elevations intended with the proper grades for the functioning of the system involved. Exposed conduit is generally intended to be installed true and square to the building construction, and located as high as possible against the structure in a neat and workmanlike manner. The Drawings do not show all required offsets and their location details. Work shall be concealed in all finished areas.

## **1.7 SUBMITTALS**

- A. Specification Review:
  - 1. Include a paragraph-by-paragraph written specification review for each product listed requiring a submittal. Denote any proposed deviations from specifications.

## **1.8 EXISTING CONDITIONS**

- A. Do all work required to maintain electrical services to the Owner occupied portions of the building during construction.
- B. No connection to existing services or utilities shall be made without Owner's knowledge and permission. All such connections shall be planned and scheduled to minimize the length of service interruption required. Request for shutdown shall be made to Owner at least two (2) weeks in advance and shall be accompanied by detailed written schedule of activities during shutdown and list of materials required for connection and renewal of service. It shall be understood that all such service interruptions shall be made at the Owner's convenience, not the Contractor's. No increase in contract amount will be allowed for reasons of premium time, inefficiency of operations or other considerations not calculated in original bid.

- C. All items removed shall be stored on-site. Schedule a review of the items with the Owner. Remove from site all items the Owner does not choose to keep. Deliver Owner designated items to Owner's storage facility.

### **1.9 DELIVERY, STORAGE, AND HANDLING**

- A. Accept materials on site in original factory packaging, labeled with manufacturer's identification.
- B. Protect from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original packaging.
- C. Do not deliver items to project before time of installation. Limit shipment of bulk and multiple-use materials to quantities needed for immediate installation.

## **PART 2 - PRODUCTS**

- A. Provide allowance in bid for twenty-five 20A/1p circuits of 100 feet in length from source for miscellaneous needs during the course of construction. Include one duplex receptacle per circuit, all associated labor and all necessary accessories (conductor, conduit, supports, etc.) required for proper installation.
- B. Provide allowance in bid for twenty-five light switching circuit drops of twenty feet in length for miscellaneous needs during construction. Include one 277V light switch per circuit, all associated labor and all necessary accessories (conductor, conduit, supports, etc.) required for proper installation.
- C. Provide allowance in bid for ten additional exit signs for miscellaneous needs during construction. Include circuiting, all associated labor and all necessary accessories required for proper installation.

## **PART 3 - EXECUTION**

### **3.1 EXISTING WORK**

- A. Disconnect electrical systems in walls, floors, and ceilings scheduled for removal.
- B. Provide temporary wiring and connections to maintain existing systems in service during construction.
- C. When performing work on energized equipment or circuits, use personnel experienced and trained in similar operations.
- D. Remove, relocate, and extend existing installations to accommodate new construction.
- E. Repair adjacent construction and finishes damaged during demolition and extension work.

### **3.2 OWNER INSTRUCTION**

- A. Provide on-site Owner training for all new equipment.

- B. Use Operation and Maintenance manuals and actual equipment installed as basis for instruction.
- C. At conclusion of on-site training program have Owner personnel sign written certification they have completed training and understand equipment operation. Include copy of training certificates in final Operation and Maintenance manual submission.

**END OF SECTION 26 05 00**

## **SECTION 26 05 19 - LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Provide a complete system of building wire and cable to all electrical loads.

#### **1.3 SYSTEM DESCRIPTION**

- A. Product Requirements: Provide products as follows:
  - 1. Provide stranded conductors for all wiring.
  - 2. Conductor not smaller than 12 AWG for power and lighting circuits.
  - 3. Conductor not smaller than 16 AWG for control circuits.
  - 4. 10 AWG conductors for 20 ampere, 120 volt branch circuits longer than 75 feet
  - 5. 10 AWG conductors for 20 ampere, 277 volt branch circuits longer than 200 feet.
  - 6. Copper.
- B. Wiring Methods: Provide the following wiring methods:
  - 1. Concealed Dry Interior Locations: Use only Type THHN/THWN-2 insulation, in raceway.
- C. Branch Circuit Conductors: No branch circuit conductors are allowed in any slab or under slab on grade unless specifically indicated on drawings.

#### **1.4 COORDINATION**

- A. Where wire and cable destination is indicated and routing is not shown, determine routing and lengths required.

### **PART 2 - PRODUCTS**

#### **2.1 BUILDING WIRE**

- A. Manufacturers:
  - 1. Diamond Wire & Cable Co.
  - 2. Southwire
  - 3. General Cable Co.
  - 4. IUSA Wire
  - 5. Encore
- B. Product Description: Single conductor insulated wire.
- C. Conductor: Copper.
- D. Insulation: NFPA 70; Type THHN/THWN-2 insulation for feeders and branch circuits.



## **2.2 TYPE AC CABLE**

- A. Manufacturers:
  - 1. AFC
  - 2. Southwire
- B. Product Description: A fabricated assembly of insulated conductors in a flexible metallic enclosure.
- C. Comply with CEC 320.
- D. Support, provide separate support to structure for all Type AC cable, spacing not exceeding three (3) feet and at each junction box.
- E. Provide an insulated green grounding conductor in all Type AC cable.
- F. Acceptable Use: Install, at Contractor's option, only for service to light fixtures above accessible ceilings, limit length to six (6) feet whips from accessible junction box to light fixtures.
- G. Provide insulated throat fittings at all terminations of Type AC cable.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Verify interior of building has been protected from weather.
- B. Verify mechanical work likely to damage wire and cable has been completed.
- C. Verify raceway installation is complete and supported.

### **3.2 EXISTING WORK**

- A. Remove exposed abandoned wire and cable, including abandoned wire and cable above accessible ceiling finishes. Patch surfaces where removed cables pass through building finishes.
- B. Disconnect abandoned circuits and remove circuit wire and cable. Remove abandoned boxes when wire and cable servicing boxes is abandoned and removed. Install blank cover for abandoned boxes not removed.
- C. Provide access to existing wiring connections remaining active and requiring access. Modify installation or install access panel.
- D. Extend existing circuits using materials and methods compatible with existing electrical installations, or as specified.

### **3.3 INSTALLATION**

- A. Route wire and cable to meet Project conditions.
- B. Neatly train and lace wiring inside boxes, equipment, and panelboards.

- C. Identify and color code wire. Identify each conductor with its circuit number or other designation indicated.
- D. Special Techniques - Wiring Connections:
  - 1. Clean conductor surfaces before installing lugs and connectors.
  - 2. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
    - a. MDF/IDF room branch circuits: All branch circuits shall be dedicated and unspliced. Provide dedicated branch circuit 20 or 30 amperes, #10 and or #12 wire, unspliced from wiring device all the way back to the overcurrent device. Do not share ground with any other circuit.
    - b. Computer branch circuits: All branch circuits shall be dedicated. Provide dedicated branch circuit 20 amperes, #10 and or #12 wire from wiring devices all the way back to the overcurrent device. Do not share neutral with any other circuit.
    - c. Kitchen branch circuits: All branch circuits for 125 volt, single phase, 15 and 20 ampere receptacles shall be dedicated. Provide dedicated branch circuit 20 amperes, #10 and or #12 wire from wiring devices all the way back to the overcurrent device. Do not share neutral or ground with any other circuit.
  - 3. Tape uninsulated conductors and connectors with electrical tape to 150 percent of insulation rating of conductor.
  - 4. Install split bolt connectors for copper conductor splices and taps, 6 AWG and larger.
  - 5. Install solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.
  - 6. Install insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.

**3.4 WIRE COLOR**

**A. COLOR CODES FOR CONDUCTORS FOR BRANCH CIRCUITS AND FEEDERS**

| <b>System/Phase</b> | <b>Wire Sizes #10 and Smaller:<br/>Use Continuous Color Coded Insulation<br/>(Note 01)</b> |          |          |                                | <b>Wire Sizes #6 and Smaller:<br/>Use Continuous Color Coded Insulation (Note 02)</b> |                     |
|---------------------|--------------------------------------------------------------------------------------------|----------|----------|--------------------------------|---------------------------------------------------------------------------------------|---------------------|
|                     | <b>A</b>                                                                                   | <b>B</b> | <b>C</b> | <b>N</b>                       | <b>G</b>                                                                              | <b>IG</b>           |
| 120/208             | Black                                                                                      | Red      | Blue     | White                          | Green                                                                                 | Green/Yellow Stripe |
| 120/240             | Black                                                                                      | Orange   | Blue     | White w/color stripe (Note 03) | Green                                                                                 | Green/Yellow Stripe |
| 277/480             | Brown                                                                                      | Purple   | Yellow   | Gray                           | Green                                                                                 | Green/Yellow Stripe |

Table Notes:

- 1. Wire size #8 and larger, black conductors with color marking tape at each termination and where accessible; colors as noted above.

2. Wire sizes #4 and larger, black conductor with green marking tape at each termination and where accessible.
  3. Provide white (no stripe) insulation when 120/208V system is not present at this installation.
- B. Neutral Conductors: White. When two or more neutrals are located in one conduit, individually identify each with proper circuit number and provide color coding at each junction box containing more than one neutral.
- C. Branch Circuit Conductors: Install three or four wire home runs with each phase uniquely color coded.
- D. Feeder Circuit Conductors: Uniquely color code each phase.
- E. Ground Conductors:  
For 6 AWG and smaller: Green.  
For 4 AWG and larger: Identify with green tape at both ends and visible points including junction boxes.

### **3.5 GROUPING OF CIRCUITS**

- A. Limit the number of current carrying conductors per conduit to 6. Neutrals serving computer receptacle branch circuits shall be counted as current carrying. Grounds shall not be counted.
- B. Grouping of different voltages is not allowed.
- C. Provide metal box sizes per CEC Table 314.16 (A).
- D. Provide conduit per CEC Annex C.
- E. Neutrals serving branch circuits shall not be shared. Provide dedicated neutral per circuit.

### **3.6 POWER LIMITED CIRCUIT INSTALLATION**

- A. Provide a complete system of raceway and covered junction boxes for all power limited circuits installed in finished spaces and spaces without a ceiling.
- B. Provide raceway for all power limited circuit wiring within wall cavities and above sheet rock, plaster and other "hard" (non-lay-in) ceiling types of construction.
- C. Labeling: Provide label on all junction boxes.
  1. Provide permanent labeling with indelible black marker, in neat, legible print indicating the system wiring name.

**END OF SECTION 26 05 19**

## **SECTION 26 05 26 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS**

CONDITIONS OF THE CONTRACT AND DIVISION 1, as applicable, apply to this Section.

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Provide a continuous low-impedance grounding system for the entire electrical wiring system.

#### **1.3 REFERENCES**

- A. Institute of Electrical and Electronics Engineers:
  - 1. IEEE 142 - Recommended Practice for Grounding of Industrial and Commercial Power Systems.
  - 2. IEEE 1100 - Recommended Practice for Powering and Grounding Electronic Equipment.
- B. NFPA 70 - National Electrical Code.

#### **1.4 SYSTEM DESCRIPTION**

- A. Grounding systems use the following elements as grounding electrodes:
  - 1. Metal underground water pipe.
  - 2. Metal building frame.
  - 3. Concrete-encased electrode.
  - 4. Ground ring.
  - 5. Rod electrode.
  - 6. Plate electrode.

#### **1.5 SUBMITTALS**

- A. Product Data: Submit data on grounding electrodes and connections.

#### **1.6 QUALITY ASSURANCE**

- A. Provide grounding materials conforming to requirements of CEC, IEEE 142, and UL labeled.

#### **1.7 GROUND RING PRE-INSTALLATION MEETINGS**

- A. This paragraph shall apply to buildings when a ground ring is specified.
- B. Convene minimum one (1) week prior to commencing work of this section.

- C. Coordinate with concrete pour schedule for footings to insure rebar in concrete is available for bonding.

## 1.8 MADE ELECTRODE INSPECTION

- A. Convene prior to cover up of work of this section.
- B. Coordinate inspection of made electrode, exothermic welds and test well installation.

## PART 2 PRODUCTS

### 2.1 ROD ELECTRODES

- A. Manufacturers:
  - 1. Apache Grounding/Erico Inc.
  - 2. Copperweld, Inc.
  - 3. Erico, Inc.
  - 4. O-Z Gedney Co.
  - 5. Thomas & Betts
  - 6. VFC
- B. Product Description:
  - 1. Material: Copper-clad steel
  - 2. Diameter: 3/4 inch
  - 3. Length: ten (10) feet

### 2.2 WIRE

- A. Material: Stranded copper.
- B. Foundation Electrodes: #2 AWG.
- C. Grounding Electrode Conductor: Copper conductor bare.
- D. Bonding Conductor: Copper conductor bare.

### 2.3 MECHANICAL CONNECTORS

- A. Manufacturers:
  - 1. Apache Grounding/Erico Inc.
  - 2. Copperweld, Inc.
  - 3. Erico, Inc.
  - 4. ILSCO Corporation
  - 5. O-Z Gedney Co.
  - 6. Thomas & Betts, Electrical
  - 7. VFC
- B. UL Listed for grounding applications.

- C. Provide "ACORN" style ground clamp only for all driven ground rods unless noted to be exothermic connected in this specification. UL listed for connecting ground conductor to a driven ground rod.
- D. Description: Brass connectors, suitable for grounding and bonding applications, in configurations required for particular installation.

## 2.4 EXOTHERMIC CONNECTIONS

- A. Manufacturers:
  - 1. Cadweld by Erico, Inc.
- B. Product Description: Exothermic materials, accessories, and tools for preparing and making permanent field connections between grounding system components.

## 2.5 GROUNDING BUSSES

- A. When indicated, provide copper ground busses on walls in areas where special grounding needs will arise. Bus shall consist of copper bar as follows:
  - 1. Ground bar cross section of nominal four (4) inches by 1/4 inch; 24 inches length.
  - 2. Drill to accommodate NEMA Pattern D 2-hole compression lugs for ground wires to be installed. Leave remainder of bar for future drilling by owner.
  - 3. Copper compression lugs to connect conductors to the bar. Lugs shall be 2-hole type for double bolting to ground bar.
  - 4. Install all bolts for compression with top and bottom steel washers plus a Belleville spring washer between top washer and bolt head.
  - 5. Grounding electrode conductor(s) shall be fusion-welded on buss (and not lugged on).
  - 6. Mounting Free air, no enclosure required. Install Harger WBKT-1 brackets to mount bar to wall. Isolate copper bar from mounting brackets with Harger 4200-Series two (2) inch insulators.
  - 7. Fasten clear pexiglass cover on standoff bolts over ground bar. Engrave cover "GROUND BUS". Cover by Harger Lightning Protection, Inc., or approved equal.
  - 8. Ground bar assembly shall be Harger Lightning Protection, Inc. GBI Series (800-842-7437, [www.harger.com](http://www.harger.com)), Erico, Inc. (800-248-9353) or approved equal.

## 2.6 DRIVEN ELECTRODE ACCESS WELL AND COVER

- A. Eight (12) inch diameter concrete pipe with belled end.
- B. 24 inches long or longer to reach ground and set flush in grade.
- C. Provide cast iron cover with "GROUND" embossed on top.

## PART 3 – EXECUTION

### 3.1 EXAMINATION

- A. Verify final backfill and compaction has been completed before driving rod electrodes.

### 3.2 PREPARATION

- A. Remove paint, rust, mill oils, and surface contaminants at connection points.

### 3.3 EXISTING WORK

- A. Modify existing grounding system to maintain continuity to accommodate renovations.
- B. Extend existing grounding system using materials and methods compatible with existing electrical installations.

### 3.4 INSTALLATION

- A. Install in accordance with CEC Article 250. **[USE WITH NEW SWITCHBOARD]** [Properly bond the system neutral to the system grounding electrode conductor at the main service entrance equipment. **[USE FOR REMODEL:** Properly maintain the existing neutral-ground bond] **[DELETE FOR REMODEL]** (Route the grounding electrode conductor to, and bond to, the grounding electrode system.)] All other neutral busses, bars, etc. on the service voltage system shall be isolated from ground. This system shall be the solid grounded type.
- B. Bond all ground electrodes together to form the grounding electrode system including metal underground water pipe, metal frame of the building or structure, concrete encased electrodes, ground ring, rod and pipe electrodes and plate electrodes.
- C. Install grounding and bonding conductors concealed from view.
- D. Install grounding electrode conductor and connect to reinforcing steel in foundation footing.
- E. Install a green equipment grounding conductor in all feeders and branch circuits, minimum size per CEC Table 250.122.
- F. Transformers: Ground as a separately derived source.
  - 1. Where transformer secondary includes a neutral, the neutral shall be bonded to the equipment enclosure and connected to the system ground conductor.
  - 2. Size bonding jumper per CEC Table 250.66.
  - 3. Grounding conductor shall be in raceway and shall be bonded to nearest available point of interior metal water piping system.
- G. Bond together reinforcing steel and metal accessories in pool and fountain structures.
- H. Concrete-Encased Electrode (CEC 250-52):
  - 1. Concrete-encased electrode is also known as the "Ufer ground". Concrete footings or foundation that are in direct contact with the earth and located at the building periphery shall be made available for use as electrodes. Designated footings shall be used for grounding purposes. Unless otherwise noted on drawings, designated footings are the perimeter building corners plus perimeter footings approximately on 100 feet centers between corners.
- I. Made Electrode:
  - 1. Triple Ground Rod: Provide a building ground rod and bond it to the electrode system. The building ground rod shall consist of three ground rods, arranged in an equilateral triangular pattern located at least five (5) feet outside an exterior building wall or as otherwise directed. Space 15 feet apart and drive into the earth to a point two (2) feet below finished grade to top of rods. Grounding

- electrode conductor shall form a continuous loop around rods, and conductor shall be properly bonded to each rod by a fusion weld similar to "Cadweld".
2. Extend grounding electrode conductor from this ground rod(s) to the grounded service conductor (neutral) in the building main switchboard at an accessible point on the ground bus per CEC 250-24.
  3. Install grounding electrode conductor of 3/0 Copper.
- J. Main Bonding Jumper: Shall be sized in accordance with Section 250-66, if not indicated on the drawings, and installed within the same enclosure as the point of bonding of the system neutral service entrance.
- K. Grounding Busses:
1. Provide a copper bus bar where indicated on Drawings. Provide grounding electrode conductor and connection to the grounding electrode system. AWG No. 2 minimum.
  2. Provide in each IDF and MDF room.
  3. Provide at each CATV / MATV head-end mounting board.
  4. Provide at each building communications rack.
  5. Provide at each sound reinforcement equipment rack.
- L. Water Pipe Electrode: A ten (10) foot minimum length of electrically continuous underground metal water pipe. Bond around insulating joints or sections, insulating pipe, and water meters to make pipe electrically continuous.
- M. Metal Building Frame CEC 250-52.
1. The structural steel or other metal frame of the building. Effectively ground the steel structural columns to the ground ring electrode.
  2. Cadweld AWG #2 bare copper cable to base of steel column. Route bonding jumper down through column blockout in building floor slab, excavate under grade beam, and extend out to the ground ring. Cadweld jumper (also called "stinger") or install Burndy Hyground™ Type YGHP-C hydraulic compression connector onto ground ring. Install a ground rod at each point where a stinger from a building steel column lands on the ground ring.
- N. Ground Ring Electrode (CEC 250-52):
1. Provide a tinned, bare copper conductor, size AWG #2 or larger, ground loop in direct contact with the earth. Install around and below the entire periphery of the building at least 36 inches underground. The ring conductor shall be in direct contact with the earth and below any concrete mat or seal slab that may be part of the building structural foundation. Bond this ground ring to all other electrodes and to the grounded service conductor (neutral) in the building main switchboard at a point on the supply side of each service disconnect.
- O. Fuel Gas Piping:
1. Each above ground portion of a gas piping system upstream from the equipment shutoff valve shall be made electrical continuous and bonded to the building grounding electrode system, as required in NFPA 54, National Fuel Gas Code.
  2. Gas piping shall not be used as a grounding electrode.
- P. Engine Generator Neutral:
1. Ground the generator neutral as a separately derived system per CEC 250-20(d).
  2. Sign: Provide a sign at the service entrance equipment indicating type and location of on-site generator.
- Q. Outdoor Lighting Poles:
1. All metallic outdoor poles and luminaries on metallic or non-metallic lighting poles



shall be grounded by bonding in an approved manner to the circuit grounding conductor. In addition to this, bond pole to a #8 bare copper wire which shall also be bonded to a ground rod. Install the ground rod adjacent to the pole base with the top driven at least two (2) feet below grade.

### 3.5 OTHER GROUNDING SYSTEMS:

- A. General Check the drawings for special grounding system or grounding requirements.
- B. Telephone and data equipment grounding connections:
  - 1. Bond each telephone and data equipment ground (buss type or grounding conductor type) at each telephone terminal board and data rack back to the service entrance grounding electrode system with a bare #6awg ground wire.
- C. Other Buildings Served From Common Service:
  - 1. The main building service is the source for electric service to several out buildings on site.
  - 2. Isolate neutral bus from ground at each out-building main panel.
  - 3. Provide an equipment grounding conductor in feeder to each out-building main panel.
  - 4. Provide a local building ground rod at each out-building. Bond at least one building column footing to the ground rod.
  - 5. Bond grounding conductor of building main feeder to grounding electrode system established at the particular building.

### 3.6 EQUIPMENT GROUNDING SYSTEM

- A. General: Make a firm bond between all enclosures, equipment and metallic raceway system. Grounding conductors shall be continuous from origin to termination and properly bonded with lugs at both ends. The metallic raceway systems shall be made up properly to form a grounding path that has an impedance back to the main system ground that is as low as can be practically obtained.
- B. Over 250 Volts: Provide locknuts and/or listed fittings per CEC 250-97 for bonding of metal raceways in all circuits of over 250 Volts to ground. In case of oversized, concentric or eccentric knockouts, comply with CEC 250-92(B). The use of snap-in, wedge-type, or pivot-type connectors is prohibited.

### 3.7 FIELD QUALITY CONTROL

- A. Grounding Tests:
  - 1. Test the electrical system after installation is complete. Inspect and test for stray currents, unintended ground shorts, and proper physical condition of grounding system. Correct any deficiencies and re-test to verify satisfactory installation.
  - 2. Provide written test report to document all findings, test values, work done and certification of grounding system.
  - 3. Use true-RMS meters for all voltage and current measurements.
  - 4. Test telecommunications grounding riser to verify continuity.
  - 5. Check all isolated ground receptacles for correct polarity.
  - 6. Test all sub panels of separately derives systems to verify subpanel neutral is isolated from ground.
  - 7. Test theater isolated power system for the sound reinforcement system to verify isolation of ground system from other building systems.
  - 8. Verify continuity and isolation of audio system ground bus and grounding riser.

9. Perform ground resistance and continuity testing in accordance with IEEE 142.
10. When improper grounding is found on receptacle, check receptacles in entire project and correct. Perform retest.

### **3.8 TEST WELLS**

- A. Install test well for designated outdoor driven ground rods. Set tops of well flush with finished grade. Provide mechanical connector for ground rod inside test well so that rod can be disconnected from ground ring or other grounding electrode system for testing.
  1. Designated Ground Rods:
    - a. One (1) at triple ground rod for High School Main Switchboard Electrical Room.
    - b. One (1) at each generator.

**END OF SECTION 26 05 26**

## **SECTION 26 05 33 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.1 SUMMARY**

- A. Section includes conduit and tubing, wireways, outlet boxes, pull and junction boxes.

#### **1.2 REFERENCES**

- A. American National Standards Institute:
  - 1. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.
  - 2. ANSI C80.3 - Specification for Electrical Metallic Tubing, Zinc Coated.
  - 3. ANSI C80.5 - Aluminum Rigid Conduit - (ARC).
- B. National Electrical Manufacturers Association:
  - 1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
  - 2. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
  - 3. NEMA OS 1 - Sheet Steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
  - 4. NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers, and Box Supports.
  - 5. NEMA RN 1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.
  - 6. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Tubing and Conduit.
  - 7. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

#### **1.3 SYSTEM DESCRIPTION**

- A. Raceway and boxes located as indicated on Drawings, and at other locations required for splices, taps, wire pulling, equipment connections, and compliance with regulatory requirements. Raceway and boxes are shown in approximate locations unless dimensioned. Provide raceway to complete wiring system.
- B. Wet and Damp Locations: Provide rigid steel conduit. Provide cast metal junction and pull boxes. Provide flush mounting outlet box in finished areas.
- C. Concealed Dry Locations: Provide rigid steel intermediate metal conduit on electrical metallic tubing. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas. Provide hinged enclosure for large pull boxes.
- D. Exposed Dry Locations: Provide rigid steel conduit, intermediate metal conduit or electrical metallic tubing. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas. Provide hinged enclosure for large pull boxes.

- E. In Slab or Under Slab on Grade: No branch circuit raceway is allowed in any slab or under slab on grade unless specifically indicated on drawings.

#### **1.4 DESIGN REQUIREMENTS**

- A. Minimum Raceway Size: 3/4 inch.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.
- B. Protect PVC conduit from sunlight.

#### **1.6 COORDINATION**

- A. Coordinate installation of outlet boxes and raceway for equipment connected under other Divisions.
- B. Coordinate installation of conduit for control wiring in mechanical rooms and in inaccessible locations such as walls and hard ceilings.
- C. Coordinate installation of conduit for all other low-voltage systems in inaccessible locations and all other locations required by drawings or specifications for those systems.
- D. Coordinate mounting heights, orientation and locations of outlets mounted above counters, benches, and backsplashes. Refer to Architectural elevations and equipment specifications and coordinate device locations prior to electrical rough-in.

### **PART 2 - PRODUCTS**

#### **2.1 METAL CONDUIT**

- A. Manufacturers:
  - 1. Carlon Electrical Products
  - 2. Hubbell Wiring Devices
  - 3. Thomas & Betts Corp
  - 4. Walker Systems Inc.
  - 5. The Wiremold Co.
  - 6. Multi Cell
  - 7. O-Z Gedney
  - 8. Raco.
  - 9. or approved equal.
- B. Rigid Steel Conduit: ANSI C80.1.
- C. Intermediate Metal Conduit (IMC): Rigid steel.
- D. Fittings and Conduit Bodies: NEMA FB 1; material to match conduit
- E. Electrical Metal Tubing (EMT): All EMT fittings shall be steel not die-cast metal. All conduit stub-ups above ceiling for low voltage and data to be provided with insulating bushing.

- F. Flexible Metal Conduit (Flex): Conduit fittings shall be steel. Provide plastic anti-short bushing for all flex fittings. Comply with CEC 348.
- G. Liquidtight Flexible Metal Conduit: Shall be same as flexible metal conduit specified above except Article 350 in CEC.
- H. PVC-Coated Rigid Steel Conduit: Galvanized rigid steel with additional external coating for 40 mil polyvinyl chloride jacket (PVC). Conforming to UL Standard 6. ANSI C80.1 and NEMA Standard No. RN.1.
  - 1. Manufacturer:
    - a. Ocal Inc.
    - b. Perma Cote Industries
    - c. Rob-Roy Industries
    - d. or Approved equal.
- I. PVC-Rigid Nonmetallic Conduit: PVC and fittings that are listed per the UL Standards. Comply with NEMA Standard TC-2.
- J. Nonmetallic Multi Duct: Provide nonmetallic multi duct that is UL Listed.
  - 1. Type: four (4) inches schedule 40 PVC outer duct, four 1.25 inch ducts of ribbed polyethylene. Duct shall have six (6) inch deep end bell on one end, spigot on the other end.
  - 2. Multi Duct shall have gaskets to seal the inside and outside walls of the inner duct.

## 2.2 ENCLOSURES

- A. Pull Boxes, Junction Boxes, Cabinets, and Wireways: Provide pull boxes, junction boxes, wireways, and cabinets wherever necessary for proper installation of various electrical systems according to the National Electrical Code and where indicated on the Drawings.
- B. Minimum Size: That size shown on the drawings, as required for the specific function, or as required by the National Electrical Code, whichever is larger.
- C. Construction:
  - 1. Indoors in Dry Areas and Not Buried in Slab: Code gage steel - NEMA 1 construction - sides formed and welded, screw covers unless indicated hinged cover or door on drawings. Hinged doors shall be similar to panelboard doors with the same type locking device. Knockouts shall be factory made or formed O-Z Gedney Type PB or approved equal.
  - 2. Outdoors or Indoors in Wet Areas and Not Buried in Slab: Same as specified above for indoor except provide NEMA 3R (designated by 3R or RT) unless indicated or specified to be NEMA 4 (designated by 4 or WP) or other type rating.
  - 3. Indoors Buried in Slab: Watertight, galvanized cast iron in floors on or below grade, otherwise concrete tight stamped steel.
  - 4. Outdoors Buried in Earth: Watertight, Polymer concrete similar to Hubbell Power System, Inc. "Quazite" or precast concrete type manufactured by Brooks Product, Inc brand for Oldcastle Precast, Inc. Precast box shall have appropriate structural rating for intended use. Install on a level poured concrete base to provide a solid bearing surface. Provide a bolted cast iron traffic cover with foundry-cast marking "Electrical", "Communications" or "Telephone" as applies. Top of enclosure shall be one (1) inch above finished grade in earth. Top of enclosure shall be flush with finished pavement.

## 2.2 WIREWAY

- A. Manufacturers: Same as Metal Conduit.

- B. Product Description: General purpose.
- C. Size: As determined by Contractor in accordance with CEC 376.
- D. Cover: Screw cover.
- E. Connector: Slip-in.
- F. Fittings: Lay-in type.
- G. Finish: Rust inhibiting primer coating with gray enamel finish.

### **2.3 OUTLET BOXES**

- A. Manufacturers: Same as Metal Conduit.
- B. Sheet Metal Outlet Boxes: NEMA OS 1, galvanized steel.
  - 1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; furnish 1/2 inch male fixture studs where required.
  - 2. Boxes shall be properly secured to the structure such that they are flush with the finish surface. Boxes shall be made structurally secure by means of the proper fastening devices.
  - 3. Concrete Ceiling Boxes: Concrete type.
- C. Cast Boxes: NEMA FB 1, Type FD, cast fer alloy. Furnish gasketed cover by box manufacturer.
- D. Wall Plates: As specified in Section 26 27 26.

### **2.4 FLOOR BOXES**

- A. UL listed for wet application, watertight cast-iron, scrub-shield compliant.
- B. NEMA OS-1, sheet steel outlet boxes, device boxes, covers, and box supports.
  - 1. Floor: Fully adjustable before and after pour.
  - 2. UL Listed for wet application when installed into concrete, stone, tile or floor without carpet cover. Provide carpet flange where installed in carpet.
  - 3. Provide watertight, cast iron on floors at or below grade, and provide concrete tight stamped steel on all upper floors.
  - 4. Multi Gang Floor Box: Fully adjustable watertight cast iron gang floor boxes where shown on Drawings. Provide with removable partition and provide conduit openings in boxes as required. Install power circuits in separate raceway from data, telephone or other signal.
- C. Manufacturers:
  - 1. Appleton
  - 2. Carlon
  - 3. Crouse-Hinds
  - 4. Hubbell
  - 5. FSR
  - 6. Wiremold/Legrand

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Verify outlet locations and routing and termination locations of raceway prior to rough-in.

### **3.2 EXISTING WORK**

- A. Remove exposed abandoned raceway, including abandoned raceway above accessible ceiling finishes. Cut raceway flush with walls and floors, and patch surfaces.
- B. Remove concealed abandoned raceway to its source.
- C. Disconnect abandoned outlets and remove devices. Remove abandoned outlets when raceway is abandoned and removed. Install blank cover for abandoned outlets not removed.
- D. Maintain access to existing boxes and other installations remaining active and requiring access. Modify installation or provide access panel.
- E. Extend existing raceway and box installations using materials and methods compatible with existing electrical installations, or as specified.
- F. Clean and repair existing raceway and boxes to remain or to be reinstalled.

### **3.3 INSTALLATION - RACEWAY**

- A. Ground and bond raceway and boxes in accordance with Section 26 05 26.
- B. Fasten raceway and box supports to structure and finishes in accordance with Section 26 25 29.
- C. Identify raceway and boxes in accordance with Section 26 05 53.
- D. Arrange raceway and boxes to maintain headroom and present neat appearance.
- E. Raceway routing is shown in approximate locations unless dimensioned. Route to complete wiring system.
- F. Arrange raceway supports to prevent misalignment during wiring installation.
- G. Support raceway using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
- H. Group related raceway; support using conduit rack. Construct rack using steel channel specified in Section 26 05 29.
- I. Do not support raceway with wire or perforated pipe straps. Remove wire used for temporary supports
- J. Do not attach raceway to ceiling support wires or other piping systems.
- K. Construct wireway supports from steel channel specified in Section 26 25 29.
- L. Route exposed raceway parallel and perpendicular to walls.
- M. Route raceway installed above accessible ceilings parallel and perpendicular to walls.
- N. Conduits, routed below footings, slabs, grade beams, columns, and other structural

elements shall be installed in strict compliance with structural details and criteria shown on structural plans. Clearances below structural elements and sleeves through structural elements must be carefully planned to avoid conflict and must be approved by the structural engineer if conflict arises.

- O. Maximum Size Conduit in Slab Above Grade: 3/4 inch.
- P. Maintain clearance between raceway and piping for maintenance purposes.
- Q. Maintain 12 inch clearance between raceway and surfaces with temperatures exceeding 104 degrees Fahrenheit.
- R. Cut conduit square using saw or pipe cutter; de-burr cut ends.
- S. Bring conduit to shoulder of fittings; fasten securely.
- T. Join nonmetallic conduit using cement as recommended by manufacturer. Wipe nonmetallic conduit dry and clean before joining. Apply full even coat of cement to entire area inserted in fitting. Allow joint to cure for minimum 20 minutes.
- U. Install conduit hubs or sealing locknuts to fasten conduit to sheet metal boxes in damp and wet locations and to cast boxes. DO NOT route conduit through the top of any outdoor disconnects, panels, etc. conduits must be routed through side or bottom only.
- V. Install no more than equivalent of three 90 degree bends between boxes. Install conduit bodies to make sharp changes in direction, as around beams. Install hydraulic one-shot bender to fabricate factory elbows for bends in metal conduit larger than two (2) inch size.
- W. Avoid moisture traps; install junction box with drain fitting at low points in conduit system.
- X. Install fittings to accommodate expansion and deflection where raceway crosses expansion joints.
- Y. Install suitable pull string or cord in each empty raceway except sleeves and nipples.
- Z. Install suitable caps to protect installed conduit against entrance of dirt and moisture.
- AA. Surface Raceway: Install flat-head screws, clips, and straps to fasten raceway channel to surfaces; mount plumb and level. Install insulating bushings and inserts at connections to outlets and corner fittings.
- BB. Close ends and unused openings in wireway.
- CC. Provide tracer wire on all underground raceway outside building slab on grade.

### **3.4 RACEWAY TYPES**

- A. The following raceway types are to be used in the following locations:
  - 1. Under Slab on Grade: Schedule 40 PVC.
  - 2. Outdoor Locations, Above Grade: Rigid galvanized steel.
  - 3. Wet and Damp Locations: Rigid galvanized steel.
  - 4. Exposed or Concealed Dry Locations, Indoors: EMT, IMC, or rigid galvanized steel.
  - 5. Underground:
    - a. All underground electrical wire in schedule 40 PVC or rigid galvanized steel, 208 volts or greater shall be encased in red concrete two (2)



inches thick on all sides. Encasement not required under building slabs, parking lots or other paved surfaces. Red dye may not be applied to the top of the concrete.

- b. All underground electrical wire in schedule 40 PVC or rigid galvanized steel, 120 volts or less shall have red warning tape 6" above raceway.
- 6. Transformers and Motors: 24 inch flexible metal conduit to equipment.
- 7. Kitchens and outdoor motor and transformer connections: Liquidtight flexible metal conduit for all exposed raceway.
- 8. Cooling Towers: PVC coated rigid galvanized steel within 50 feet of tower.

### **3.5 INSTALLATION - BOXES**

- A. Install wall mounted boxes at elevations to accommodate mounting heights as indicated on Drawings and as approved by the Architect.
- B. Adjust box location up to ten (10) feet prior to rough-in to accommodate intended purpose.
- C. Orient boxes to accommodate wiring devices oriented as specified in Section 126 27 26.
- D. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.
- E. In Accessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.
- F. Do not fasten boxes to ceiling support wires or other piping systems.
- G. Support boxes independently of conduit. Provide rigid support to structure for all junction boxes. Mount junction boxes within 18" of finished ceilings to facilitate future access. Locate junction boxes to allow ready access to junction box covers without removing any equipment.
- H. All outdoor boxes shall be UL listed for wet location service.
- I. Provide rigid support to structure for all junction boxes.
- J. Provide rigid support to structure for all conduit within 3 feet of each junction box and a maximum spacing of 10 feet.
- K. Install junction boxes above ceilings in readily accessible with no obstructions, locate within 18 inches of finished ceiling to facilitate easy access.
- L. For all flexible whips to light fixtures provide wire support at mid-length of whip to structure above with UL listed conduit support clip.
- M. Provide outlet boxes to meet depth requirement of Architectural walls. Refer to Architectural Spec Section 09250 and 10611 for wall partitions.

### **3.6 ADJUSTING**

- A. Install knockout closures in unused openings in boxes.

### **3.7 CLEANING**

- A. Clean interior of boxes to remove dust, debris, and other material.
- B. Clean exposed surfaces and restore finish.

**3.8 INSTALLATION - FLOOR BOXES**

- A. Use cast floor boxes for installation in slab on grade.
- B. Set floor boxes level.
- C. Install boxes and fittings to preserve fire resistant rating of slabs and other elements, using materials and methods specified in Section 26 05 29.

**3.9 ADJUSTING**

- A. Adjust floor box flush with finish material.

**3.10 CLEANING**

- A. Clean interior of boxes to remove dust, debris, and other material.

**3.11 ABOVE CEILING JUNCTION BOXES**

- A. Labeling: Provide label on all above ceiling junction boxes.
  - 1. Provide permanent labeling with indelible black marker, in neat, legible print indicating the panelboard name, branch circuit number(s) and voltage of conductors within the junction box. Junction boxes used for emergency power circuits to be painted red.

**END OF SECTION 26 05 33**

## SECTION 26 05 53 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Nameplates.
  - 2. Underground Warning Tape.
  - 3. Lockout Devices.

#### 1.3 QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in manufacture of electrical identification, of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Codes and standards: Comply with the following:
  - 1. National Electrical Code, NFPA No. 70.
  - 2. NEMA standards applicable to the product provided.
  - 3. UL standards applicable to the product provided.

### PART 2 – PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to the following:
  - 1. Panduit Corp.
  - 2. American Labelmark Co.
  - 3. Markal Corp.
  - 4. Calpico, Inc.
  - 5. Ideal Industries, Inc.

#### 2.2 NAMEPLATES

- A. Product Description: Laminated three-layer plastic with engraved black letters on light contrasting background color.
- B. Emergency Power panels and Equipment: Laminated three-layer plastic with engraved white letters on **RED** background.
- C. Letter Size:
  - 1. 1/4 inch high letters for identifying individual equipment and loads.
- D. Minimum nameplate thickness: 1/8 inch.

### 2.3 UNDERGROUND WARNING TAPE

- A. Description: four (4) inch wide plastic tape, colored red with suitable warning legend describing buried electrical lines.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Degrease and clean surfaces to receive adhesive for identification materials.

### 3.2 INSTALLATION

- A. Install identifying devices after completion of painting.
- B. Nameplate Installation:
1. Install nameplate parallel to equipment lines.
  2. Install nameplate for each electrical distribution and control equipment enclosure with corrosive-resistant mechanical fasteners, or adhesive.
  3. Install nameplates for each control panel and major control components located outside panel with corrosive-resistant mechanical fasteners, or adhesive.
  4. Secure nameplate to equipment front using screws, rivets, or adhesive.
  5. Secure nameplate to inside surface of door on recessed panelboard in finished locations.
  6. Install nameplates for the following:
    - a. Switchboards
    - b. Panelboards
    - c. Transformers
    - d. Service Disconnects
      - 1) Enclosed Switches
    - e. Motor Control Centers
    - f. Stand-alone Motor Controllers
    - g. Generators
    - h. Contactors
- C. Underground Warning Tape Installation:
1. Install underground warning tape along length of each underground conduit, raceway, or cable six (6) to eight (8) inches below finished grade, directly above buried conduit, raceway, or cable. Where multiple lines installed in a common trench or concrete envelope, do not exceed an overall width of 16 inches; install a single line marker.
  2. Install line marker for underground wiring, both direct buried and in raceway.
- D. Printed Panelboard Directory:
1. Provide framed, typed circuit schedules with explicit description and identification of items controlled by each individual breaker for that panel, switchboard, or motor control center.
  2. Panelboard directory shall include a legend indicating insulation color corresponding each phase and voltage in the building electrical system.
  3. Copy in Owner's Manual.

### **3.3 ABOVE CEILING JUNCTION BOXES**

- A. Labeling: Provide label on all above ceiling junction boxes.
  - 1. Provide permanent labeling with indelible black marker, in neat, legible print indicating the panelboard name, branch circuit number(s) and voltage of conductors within the junction box.

### **3.4 ARC FLASH WARNING LABEL**

- A. Switchboards, panel boards and motor control centers requiring examination, adjustments, servicing or maintenance while energized shall be field marked to warn persons of arc flash hazards. Marking shall be located so as to be clearly visible to qualified persons before servicing or maintenance.

**END OF SECTION 26 05 53**

## **SECTION 31 00 00 EARTHWORK**

### **PART 1 GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.

#### **1.2 QUALITY ASSURANCE**

- A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.
- B. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Inspector of Record. Work not so inspected is subject to uncovering and replacement.
- C. The representatives of the Owner's testing lab will not act as supervisor of construction, nor will they direct construction operations. Neither the presence of the Owner's testing lab representatives nor the testing by the Owner's testing lab shall excuse the contractors or subcontractors for defects discovered in their work during or following completion of the project. Correcting of inadequate compaction or moisture content is the sole responsibility of the contractor.
- D. Tests (See Part 3 for Compaction Testing).
- E. Contractor shall be solely responsible for all subgrades built. Failures resulting from inadequate compaction or moisture content are the responsibility of the contractor. Contractor shall be solely responsible for any and all repairs.

#### **1.3 SUBMITTALS**

- A. Refer to Section 01 33 00.
- B. Manufacturer's Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.

#### **1.4 WARRANTY**

- A. Refer to General Conditions and Section 01 78 36.

#### **1.5 REFERENCES AND STANDARDS**

- A. General: Site survey, included in the drawings, was prepared by Blair Church & Flynn dated 10/12/23, and is the basis for data regarding current conditions. While the survey is deemed generally accurate, there exists discrepancies and variations due to elapsed time, weather, etc. Existing dirt grades may vary 0.2 ft. from that shown.
- B. Geotechnical Engineering Report was not available.
- C. Site Visitation: All bidders interfacing with existing conditions shall visit the site prior to bid to verify general conditions of improvements. Discrepancies must be reported prior to the

bid for clarification.

- D. ANSI/ASTM D698-e1 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (56,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>)).
- E. ANSI/ASTM D1556-e1 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- F. ANSI/ASTM 698-12e2 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
- G. ANSI/ASTM D 3017-05 Test Methods for Moisture Content of Soils and Soil-Aggregate Mixture by Nuclear Methods (Shallow Depth).
- H. ANSI/ASTM D 4318-10e1 Test Method for Liquid Limit, Plastic Limit, and Plasticity Limit.
- I. CALTRANS Standard Specifications Section 17.
- J. CAL-OSHA, Title 8, Section 1590 (e).
- K. Any work within the street, highway or right-of-way shall be performed in accordance with the requirement of the governmental agencies having jurisdiction, and shall not begin until all of those governing authorities have been notified.

#### **1.6 DELIVERY, STORAGE AND HANDLING**

- A. Transport, store and handle in strict accord with the local jurisdiction.
- B. Make delivery to job when notified by Contractor verifying that the job is ready to receive the work of this Section and that arrangements have been made to properly store, handle and protect such materials and work.

#### **1.7 PROJECT CONDITIONS**

- A. Existing civil, mechanical and electrical improvements are shown on respective site plans to the extent known. Should the Contractor encounter any deviation between actual conditions and those shown, he is to immediately notify the Architect before continuing work.
- B. Excavation dewatering may be necessary. Contractor shall provide any and all tools, equipment and labor necessary for excavation dewatering no matter what the source. Dewatering shall be continuous until all site utilities are installed and backfilled.

#### **1.8 EXISTING SITE CONDITIONS**

- A. Contractor shall acquaint himself with all site conditions. If unknown active utilities are encountered during work, notify Architect promptly for instructions. Failure to notify will make Contractor liable for damage to these utilities arising from Contractor's operations subsequent to discovery of such unknown active utilities.

#### **1.9 ON SITE UTILITY VERIFICATION AND REPAIR PROCEDURES**

- A. Ground-breaking requirements:
  - 1. All underground work performed by a Contractor must be authorized by the District's Construction Manager or the Low Voltage Consultant prior to start of construction.
  - 2. The Contractor is to obtain and keep the original School's construction utility site plans

on site during all excavation operations. Contractor can contact the District's Construction Manager, Facilities Manager, or the Low Voltage Consultant to procure the drawings.

- B. Underground Utility Locating:
1. The contractor shall hire an Underground Utility Locating Service to locate existing underground utility pathways in areas affected by the scope of work for excavation.
  2. Contractor must use an underground utility locator service with a minimum of 3 years' experience. The equipment operator must have demonstrated experience.
  3. The Underground Utility Locator Service must have the use of equipment with the ability to locate by means of inductive clamping, induction, inductive metal detection, conductive coupling, or TransOnde (Radio detection) to generate signals, passive locating (free scoping) for "hot" electric, and metal detector.
  4. The Underground Utility Locator Service must be able to locate existing utilities at a depth of at least 72".
  5. The Underground Utility Locator Service must be able to locate but are not limited to locating the following types of utility pathways:
    - a. All conduit pathways containing 110 volt or greater 50-60Hz electrical wire.
    - b. All conduit pathways containing an active cable TV system.
    - c. All conduit pathways containing wire or conductor in which a signal can be attached and generated without damaging or triggering the existing systems.
    - d. All empty conduit pathways or pipe in which a signal probe or sonde (miniature transmitter) can be inserted.
    - e. All conduit pathways containing non-conductive cables or wires in which a signal probe or sonde (miniature transmitter) can be inserted.All plastic and other nonconductive water lines in which a TransOnde (Radio detection) or other "transmitter" can be applied to create a low frequency pressure wave (signal) without damaging or triggering the existing systems.
  - f. All copper or steel waterlines and plastic or steel gas lines
  6. All markings made by the Underground Utility Locator Service or other shall be clear and visible.
  7. The contractor shall maintain all markings made by Underground Utility Locator Service or other throughout the entire length of the project.
  8. The Underground Utility Locator Service shall provide the contractor with two sets of maps showing the location of utilities and average depth. They will be referenced to permanent buildings. Contractor will deliver one copy to the district at no additional charge.
  9. Contractor is responsible to contact Underground Service Alert (U.S.A. 800/227-2600) and receive clearance prior to any excavation operations.
  10. Contractor shall inform the (District's Construction Manager) (Architect) (Owner) no later than five (5) days prior to the date scheduled for the utility locator service to be on site.

## 1.10 PROTECTION

- A. Adequate protection measures shall be provided to protect workmen and passers-by on and off the site. Adjacent property shall be fully protected throughout the operations. Blasting will not be permitted. Prevent damage to adjoining improvements and properties both above and below grade. Restore such improvements to original condition should damage occur. Replace trees and shrubs outside building area disturbed by operations.
- B. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for working conditions at the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and shall not be limited to normal working hours.



- C. Any construction review of the Contractor's performance conducted by the Geotechnical Engineer is not intended to include review of the adequacy of the Contractor's safety measures, in, on, or near the construction site.
- D. Provide shoring, sheeting, sheet piles and or bracing to prevent caving, erosion or gullyng of sides of excavation.
- E. Surface Drainage: Provide for surface drainage during period of construction in manner to avoid creating nuisance to adjacent areas. The contractor shall make a reasonable effort on a daily basis to keep all excavations and the site free from water during entire progress of work, regardless of cause, source, or nature of water.
- F. Adjacent streets and sidewalks shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.
- G. The site and adjacent influenced areas shall be watered as required to suppress dust nuisance. Dust control measures shall be in accordance with the local jurisdiction.

### **1.11 SEASONAL LIMITS**

- A. No fill material shall be placed, spread or rolled during unfavorable weather conditions. When work is interrupted by rains, fill operations shall not be resumed until field tests indicate that moisture content and density of fill are satisfactory.
- B. Excessively wet fill material shall be bladed and aerated per section 3.08, B.

### **1.12 TESTING**

- A. General: Refer to Section 01 45 00 – Quality Requirements.
- B. Geotechnical Engineer: Owner is retaining a Geotechnical Engineer to determine compliance of fill with Specifications, and to direct adjustments in fill operations. Costs of Geotechnical Engineer will be borne by Owner; except those costs incurred for re-tests or re-inspection will be paid by Owner and back charged to Contractor.
  - 1. If Contractor elects to process or mine onsite materials for use as Suitable Fill, Aggregate Sub Base, Aggregate Base, Rock, Crushed Rock or sand the cost of all testing of this material shall be paid for by the Contractor.
  - 2. Testing of import fill for compliance with Department of Toxic Substance Control (DTSC) shall be paid for by the Contractor.

### **1.13 ARCHEOLOGICAL AND CULTURAL RESOURCES**

- A. A. If archeological or cultural resources are discovered during the Work, the Contractor must cease all construction operations in the vicinity of the discovery until a qualified archeologist can assess the value of these resources and make recommendations to the State Historic Preservation Officer. Archeological and cultural resources include artifacts, large amounts of bone, shell, or flaked stone, and other evidence of human activity. If the State Historic Preservation Officer or the Owner directs that work be temporarily ceased at the location of an archeological or cultural find, the Contractor must temporarily suspend work at the location.

## **PART 2 PRODUCTS**

### **2.1 2.01 MATERIALS**

- A. Engineered Fill Materials: All fill shall be of approved local materials supplemented by imported fill if necessary. "Approved" local materials are defined as local soils tested and approved by Geotechnical Engineer free from debris, and concentrations of clay and organics; and contain rocks no larger than 6-inches in greatest dimension. The soil and rock should be thoroughly blended so that all rock is surrounded by soil. This may require mixing of the soil and rock with a dozer prior to placement and compaction. Clods, rocks, hard lumps or cobbles exceeding 3-inches in final size shall not be allowed in the upper 6 inches of any fill.
- B. Imported Engineered Fill Material: Imported fill may be required to complete work. Proposed import fill material shall meet the above requirements; shall be similar to the native soils. Import fill shall meet the above requirements; shall have plasticity index of 12 or less; an Expansion Index of 20 or less; be free of particles greater than \_\_\_-inches in largest dimension; be free of contaminants and have corrosion characteristics within the acceptable limits. All import fill material shall be tested and approved by Soils Engineer prior to transportation to the site. Proposed fill material shall comply with DTSC guidelines to include Phase 1 environmental site assessment and related tests. Refer to the October 2001 DTSC Information Advisory for clean imported fill material.
1. DTSC TESTING: Site work contractor is to coordinate testing with an analytical lab, hired by the owner, licensed by the State of California for the DTSC testing. The costs associated with the testing will be paid by the contractor.
  2. DTSC testing shall include documentation as to the previous land use, location, and history. Soils shall be analyzed for all compounds of concern to ensure the imported soil is uncontaminated and acceptable. Testing shall be performed per the recommendations included in DTSC Imported Fill Advisory [http://www.dtsc.ca.gov/Schools/upload/SMP\\_FS\\_Cleanfill-Schools.pdf](http://www.dtsc.ca.gov/Schools/upload/SMP_FS_Cleanfill-Schools.pdf). Soils shall be tested prior to import to the project site.
  3. Lab shall determine geographically which tests and analysis comparison will be appropriate for the testing. (CAM 17 / Title 22); (RWQCB) Regional Water Quality Control Board; or (OEHHA) Office of Environmental Health Hazard Assessment.
  4. Frequency of testing shall be conducted in accordance with DTSC's Imported Fill Advisory as follows;

**Fill Material Sampling Schedule**

| <b>Area of Individual Borrow Area</b> | <b>Sampling Requirements</b>                          |
|---------------------------------------|-------------------------------------------------------|
| 2 Acres or less                       | Minimum of 4 samples                                  |
| 2 to 4 Acres                          | Minimum of 1 sample every 1/2 Acre                    |
| 4 to 10 Acres                         | Minimum of 8 Samples                                  |
| Greater than 10 Acres                 | Minimum of 8 locations with 4 subsamples per location |

**Volume of Borrow Area Stockpile**

|                                |                                                                                             |
|--------------------------------|---------------------------------------------------------------------------------------------|
| Up to 1,000 Cubic Yards        | 1 sample per 250 cubic yards                                                                |
| 1,000 to 5,000 Cubic Yards     | 4 samples for the first 1000 cubic Yards + 1 sample per each additional 500 cubic yards     |
| Greater than 5,000 Cubic Yards | 12 samples for the first 5,000 cubic yards + 1 sample per each additional 1,000 cubic yards |

5. Reports/ Documentation

- a. Results of the testing analysis shall be sent to the Owner; Architect; Project Inspector, Project Civil Engineer, DTSC, and DSA. Letter shall reference DSA file and application numbers.
- C. Landscape Backfill Material:
  1. The top 8" of native topsoil stripped from the site may be used for landscape backfill material provided it meets the requirements as specified in Section 329000.
  2. Imported Topsoil may be required to complete work. See Section 329000 for requirements. Proposed Topsoil material shall comply with DTSC guidelines to include Phase 1 environmental site assessment and related tests. Refer to the October 2001 DTSC Information Advisory for clean imported fill material.
- D. Water: Furnish all required water for construction purposes, including compaction and dust control. Water shall be potable.
- E. Aggregate Base: Provide Class 2 3/4" Aggregate Base conforming to standard gradation as specified in Cal Trans Standard Specifications, Section 26,-1.02A.
- F. Decomposed Granite: Decomposed Granite shall be well graded mixture of fine to 1/8" particles in size with no clods. The material shall be free of vegetation, other soils, debris and rock. The material shall be reddish-tan to tan in color.
- G. Decomposed Granite Solidifier: PolyPavement or equal.

## **PART 3 EXECUTION**

### **3.1 INSPECTION LAYOUT AND PREPARATION**

- A. Prior to installation of the work of this Section, carefully inspect and verify by field measurements that installed work of all other trades is complete to the point where this installation may properly commence
- B. Layout all work, establish grades, locate existing underground utilities, set markers and stakes, setup and maintain barricades and protection facilities; all prior to beginning actual earthwork operations. Layout and staking shall be done by a licensed Land Surveyor or Professional Civil Engineer.
- C. Verify that specified items may be installed in accordance with the approved design.
- D. In event of discrepancy, immediately notify Owner and the Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

### **3.2 PERFORMANCE**

- A. GENERAL:
  1. General: Do all grading, excavating and cutting necessary to conform finish grade and contours as shown. All cuts shall be made to true surface of subgrade.
  2. Archaeological Artifacts: Should any artifacts of possible historic interest be encountered during earthwork operations, halt all work in area of discovery and immediately contact the Architect for notification of appropriate authorities.
  3. Degree of Compaction: Percentage of maximum density, hereinafter specified as degree of compaction required, means density equivalent to that percentage of maximum dry density determined by ASTM D1557 Compaction Test method, and such expressed percentage thereof will be minimum acceptable compaction for specified work.

4. Moisture Content: Moisture content shall be as noted below and as called for on the plans. Moisture content shall be maintained until subgrade is covered by surfacing materials.

### **3.3 DEMOLITION, DISPOSAL AND DISPOSITION OF UNDESIRABLE MAN-MADE FEATURES**

- A. All other obstructions, such as abandoned utility lines, septic tanks, concrete foundations, and the like shall be removed from site. Excavations resulting from these removal activities shall be cleaned of all loose materials, dish shaped, and widened as necessary to permit access for compaction equipment. Areas exposed by any required over-excavation should be scarified to a depth of 12", moisture-conditioned to a maximum of 2% above optimum moisture content, and recompacted to at least 93% of the maximum dry density.

### **3.4 TESTING AND OBSERVATION**

- A. All grading and earthwork operations shall be observed by the Geotechnical Engineer or his representative, serving as the representative of the Owner.
- B. Field compaction tests shall be made by the Geotechnical Engineer or his representative. If moisture content and/or compaction are not satisfactory, Contractor will be required to change equipment or procedure or both, as required to obtain specified moisture or compaction. Notify Geotechnical Engineer at least 48 hours in advance of any filling operation.
- C. Earthwork shall not be performed without the notification or approval of the Geotechnical Engineer or his representative. The Contractor shall notify the Geotechnical Engineer at least two (2) working days prior to commencement of any aspect of the site earthwork.
- D. If the Contractor should fail to meet the compaction or design requirements embodied in this document and on the applicable plans, he shall make the necessary readjustments until all work is deemed satisfactory, as determined by the Geotechnical Engineer or Architect/Engineer.
- E. After each rain event Geotechnical Engineer shall test fill material for optimum moisture. Do not place any fill material until desired moisture is achieved.

### **3.5 CLEARING AND GRUBBING**

- A. Prior to grading, remove all debris off-site. Remove trees and brush including the root systems. Holes resulting from tree and brush removal should be prepared and backfilled in accordance with paragraphs 3.07, 3.08, 3.09, and 3.10. This may require deepening and/or widening the holes to adequately remove disturbed soil and provide room for compaction equipment. Strip the surface of all organics. Stripping's meeting the requirements of Section 32 90 00 may be used in landscape areas only.

### **3.6 CUTTING**

- A. Building pads that are located within a cut/fill transition area will have to be overexcavated to provide a semi-uniform fill beneath the building pad. The portions of building pads located in cut areas shall be overexcavated to provide no more than 3 foot difference in fill placed in the same building pad.
- B. Do all cutting necessary to bring finish grade to elevations shown on Drawings.
- C. When excavation through roots is necessary, cut roots by hand.

- D. Carefully excavate around existing utilities to avoid unnecessary damage. The contractor shall anticipate and perform hand work near existing utilities as shown on the survey, without additional claims or cost.

### **3.7 STRUCTURAL EXCAVATION**

- A. General: Excavate to bear on firm material at contract depth shown on Structural Drawings.
- B. Footings: All footing excavations shall be of sufficient width for installation of formwork, unless earth will retain its position during concreting. All portions of footings above grade must be formed.
- C. Unsuitable Ground: Any errors in structural excavation, soft ground, or clay soils found when excavating shall be reported to Architect. In no case shall work be built on any such soft or clayey unsuitable surface without direction from the Architect. Restore excavations to proper elevation with engineered fill material compacted to 90% of dry density.

### **3.8 SUBGRADE PREPARATION**

- A. Grade compact and finish all subgrades within a tolerance of 0.10' of grades as indicated on Drawings and so as not to pool water. Subgrade within building pads and concrete walks shall be within 0.05' of grades indicated.
- B. After clearing, grubbing and cutting, subsurface shall be plowed or scarified to a depth of at least 12", until surface is free from ruts, hummocks or other uneven features and uniform and free from large clods. Moisture condition to a maximum of 2% above optimum moisture content and recompact to at least 93% of the maximum dry density as determined by ASTM Test Method D1557. If the existing soils are at a water content higher than specified, the contractor shall provide multiple daily aerations by ripping, blading, and/or disking to dry the soils to a moisture content where the specified degree of compaction can be achieved. After seven consecutive working days of daily aerations, and the moisture content of the soil remains higher than specified, the contractor shall notify the architect. If the existing soils have a moisture content lower than specified, the contractor shall scarify, rip, water and blade existing soil to achieve specified moisture content. The contractor shall make proper allowance in schedule and methods to complete this work.
- C. Subgrade in areas to receive landscaping shall be compacted to 90%.
- D. Where Contractor over-excavates building pads through error, resulting excavation shall be recompacted as engineered fill at Contractor's expense.

### **3.9 PLACING, SPREADING AND COMPACTING FILL MATERIAL IN BUILDING PAD AND PAVEMENT AREAS**

- A. Selected fill material shall be placed in layers which, when compacted, shall not exceed 6 inches in compacted thickness. Each layer shall be spread evenly and thoroughly mixed to insure uniformity in moisture content.
- B. Selected fill material shall be moisture-conditioned to specified moisture content. Selected fill material shall be unfrozen. When moisture content of fill material is below that specified, add water until proper moisture content is achieved. When moisture content is above that specified, aerate by blading or other methods mentioned in 3.08 B until moisture content is satisfactory.
- C. After each layer has been placed, mixed and spread evenly, it shall be thoroughly

compacted to a minimum of 90% as determined by the ASTM D1557 Compaction Test. Compact each layer over its entire area until desired density has been obtained.

- D. Recompaction of Fill in Trenches and Compaction of Fill Adjacent to Walls: Where trenches must be excavated, backfill with material excavated. Place in lifts that when compacted do not exceed 6", moisture conditioned to (optimum)(2% above optimum) moisture content, and compact to a minimum of 90% relative compaction in building pad and paved areas, and to 90% relative compaction in landscape areas.
- E. Jetting of fill materials will not be allowed.

### **3.10 FINAL SUBGRADE COMPACTION**

- A. Building Pads: Upper 12" of all final building pad subgrades (including future buildings) shall be uniformly compacted at specified moisture content to at least 95% of maximum dry density, as determined by ASTM D1557 Compaction Test, regardless of whether final subgrade elevation is attained by filling, excavation, or is left at existing grade. After acceptance of final compaction test, contractor shall maintain the required moisture content of subgrade until concrete flatwork is placed.
- B. Paved Areas: Upper 12" of all final subgrades supporting pavement sections and all other flatwork shall be brought to specified moisture content and shall be uniformly compacted to not less than 95% of maximum dry density, regardless of whether final subgrade elevation is attained by filling, excavation, or is left at existing grade. After acceptance of final compaction test, contractor shall maintain the required moisture content of subgrade until concrete flatwork is placed.
- C. Other Fill and Backfill: Upper 12" of all other final subgrades or finish grades shall be compacted to 95% of maximum dry density.
- D. Gravel Fill: Do not place compacted gravel fill until after underground work and foundations are in place. Compact gravel fill with vibratory plate or similar equipment to preclude settlement.

### **3.11 PLACING, SPREADING, AND COMPACTION OF LANDSCAPE BACKFILL MATERIALS**

- A. All landscaped areas shall receive topsoil. After subgrade under landscape area has been scarified and brought to 90% maximum dry density, top soil shall be placed evenly to depth of 12" at 85% of maximum dry density.
- B. Project Inspector must verify that materials are uniformly spread to minimum depth specified.

### **3.12 DECOMPOSED GRANITE COMPACTION AND STABILIZATION**

- A. Decomposed granite paving, paths or track shall be placed uniformly to the required depth and treated with PolyPavement or approved equal. Apply PolyPavement using Application Method 1 or a mixed application method.

### **3.13 SLOPE CONSTRUCTION**

- A. Cut slopes shall be constructed to no steeper than 2:1 (horizontal:vertical). Fill slopes shall be constructed to no steeper than 2:1 (horizontal:vertical). Prior to placement of fill on an existing slope the existing slope shall be benched. The benches shall be in a ratio of  $\frac{3}{4}$  horizontal to 1 vertical. The face of the fill slopes shall be compacted as the fill is placed, or

the slope may be overbuilt and then cut back to the design grade. Compaction by track walking will not be allowed.

### **3.14 FINISH GRADING**

- A. At completion of project, site shall be finished graded, as indicated on Drawings. Finish grades shall be “flat graded” to grades shown on the drawing. Mounding of finish grades will not be allowed unless otherwise directed on the landscape drawings. Tolerances for finish grades in drainage swales shall be  $\pm 0.05'$ . Tie in new and existing finish grades. Leave all landscaped areas in finish condition for lawn seeding. Landscaped planters shall be graded uniformly from edge of planter to inlets. If sod is used for turf areas the finish grade on which it is placed shall be lowered to allow for sod thickness.
- B. All landscape areas shall be left free of rock or foreign material as specified in Section 32 90 00.
- C. All landscape areas shall be approved by Architect prior to any planting.

### **3.15 SURPLUS MATERIAL**

- A. Excavated material not required for grading or backfill shall be removed from site at contractor's expense.

### **3.16 CLEANING**

- A. Refer to Section 01 74 00.
- B. Remove from fill all vegetation, wood, form lumber, casual lumber, and shavings, in contact with ground; buried wood will not be permitted in any fill.

**END OF SECTION 31 00 00**

## **SECTION 31 11 00 CLEARING AND GRUBBING**

### **PART 1 GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This section includes protection of facilities, clearing site of incidental paving, surface debris, water treatment equipment, grass, trees, and any other plant life or obstruction in preparation for site excavation work and general development.

### **PART 2 PRODUCTS (NOT USED)**

### **PART 3 EXECUTION**

#### **3.1 PROTECTION**

- A. Locate, identify, and protect existing facilities (remaining) from damage.
- B. Identify and protect trees, plant growth, and features designated to remain as final landscaping.
- C. Protect benchmarks from damage or displacement.

#### **3.2 CLEARING**

- A. Clear only those areas required for access to site and execution of Work.

#### **3.3 REMOVAL**

- A. Remove paving, brush, trees, and other debris as required and dispose of off-site in strict accordance with applicable laws and regulations.

**END OF SECTION 31 11 00**



## **SECTION 31 23 00 EXCAVATION AND FILL**

### **PART 1 GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Section Includes
  - 1. Excavation and/or embankment from existing ground to subgrade, including soil sterilant, for roadways, driveways, parking areas, walks, paths, or trails and any other site improvements called for on the Plans.
- B. Related Sections
  - 1. Section 02 40 00 – Demolition.
  - 2. Section 31 11 00 – Clearing and Grubbing.
  - 3. Section 31 23 33 – Trenching and Backfilling.
- C. ASTM:
  - 1. D 1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.
  - 2. D 1586, Method for Penetration Tests and Split-Barrel Sampling of Soils.
  - 3. D 2487, Classification of Soils for Engineering Purposes.
  - 4. D 3740, Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
  - 5. D 4318, Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
  - 6. E 329, Specification for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.
  - 7. E 548, Guide for General Criteria Used for Evaluating Laboratory Competence.
- D. California Code of Regulation Title 24, Part 2, California Building Code:
  - 1. Chapter 11B – Accessibility to Public Buildings.
  - 2. Chapter 33 – Site Work, Demolition and Construction.
- E. Caltrans Standard Specifications:
  - 1. Section 17, Watering.
  - 2. Section 19, Earthwork.
- F. CAL/OSHA, Title 8.

#### **1.2 SECTION EXCLUDES**

- A. Earthwork related to underground utility installation, see Section 31 23 33 – Trenching and Backfilling.

#### **1.3 DEFINITIONS**

- A. Borrow: Approved soil material imported from off-site for use as Structural Fill or Backfill.
- B. Excavation: Removal of material encountered above subgrade elevations.
  - 1. Authorized Over-Excavation: Excavation below subgrade elevations or beyond indicated horizontal dimensions as shown on plans.
  - 2. Unauthorized Over-Excavation: Excavation below subgrade elevations or beyond indicated horizontal dimensions. Unauthorized excavation shall be without additional compensation.

- C. Structural Backfill: Soil materials used to fill excavations resulting from removal of existing below grade facilities, including trees. See Section 31 23 33 – Trenching and Backfilling.
- D. Structural Fill: Soil materials used to raise existing grades.
- E. Rock: Rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material  $\frac{3}{4}$ -cubic yards or more in volume that, according to ASTM D 1586, exceeds a standard penetration resistance of 100 blows/2-inches.
- F. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man made stationary features constructed above or below grade.
- G. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, base or topsoil materials.
- H. Unsuitable Material: Any soil material that is not suitable for a specific use on the Project.
- I. Utilities: onsite underground pipes, conduits, ducts and cables.

#### 1.4 SUBMITTALS

- A. Follow submittal procedures outlined in Section 01 33 00 – Submittal Procedures.
- B. Submit material certificates signed by the material producer and the Contractor, certifying that that each material item complies with, or exceeds the specified requirements.

#### 1.5 QUALITY ASSURANCE

- A. Conform all work to the appropriate portion(s) of the California Code of Regulations, Title 24 and Caltrans Standard Specifications, Sections 17 and 19.
- B. Percentage of compaction specified shall be the minimum acceptable. The percentage represents the ratio of the dry density of the compacted material to the maximum dry density of the material as determined by the procedure set forth in ASTM D 1557.
- C. Upon completion of the construction work, certify that all compacted fills and foundations are in place at the correct locations, and have been constructed in accordance with sound construction practice. In addition, certify that the materials used are of the types, quality and quantity required by these Technical Specifications. The Contractor shall be responsible for the stability of all fills and backfills constructed by his forces.
- D. Finish soil grade tolerance at completion of grading:
  - 1. Building and paved areas: +0.05
  - 2. Other areas:  $\pm 0.10$  feet.
- E. The project geotechnical engineer shall be notified of the construction schedule at least one week prior to the beginning of major site construction, and notified at least 48 hours (working days) before being required to perform field observation and testing.

#### 1.6 PROJECT CONDITIONS

- A. Promptly notify the Owner of surface or subsurface conditions differing from those disclosed in the construction documents. First notify the Owner verbally to permit verification and extent of condition and then in writing. No claim for conditions differing from those anticipated in the Contract Documents will be allowed unless the Contractor has notified the

Owner in writing of differing conditions prior to the Contractor starting work on affected items.

- B. Protect open excavations, trenches, and the like with fences, covers and railings to maintain safe pedestrian and vehicular traffic passage.
- C. Prevent erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.
- D. Temporarily stockpile fill material in an orderly and safe manner and in a location approved by the Owner.
- E. Provide dust and noise control in conformance with Division 1 General Requirements for Cleaning and Waste Management.
- F. Environmental Requirements: When unfavorable weather conditions necessitate interrupting earthwork operation, areas shall be prepared by compaction of surface and grading to avoid collection of water. Provide adequate temporary drainage to prevent erosion. After interruption, compaction specified in last layer shall be re-established before resuming work.

## **PART 2 PART 2 PRODUCTS**

### **2.1 SOIL MATERIALS**

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from on-site excavations.
- B. On-Site Structural Fill and Structural Backfill: Soil or soil-rock mixture from on site excavations, free from organic matter or other deleterious substances. On-site structural fill and backfill shall not contain rocks or rock fragments over 4 inches in greatest dimension and not more than 15 percent shall be over 2-1/2 inches in greatest dimension and with an organic content less than 3.0 percent by weight.
- C. Imported Structural Fill and Structural Backfill: Conform to the requirements of on-site structural fill. Material shall also be a non-expansive and predominantly granular soil or soil-rock mixture with plasticity index of 15 or less in accordance with ASTM D 4318 and an R-Value of 25 or greater.

## **PART 3 PART 3 EXECUTION**

### **3.1 GENERAL**

- A. Conform to Section 19, Earthwork, Caltrans Standard Specifications as modified by the Contract Documents.
- B. Placement and compaction of material by flooding, ponding, or jetting will not be permitted.
- C. The use of explosives will not be permitted.

### **3.2 CONTROL OF WATER AND DEWATERING**

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding the site and surrounding area. Provide dewatering equipment necessary to drain and keep excavations and site free from water.

- B. Dewater during backfilling operation so that groundwater is maintained a least one foot below level of compaction effort.
- C. Obtain the Owner's approval for proposed control of water and dewatering methods.
- D. Protect subgrades from softening, undermining, washout and damage by rain or water accumulation.
- E. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations.
- F. Maintain dewatering system in place until dewatering is no longer required.

### **3.3 WET WEATHER CONDITIONS**

- A. Do not prepare subgrade, place or compact soil materials if above optimum moisture content.

### **3.4 BRACING AND SHORING**

- A. Conform to California and Federal OSHA requirements.
- B. Place and maintain such bracing and shoring as may be required to support the sides of the excavations for the proper protection of workmen; to facilitate the work; to prevent damage to the facility being constructed; and to prevent damage to adjacent structures or facilities. Remove all bracing and shoring upon completion of the work.
- C. Be solely responsible for all bracing and shoring and, if requested by the Owner, submit details and calculations to the Owner. The Owner may forward the submittal to the Consulting Engineer and/or the California Division of Industrial Safety for their review. The Contractor's submittal shall include the basic design, assumed soils conditions and estimation of forces to be resisted, together with plans and specifications of the materials and methods to be used, and shall be prepared by a civil engineer or structural engineer registered in California. No excavations related to the proposed facility shall precede a response to the submittal by the Owner.
- D. Be solely responsible for installing and extracting the sheathing in a manner which will not disturb the position or operation of the facility being constructed or adjacent utilities and facilities.

### **3.5 EXCAVATION**

- A. Excavate earth and rock to lines and grades shown on drawings and to the neat dimensions indicated on the Plans, required herein or as required to satisfactorily compact backfill.
- B. Remove and dispose of large rocks, pieces of concrete and other obstructions encountered during excavation.
- C. Where forming is required, excavate only as much material as necessary to permit placing and removing forms.
- D. Provide supports, shoring and sheet piles required to support the sides of excavations or for protection of adjacent existing improvements.

### **3.6 REMOVAL OF EXISTING FILLS AND UNSUITABLE MATERIAL**

- A. Over-excavate areas of existing fills and other unsuitable material encountered during mass grading.
- B. Compensation for increased removal widths and depths that are not required will not be considered, except when such increase is necessary for protection of life and property as determined by and approved by the Owner.

### **3.7 GRADING**

- A. Uniformly grade the Project to the elevations shown on plans.
- B. Finish ditches, gutters and swales to the sections, lines and grades indicated and to permit proper surface drainage.
- C. Round tops and bottoms of slopes as indicated or to blend with existing contours.

### **3.8 SUBGRADE PREPARATION**

- A. Install underground utilities and service connections prior to final preparation of subgrade and placement of base materials for final surface facilities. Extend services so that final surface facilities are not disturbed when service connections are made.
- B. Prepare subgrades under paved areas, curbs, gutters, walks, structures, other surface facilities and areas to receive structural fill.
- C. Prepare subgrades for paved areas, curbs and gutters by plowing or scarifying surface at least 6 inches below final subgrade elevations and 5-feet beyond edge of pavement. Uniformly moisture condition to obtain optimum moisture contents. Break clods and condition surface by harrowing or dry rolling. Remove boulders, hard ribs and solid rock. Prepare earth uniform for full depth and width of subgrade.
- D. Protect utilities from damage during compaction of subgrades and until placement of final pavements or other surface facilities.

### **3.9 PLACEMENT OF STRUCTURAL FILL**

- A. Place structural fill on prepared subgrade.
- B. Spread structural fill material in uniform lifts not more than 8-inches in un-compacted thickness and compact.
- C. Place structural fill material to suitable elevations above grade to provide for anticipated settlement and shrinkage.
- D. Overbuild fill slopes to obtain required compaction. Remove excess material to lines and grades indicated.
- E. Do not drop fill on structures. Do not backfill around, against or upon concrete or masonry structures until structure has attained sufficient strength to withstand loads imposed and the horizontal structural system had been installed.
- F. Backfill in uniform lifts not exceeding 8 inches in uncompacted thickness. Each lift should be brought to a uniform moisture content of at least 1 percent above optimum prior to compacting by either spraying the soil with water if it is too dry or aerating the material if it is

too wet.

### **3.10 KEYWAYS AND BENCHES**

- A. Provide keyways as indicated for fill slopes steeper than 6 horizontal to 1 vertical. Extend keyway -feet minimum into competent, undisturbed soil or 3-feet minimum into competent, undisturbed rock.
- B. Place subsurface drains in bottom of keyway.
- C. Bench subgrade as indicated above toe of fill.
- D. Place subsurface drains at benches every 20 vertical feet.

### **3.11 LOT FINISH GRADING**

- A. Blade finish lots to lines and grades indicated.

### **3.12 COMPACTION AND TESTING**

- A. Do not compact by ponding, flooding or jetting.
- B. Compact soils at optimum water content. Aerate material if it is too wet. Add water to material if it is too dry. Thoroughly mix lifts before compaction to ensure uniform moisture distribution.
- C. Perform compaction using rollers, pneumatic or vibratory compactors.
- D. Compaction requirements:
  - 1. Compact structural fills less than 5-feet thick to 90 percent compaction.
  - 2. Compact structural fill 5-feet thick or greater to 95 percent compaction.
  - 3. Compact the upper 6 inches of subgrade soils beneath pavements, curbs and gutters to 95 percent compaction. Extend compaction 5-feet beyond pavement.
  - 4. Compact the upper 6-inches of subgrade soils to the following percentage of compaction: 95 percent under walks and pavements; 93 percent for foundations; and 90 percent for areas to receive structural fill.”

### **3.13 DISPOSAL**

- A. Lawfully dispose of all unsuitable and excess or surplus material off-site at no cost to the Owner.

**END OF SECTION 31 23 00**

## **SECTION 31 23 16.13 TRENCHING**

### **PART 1 GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Backfilling and compacting for utilities outside the building to utility main connections.
  - 2. Storm Drainage system
  - 3. Irrigation
- B. Reference Standards:
  - 1. 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.
  - 2. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> [600 kN-m/m<sup>3</sup>]).
  - 3. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
  - 4. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup> [2,700 kN m/m<sup>3</sup>]).
  - 5. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
  - 6. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

#### **1.3 DEFINITIONS**

- A. Finish Grade Elevations: Indicated on drawings.
- B. Soil-Aggregate by Nuclear Methods (Shallow Depth).

#### **1.4 SUBMITTALS**

- A. See Division 01: General Requirements.
- B. Compaction Density Test Reports.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. When necessary, store materials on site in advance of need.
- B. Prevent contamination.
- C. Protect stockpiles from erosion and deterioration of materials.

### **PART 2 PRODUCTS**

#### **2.1 FILL MATERIALS**

- A. Provide soil material free from Organic matter and deleterious substances, containing no rocks or lumps over 2 inches in greatest dimensions.
- B. Cohesionless Material Used for Structural Backfill: Provide sand free from organic material and other foreign matter, and as approved by the geotechnical engineer.
- C. Backfill shall comply with the County of Merced Specifications and Standards.

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify that survey bench marks and intended elevations for the work are as indicated.

#### **3.2 PREPARATION**

- A. Identify required lines, levels, contours, and datum locations.
- B. Take necessary steps to assure that service is not interrupted.
- C. Restore any interrupted service as soon as possible
- D. 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.

#### **3.3 TRENCHING**

- A. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- B. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.
- C. Do not interfere with 22.5 degree bearing splay of foundations as shown on plans.
- D. Cut trenches wide enough to allow inspection of installed utilities.
- E. Hand trim excavations. Remove loose matter.
- F. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.
- G. Remove excavated material that is unsuitable for re-use from site.
- H. Remove excess excavated material from site.
- I. 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.
- J. 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.



### **3.4 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.

### **3.5 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 other work.
- D. Systematically fill to allow maximum time for natural settlement. 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. Slope grade away from building minimum 2 inches in 10 feet, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.
- G. Correct areas that are over-excavated:
  - 1. Other areas: Use general fill, flush to required elevation, compacted to minimum 95 percent of maximum dry density.
- H. Compaction Density Unless Otherwise Specified or Indicated:
  - 1. Under paving, slabs-on-grade, and similar construction: 95 percent of maximum dry density.
- I. Reshape and re-compact fills subjected to vehicular traffic.

### **3.6 BEDDING AND FILL AT SPECIFIC LOCATIONS**

- A. Use fill as specified in the County of Merced Standards and Specifications unless otherwise specified or indicated.

### **3.7 TOLERANCES**

- A. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

### **3.8 FIELD QUALITY CONTROL**

- A. See Division 01: General Requirements, for general requirements for field inspection and testing.
- B. Perform compaction density testing on compacted fill in accordance with ASTM D1556, ASTM D2167, or ASTM D6938.
- C. 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").

- D. If tests indicate work does not meet specified requirements, remove work, replace and retest.

### **3.9 CLEANING**

- A. Leave unused materials in a neat, compact stockpile.

**END OF SECTION 31 23 16.13**

**SECTION 32 11 26**  
**AGGREGATE BASE COURSE**

**PART 1 - GENERAL**

**1.1 SECTION INCLUDES**

- A. Furnishing, spreading and compacting aggregate base course.

**1.2 RELATED SECTIONS:**

- B. Section 31 23 00 – Trench Excavation and Backfill.
- C. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specifications sections, apply to the work of this section.

**1.3 REFERENCES**

- A. SSCDOT - Standard Specifications, Department of Transportation, State of California (Caltrans), latest edition, except for references to method of payment, and references to any state furnished materials.

**1.4 QUALITY ASSURANCE**

- A. Furnish aggregate materials conforming with SSCDOT.
- B. Perform work in accordance with SSCDOT.

**1.5 SUBMITTALS**

- A. Submit under provisions of Division 1 – General Requirements.
- B. Certificates of compliance for material.
- C. Load tags for delivered material.

**1.6 COORDINATION**

- A. Coordinate with other work, including subgrade preparation and soil sterilization.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. Aggregate Base: Class 2, 3/4 Inch Maximum per Section 26 of SSCDOT.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify quantities required.
- B. Verify that subgrade has been compacted to minimum of 95 percent relative compaction and is dry.
- C. Verify gradients and elevations of subgrade are correct.

#### **3.2 SUBBASE**

- A. Per Sections 31 20 00 and 32 11 26 - Unless shown otherwise on the plans, compacted soil subgrade forms the base construction for work of this Section.

#### **3.3 INSTALLATION OF AGGREGATE BASE COURSE**

- A. Install in conformance with SSCDOT Section 26, Aggregate Bases and Section 32 11 26.
- B. Thickness - As shown on construction drawings.
- C. Spreading and Compacting - In accordance with Section 26, SSCDOT. The relative compaction of each layer of compacted base material shall be not less than 95 percent.
- D. The completed surface shall be thoroughly compacted, free from ruts, depressions, and irregularities and to be true to grade and cross-section, and shall conform to Section 26, SSCDOT.

#### **3.4 TOLERANCES**

- A. Compacted thickness of aggregate base: No less than specified.
- B. Finished Surface: Within 0.02 foot of planned grade per Section 26, SSCDOT. No more than 50% of the finish surface shall be above or below the specific grade for aggregate base.

#### **3.5 FIELD QUALITY CONTROL**

- A. Field inspection and testing will be performed under provisions of Division 01.

#### **3.6 PROTECTION**

- A. Immediately after placement and compaction, protect surface from mechanical injury.
- B. Protect completed surface until surfacing layers are in place.

**END OF SECTION**

## **SECTION 32 12 16 ASPHALT PAVING**

### **PART 1 GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. The Contractor shall furnish all tools, equipment, materials, and supplies and shall perform all labor required to complete the work as indicated in the Contract Documents and specified herein.
- B. The following types of pavement shall be covered in this Section:
  - 1. Paving for utility trenching, parking lots, playgrounds, areas between buildings, adjacent to planting and turf areas, and as indicated on Construction Documents.
- C. Related Sections:
  - 1. Section 32 17 23: Pavement Markings.

#### **1.3 SUBMITTALS**

- A. Mix Designs: The Contractor shall formulate a job-mix formula using the Hveem method and submit it to the Engineer for approval.
- B. Samples:
  - 1. Prior to the delivery of specified aggregate to the site, the Contractor shall submit samples of the material for the Inspector's acceptance. Samples shall be typical of materials to be furnished from the proposed source and in conformance with the specified requirements.
  - 2. Aggregate base gradation and quality certifications shall be dated within 30 days of the submittal.
- C. Certificates:
  - 1. Twenty days prior to the delivery of aggregates, asphalt materials, and paving mixes to the project site, the Contractor shall submit to the Engineer certificates and test results of compliance of such materials with these specifications.
  - 2. Submit certificates of compliance from the supplier for bituminous materials for paint binder, asphaltic concrete, and seal coat.
  - 3. Submit weigh master's certificates or certified delivery tickets for each truck load of asphaltic material delivered to the project site.
  - 4. 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.

#### **1.4 QUALITY ASSURANCE**

- A. The Owner's inspector shall test the temperature of each batch of asphaltic concrete prior to placement. At the time of delivery to the work site, the temperature of mixture shall not be lower than 260 degrees F or higher than 320 degrees F, the lower limit to be approached in

warm weather and the higher in cold weather. If asphaltic concrete temperature is not within these tolerances the affected batch shall be rejected. Any and all costs due to the rejected asphaltic concrete shall be the responsibility of the paving contractor.

- B. 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.
- C. 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.
- D. Regulatory Requirements: The quantity of volatile organic compounds (V.O.C.) used in weed killer, seal coat, primer and other materials shall not exceed the limits permitted under the current regulations of the local authorities having jurisdiction.

## **1.5 ESTABLISHMENT OF GRADES**

- A. The Contractor's Surveyor will set grade stakes. The Surveyor shall be a California registered land surveyor or licensed Civil Engineer. The Surveyor shall be hired and paid by the Contractor, and shall be subject to the approval of the Owner. Contractor shall notify the Owner at least 48 hours before staking is to be started. The Owner will determine if work is ready for staking.
- B. All work shall conform to the lines, elevations, and grades shown on the Construction Plans. Three consecutive points set on the same slope shall be used together so that any variation from a straight grade can be detected. Any such variation shall be reported to the Engineer. In the absence of such report, the Contractor shall be responsible for any error in the grade of the finished work.
- C. Protect and maintain stakes in place until their removal is approved by the Owner. Grade or location stakes lost or disturbed by Contractor, shall be reset by the Surveyor at the expense of Contractor.
- D. Areas having drainage gradients of 2 percent or more shall have elevation stakes, set with instrument, at grid intervals of 25 feet. Intermediate stakes may be set by using a tightly-drawn string line over the tops of adjacent stakes. Grade stakes must be set at all grade breaks, grade changes, etc.
- E. Areas having drainage gradients of less than 2 percent shall have elevation stakes, set with instrument, at 10 foot intervals. Grade stakes must be set at all grade breaks, grade changes, etc.

## **1.6 WARRANTY**

- A. The contractor shall provide a manufacturer's warranty against "alligatoring" and settlement.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

- A. Base Course Material: Crushed aggregate base material shall consist of materials that meet the provisions of Specifications Division 32: Exterior Improvements.
- B. Asphalt Surfacing Materials - Furnish asphalt surfacing meeting the following requirement,

furnished from a commercial asphalt central mixing plant:

1. Paint Binder/Tack Coat: Asphalt emulsion shall be CSS-1 or CSS-1h.
2. Asphalt Concrete Composition & Grading:
  - a. Asphalt concrete shall be Type C2, with asphalt content of 4.6% to 6.0%.
  - b. Asphalt performance grade shall be PG-64-10.
  - c. At least two courses of asphalt shall be laid when Type C2 asphalt pavement is greater than 3 inches. The surface course shall be a minimum thickness of one inch (1") and a maximum of two inches (2").
  - d. Rubberized asphalt paving is not allowed.

## **2.2 WEED CONTROL**

- A. The soils sterilant shall be in accordance with current EPA acceptable standard and the California Department of Pesticide Regulations for soils sterilant. Sterilant shall be selected as appropriate for the environment in which it is to be placed. Contractor shall be licensed with the State of California to apply sterilant. Sterilant shall be commercial grade for commercial application. Payment for soil sterilization will include full compensation for application and all materials and incidental work required.
- B. Apply Dow Elanco Spike 80DF, or approved equal, to subgrade at all locations receiving asphalt pavement. Spike 80DF weed control should be applied at the rate of seven pounds per acre. If another manufacturer is used follow their recommendations.
- C. Pavement Marking Paint:
  1. Alkyd-resin type, lead and chromate free.
- D. Headers and Stakes:
  1. Headers: Pressure Treated Redwood, Construction Heart Grade, size 2 x 6, unless otherwise indicated on construction drawings
  2. Stakes: 2 x 4 redwood or 2 x 3 Douglas fir, Construction Grade.
  3. Nails: Common, galvanized, 12d minimum.

## **PART 3 EXECUTION**

### **3.1 ENVIRONMENTAL LIMITATIONS**

- A. Do not apply asphalt materials if substrate is wet or excessively damp or if the following conditions are not met:
  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.

### **3.2 PAVEMENT-MARKING PAINT**

- A. Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F for oil-based materials, 50 deg F for water-based materials, and not exceeding 95 deg F.

### **3.3 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. 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.
- C. 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.
- 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 anchorage as required to fasten headers in place.

### 3.4 SUBGRADE PREPARATION

- A. Subgrade Preparation:
  - 1. It is required that the native soil, and/or imported fill material, below the new aggregate base, be over excavated to the recommended minimum depth of 24" (inches). Refer to section 13.12 of the soils report for recompaction requirements. The extent and depths of removal should be evaluated by Geotechnical representative in the field based on the materials exposed. Additional removals may be recommended if loose or soft soils are exposed during grading.
  - 2. Prior to placement of engineered fill, the subgrade shall be scarified to a depth of at least 8 inches, moisture conditioned and recompacted to a minimum 90% relative density.
- B. The above subgrade preparation recommendations are based on the assumption that soils encountered during field exploration are representative of soils throughout the site. 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.
- C. A California Licensed Surveyor (LS) must provide grade stakes and elevations for the Geotechnical Engineer to verify that the over-excavation depths, shown on the construction drawings for asphalt concrete pavement structural sections, have been achieved prior to recompaction.
- D. Subgrade tolerances: Subgrade for pavement shall not vary more than 0.02' from the specified grade and cross section established by the Engineer. Subgrade for subbase or base material shall not vary more than 0.04' from the specified grade and cross section. Variations within the above specified tolerances shall be compensating so that the average grade and cross section specified are met.
- E. Correct irregularities by dressing down or filling as may be required, to bring areas to true subgrade elevations.
- F. Where filling is required, scarify the subgrade to bond the new material to the in place material; use additional material as required, subject to the approval of the Architect, and provided by the Contractor.



- G. Remove excess material from the site to a legal disposal area.

### **3.5 APPLICATION GENERAL**

- A. Finish elevations, extent of asphalt paving and locations of type of asphalt and class of base shall be as indicated and specified herein and on the Construction Documents. Bring subgrade elevations sufficiently below the finish elevations of the paving so as to accommodate the thickness of paving and base.

### **3.6 STERILANT APPLICATION**

- A. Place herbicide below pavement crushed aggregate base course. Meet the applicable environmental control requirements. Apply as directed by the manufacturer's printed instructions just before application of the base course. Sterilant shall not be applied within two feet of planting areas.

### **3.7 APPLICATION OF BASE COURSE**

- A. Aggregate bases material shall be installed in layers not exceeding 3-inches and compacted to a minimum of 95% relative density.
- B. After preparing the subgrade as specified in 3.5.A, all traffic on the subgrade shall be avoided. Should it be necessary to haul over the prepared subgrade, the Contractor shall drag and roll the traveled way as frequently as may be necessary to remove ruts, cuts, and breaks in the surface. All cuts, ruts, and breaks in the surface of the subgrade that are not removed by the above operations shall be raked and hand tamped. All equipment used for transporting materials over the prepared subgrade shall be equipped with pneumatic tires.
- C. Continued use of sections of prepared subgrade for hauling, so as to cut up or deform it from the true cross-section, will not be permitted. The Contractor shall protect the prepared subgrade from all traffic.
- D. Maintain the surface in its finished condition until the succeeding layer is placed.

### **3.8 PLACING ASPHALT CONCRETE SURFACING**

- A. Asphalt binder (tack coat) shall be applied to all existing pavement surfaces to be overlaid and/or joined. Asphalt binder (tack coat) shall be applied to existing surfaces to be surfaced and between layers of asphalt concrete, except when eliminated by the Engineer. A layer of asphalt binder (tack coat) shall be applied to all vertical-cut faces and between subsequent AC lifts.
- B. Asphalt Concrete Pavement:
  - 1. Asphalt concrete work shall include full-depth patching and variable thick asphalt concrete transition areas. The Contractor shall, on a daily basis, provide the Inspector with copies of certificates of weight for all materials delivered to the job site and/or incorporated in the work. At no time shall the coarse aggregate that has segregated from the mix be scattered across the paved mat.
  - 2. Asphalt concrete shall not be placed on any surface, which contains ponded water or excessive moisture in the opinion of the Engineer. If paving operations are in progress and rain or fog forces a shutdown, loaded trucks in transit shall return to the plant, and no compensation will be allowed therefore. The Contractor shall furnish and use 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 by the Engineer

3. The Inspector will examine the base before the paving has begun. The Contractor will correct any deficiencies before the paving is started.
4. At least two courses shall be laid when Type C2 asphalt pavement is greater than 3 inches. The surface course shall be a minimum thickness of one inch (1") and a maximum of two inches (2").
5. Successive courses may be laid upon previously laid courses as soon as the previous course has cooled sufficiently to show no perceivable displacement under equipment or loaded material delivery trucks and a tack coat has been applied.
6. Wherever AC pavement does not terminate against a curb, gutter, or another pavement, the Contractor shall provide and install a redwood or pressure treated Douglas fir header at the line of termination.
7. Pavement at all longitudinal joints shall have a Field Density of 95%. When the test results of the field cores are less than 95% Relative Compaction, the Contractor shall remove a 1 foot wide section on each side of the longitudinal joint. The Contractor shall replace the removed pavement with an asphalt mix that meets the job specification at no additional cost to the Owner.
8. Pavement tolerances: within 1/8-inch of design thickness and 1/8-inch from design elevation.

### **3.9 FLOOD TESTING**

- A. Flood Test: Before acceptance, all pavements shall be water tested to ensure proper drainage as directed by the Inspector. The Contractor shall provide water for this purpose. The flooding shall be done by water tank truck. Depressions where the water ponds to a depth of more than 1/8-inch shall be filled or the slope corrected to provide proper drainage. The edges of the fill shall be feathered and smoothed so that the joint between the fill and the original surface is invisible. No standing water shall remain after 30 minutes on a 70 degree F (or warmer) day.

### **3.10 SEAL COAT**

- A. Allow new asphalt pavement to cure 30 days before application of seal coat.

### **3.11 FIELD QUALITY CONTROL**

- A. Thickness: Tolerances for asphalt pavement thickness shall be ¼ inch, plus or minus.
- B. All paving shall drain properly before being accepted. Upon completion, the pavement shall be true to grade and cross section. The asphalt substrate, shall not vary from the planned cross slope by more than +/- 0.1. When a 10 foot straightedge is laid on the finished surface of the asphalt, the surface shall not vary from the edge of the straightedge more than 1/8 inch, except at grade breaks. Where paving does not meet these tolerances, the paving material shall be repaired by a method determined by the Owner. Repairs shall not be made to pavement surface by feather-edging at the join lines. All expenses for pavement repair up shall be borne by the Contractor at NO cost to the Owner.
- C. Corrective Measures: It is the Contractor's responsibility to determine if the planarity, cross slopes, and general specifications have been met. If all of the conditions have been met the Contractor must notify the Owner in writing of the acceptance of the asphalt paving.

### **3.12 PROTECTION**

- A. Protect the Work of this section until Substantial Completion.

### **3.13 CLEAN UP**

- A. Clean all debris and unused materials from the paving operation. Clean all surfaces that have been spattered or defaced as a result of the paving operation. Asphalt or asphalt stains which are noticeable upon surfaces of concrete, or materials which will be exposed to view, shall be promptly and completely removed. Cleaning shall be done in a manner that will not result in any discharge of contaminated materials into any catch basin. All expenses for cleanup shall be borne by the Contractor at NO cost to the Owner.

**END OF SECTION 32 12 16**

## **SECTION 32 17 23 PAVEMENT MARKINGS**

### **PART 1 GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Parking lot markings, including parking bays, arrows, handicapped symbols, and curb markings.
- B. Related Section:
  - 1. Section 32 12 16: Asphalt Paving.
- C. Reference Standards:
  - 1. CBC Chapter 11B - California Building Code - Accessibility to Public Buildings, Public Accommodations, Commercial Buildings and Public Housing.
  - 2. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association; current edition, [www.paintinfo.com](http://www.paintinfo.com).

#### **1.3 DEFINITIONS**

- A. Pavement Stripe: Includes traffic control, materials, and all appurtenances not otherwise specified.
- B. Pavement Markings: Includes traffic control, setup, materials, and all appurtenances not otherwise specified in the bid schedule.

#### **1.4 SUBMITTALS**

- A. See Special Provisions for Submittal Requirements.

#### **1.5 QUALITY ASSURANCE**

- A. Accessible Parking:
  - 1. Accessible parking spaces serving a particular building or facility shall be located on the shortest accessible route to an entrance complying with CBC Section 11B-208.3.1.
  - 2. Accessible parking spaces serving more than one accessible entrance shall be dispersed and located on the shortest accessible route to the accessible entrances.
  - 3. Accessible parking spaces in a parking facility not serving a particular building or facility shall be located on the shortest accessible route to an accessible pedestrian entrance of the parking facility. See CBC Section 11B-208.3.1.
  - 4. Minimum number of required accessible parking spaces shall be provided in accordance with CBC Table 11B-208.2 for each parking facility provided on a site.
  - 5. For every six, or fraction of six, accessible parking spaces, at least one shall be an accessible van parking space. See CBC Section 11B-208.2.4.
  - 6. Accessible parking spaces and access aisles shall comply with CBC Section 11B-502 and shall be dimensioned to the centerline of the marked lines as follows:
    - a. Parking spaces and access aisles shall be marked according to CBC Figures 11B-502.2, 11B-502.3, and 11B-502.3.3. Their surfaces shall comply with CBC Section

- 11B-302 and shall be at the same level with slopes not steeper than 1:48 in any direction. See CBC Section 11B-502.4:
- b. Parking spaces shall be 9 feet x 18 feet minimum, and van parking spaces shall be 12 feet by 18 feet minimum with an adjacent access aisle of 5 feet by 19 feet minimum. Access aisles shall be placed on either side of the parking spaces except be located on the passenger side for van parking spaces. Van parking spaces shall be permitted to be 9 feet by 19 feet minimum where the access aisle is 8 feet by 18 feet minimum.
  - c. Access aisles shall be marked by a blue painted borderline around their perimeters. The area within the blue borderlines shall be marked with hatched lines a maximum of 36 inches on center in a color contrasting with that of the aisle surface, preferably blue or white. Access aisle markings may extend beyond the minimum required length. See CBC Section 11B-502.3.3.
  - d. Access aisles (accessible parking spaces as well – similar application) shall not overlap the vehicular way. See CBC Section 11B-502.3.4.
  - e. A vertical clearance of 8 feet 2 inches minimum shall be provided for accessible parking spaces, access aisles, and vehicular routes serving them. See CBC Section 11B-502.5.
7. At least one passenger loading zone shall be provided in every continuous 100 linear feet of loading zone space, or fraction thereof, complying with CBC Sections 11B-209 and 11B-503 as follows:
- a. Vehicle pull-up spaces shall be 8 feet by 20 feet minimum.
  - b. Access aisles shall be 5 feet wide minimum x full length of vehicle pull-up spaces. They shall be at the same level with each other and with slopes not steeper than 1:48 in any direction. Access aisle shall adjoin an accessible route and shall not overlap the vehicular way.
  - c. Access aisles for passenger drop-off and loading zone shall be marked with a painted borderline around their perimeters. The area within the borderlines shall be marked with hatched lines a maximum of 36 inches on center in a color contrasting with that of the aisle surface: Blue interior hatch lines are preferred for concrete surfaces and white interior hatch lines are preferred for asphalt surfaces. Where white hatch lines are used, hatch lines shall be interrupted at 12 inches high “No Parking” text so that legibility is maintained.
  - d. A vertical clearance of 9 feet 6 inches minimum shall be provide for vehicle pull-up spaces, access aisles, and a vehicular route serving them connecting a vehicular entrance and a vehicular exit. See CBC Section 11B-503.5.
8. Bus loading zones and bus stops shall comply with CBC Sections 11B-209 and 11B-810.2 as follows:
- a. Bus boarding and alighting areas shall be of 8 feet by 5 feet minimum, with 8 feet measured perpendicular to the curb or vehicle roadway edge, and with 5 feet measured parallel to the vehicle roadway. Slopes in 9 feet direction shall be 1:48 maximum. Slopes in 5 feet direction shall be the same as that of the roadway, to the maximum extend practical. See CBC Figure 11B-810.2.2.
  - b. Bus shelters shall provide a minimum 30 inches by 48 inches clear floor or ground space (36 inches by 48 inches or 36 inches by 60 inches in an alcove per CBC 11B-305.7), with slopes not steeper than 1:48 in any direction, entirely within the shelter complying with CBC Section 11B-305.
  - c. Bus shelters shall be connected by an accessible route complying with CBC Section 11B-402 to a boarding and alighting area complying with CBC Section 11B-810.2 and Figure 11B-810.3.
  - d. Newly constructed bus stop boarding and alighting areas shall provide a detectable transition between the boarding/alighting area and the roadway. The detectable transition shall consist of a curb with the face sloped at 35 degrees maximum from vertical or detectable warnings complying with CBC Sections 11B-705.1.1 and 11B-705.1.2.4.
9. Where Electric Vehicle Charging Stations (EVCS) are provided, they shall be provided

in accordance with CBC Section 11B-228.3, Table 11B-228.3.1, and CBC Section 11B-812:

- a. Vehicle spaces and access aisles serving them shall comply with CBC Section 11B-302. Access aisles shall be at the same level as the vehicle space they serve. Changes in level, slopes exceeding 1:48, and detectable warnings shall not be permitted in vehicle spaces and access aisles. See CBC Section 11B-812.3.
- b. Vehicle spaces, access aisles serving them and vehicular routes serving them shall provide a vertical clearance of 98 inches minimum. See CBC Section 11B-812.4.
- c. Accessible routes between EVCS parking, equipment, and the building or facility served shall be provided per CBC Section 11B-812.5.
- d. Vehicle spaces for van accessible, standard accessible, ambulatory and drive-up EVCS shall meet minimum length and width requirements per CBC Section 11B-812.6. All EVCS stalls shall be marked "EV Charging Only" per CBC Section 11B-812.9 and Figure 11B-812.9.
- e. Access aisles for van accessible and standard accessible EVCS shall meet minimum length and width requirements and be marked per CBC Section 11B-812.7 the color of the perimeter. Hatch lines and "No Parking" letters shall contrast with the surface color (blue color required for use at non-EVCS accessible parking shall **not** be used).
- f. Where four or fewer total EVCS are provided, identification with an International Symbol of Accessibility (ISA) shall not be required. Where five to twenty-five total EVCS are provided, on van-accessible EVCS shall be identified with an ISA complying with CBC Section 11B-703.7.2.1. The required standard accessible EVCS shall not be required to be marked with an ISA. Where twenty-six or more EVCS are provided, all required van-accessible and all required standard accessible AVCS shall be identified with an ISA. The required ISA identification sign shall be reflective with a minimum 70 square inches, shall be visible from the EVCS it serves. The sign shall be permanently posted either immediately adjacent to the vehicle space or within the projected vehicle space at the head end of the vehicle space. Signs identifying van accessible vehicle spaces shall contain the designation "Van Accessible." Signs shall be minimum 60 inches above the finish surface except that if the sign projects into a pedestrian circulation area, they shall be minimum 80 inches above finish surface. See CBC Section 11B-812.8.
- g. Ambulatory EVCS complying with CBC Section 11B-812.6.3 shall be required where 26 or more EVCS are provided. See CBC Table 11B-228.3.2.1.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. Traffic Paint:
  1. Type: Water base, roadway traffic lane marking type; colors as selected.
  2. Acceptable Manufacturers:
    - a. Dunn-Edwards, Vin-L-Stripe No. W-801, vinyl-epoxy as a standard of quality.
    - b. J. E. Bauer latex base Formula No. 1030A9 White, No. 1056A9 Yellow, No. 1865A9 Blue, No. 1118A9 Green, and No. 1854A9 Red.
    - c. Sinclair No. 160 Vinyl Traffic Line Paint, waterbase.

- d. Ennis Traffic Safety Solutions, product 6000 white & 6006 blue.
- B. Line and Zone Marking Paint - MPI (APL) No. 97 Latex Traffic Marking Paint; white:
  - 1. Roadway Markings: As required by authorities having jurisdiction.
  - 2. Handicapped Symbols: Blue.
- C. Striping: Thermoplastic Stripe, In accordance with State of California, Department of Transportation (CALTRANS), Standard Specifications, Section 84.
- D. Pavement Markings: Thermoplastic Markings, In accordance with State of California, Department of Transportation (CALTRANS), Standard Specifications, Section 84.

### **PART 3 EXECUTION**

#### **3.1 FIELD CONDITIONS**

- A. Do not install products under environmental conditions outside manufacturer's absolute limits.

#### **3.2 EXAMINATION**

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

#### **3.3 JOB CONDITIONS**

- A. Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F for oil-based materials, 50 deg F for water-based materials, and not exceeding 95 deg F.
- B. Sequencing, Scheduling: Coordinate with paving work. Verify that paint type is compatible with asphalt paving surfaces seal coats.
- C. Protection: Do not apply pavement markings for seven days after application of asphalt surface seal coat. After application, protect from traffic until thoroughly dry.

#### **3.4 PREPARATION**

- A. Allow new pavement surfaces to cure for a period of not less than 14 days before application of marking materials.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Clean surfaces thoroughly prior to installation:
  - 1. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods.
- D. Where oil or grease are present, scrub affected areas with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application; after cleaning, seal oil-soaked areas with cut shellac to prevent bleeding through the new paint.

- E. Establish survey control points to determine locations and dimensions of markings; provide templates to control paint application by type and color at necessary intervals.

### **3.5 INSTALLATION**

- A. Apply in accordance with manufacturer's instructions using an experienced technician that is thoroughly familiar with equipment, materials, and marking layouts.
- B. Apply markings in locations determined by measurement from survey control points; preserve control points until after markings have been accepted.
- C. Apply uniformly painted markings of color(s), lengths, and widths as indicated on the drawings true, sharp edges and ends:
  - 1. Apply paint in one coat only.
  - 2. Wet Film Thickness: 0.015 inch, minimum.
  - 3. Width Tolerance: Plus or minus 1/8 inch.
- D. Parking Lots - Apply parking space lines, entrance and exit arrows, painted curbs, and other markings indicated on drawings:
  - 1. Mark the International Handicapped Symbol at indicated parking spaces.
  - 2. Hand application by pneumatic spray is acceptable.

### **3.6 DRYING, PROTECTION, AND REPLACEMENT**

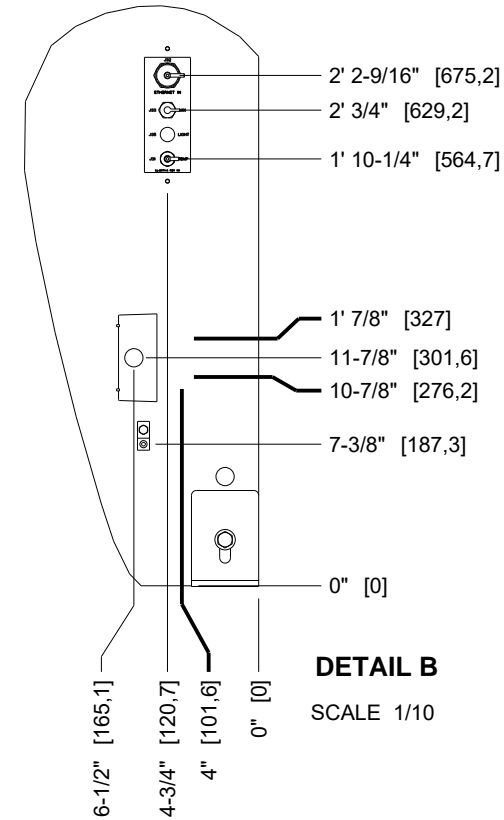
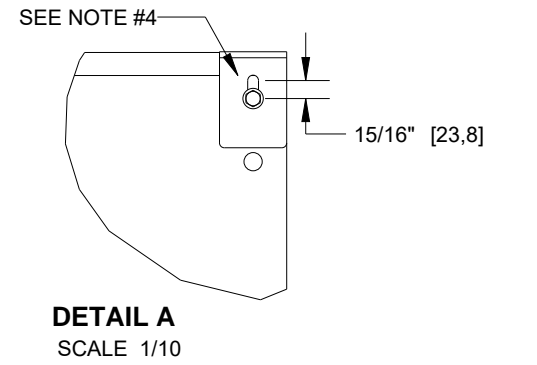
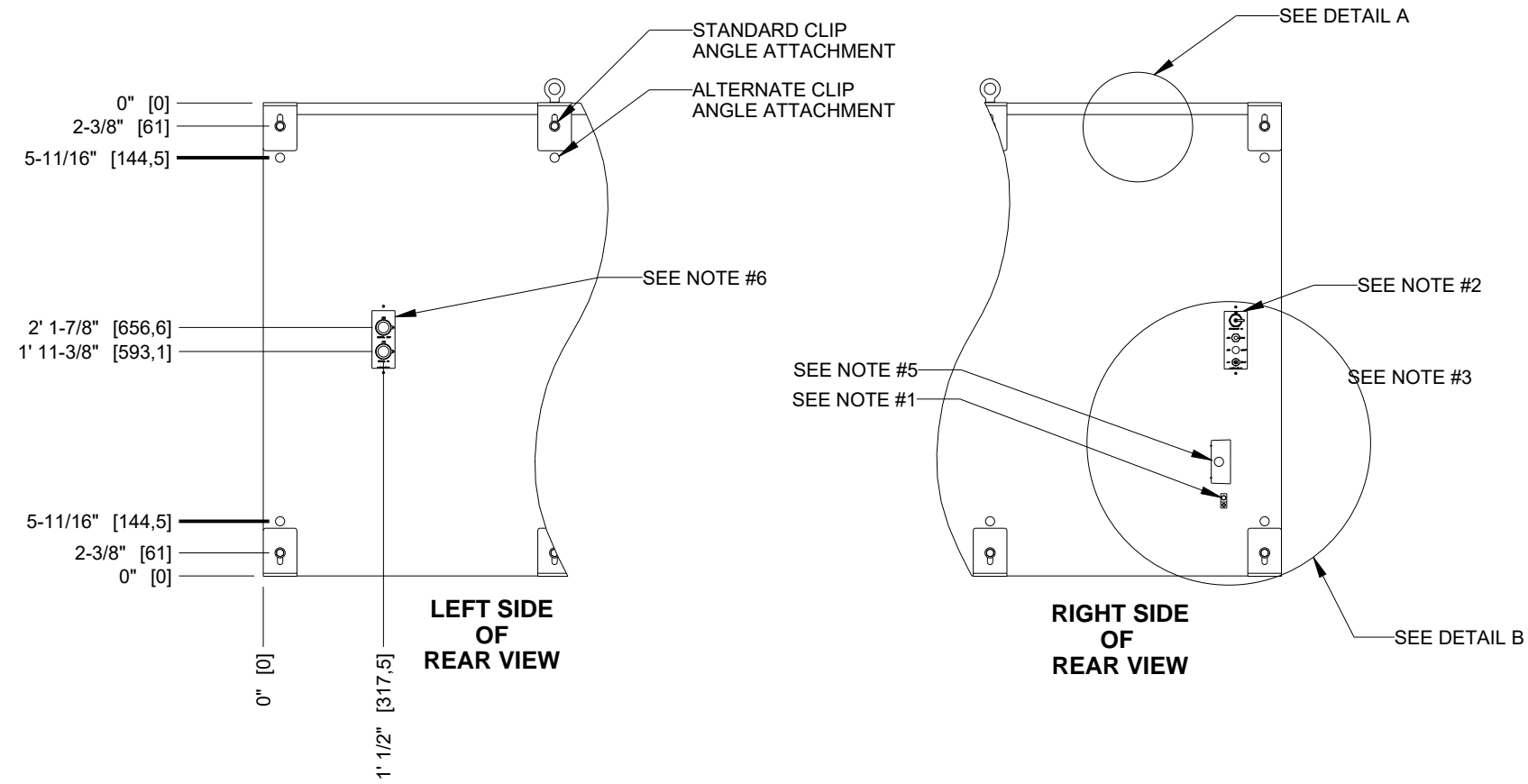
- A. Protect newly painted markings so that paint is not picked up by tires, smeared, or tracked.
- B. Provide barricades, warning signs, and flags as necessary to prevent traffic crossing newly painted markings.
- C. Allow paint to dry at least the minimum time specified by the applicable paint standard and not less than that recommended by the manufacturer.
- D. Remove and replace markings that are applied at less than minimum material rates; deviate from true alignment; exceed length and width tolerances; or show light spots, smears, or other deficiencies or irregularities.
- E. Remove markings in manner to avoid damage to the surface to which the marking was applied, using carefully controlled sand blasting, approved grinding equipment, or other approved method.
- F. Replace removed markings at no additional cost to District.

**END OF SECTION 32 17 23**

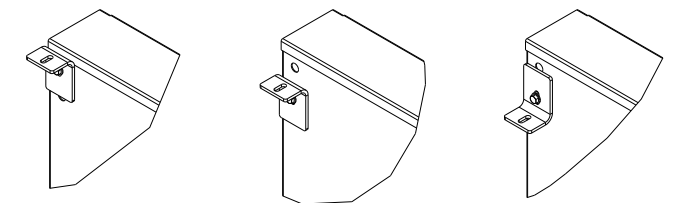
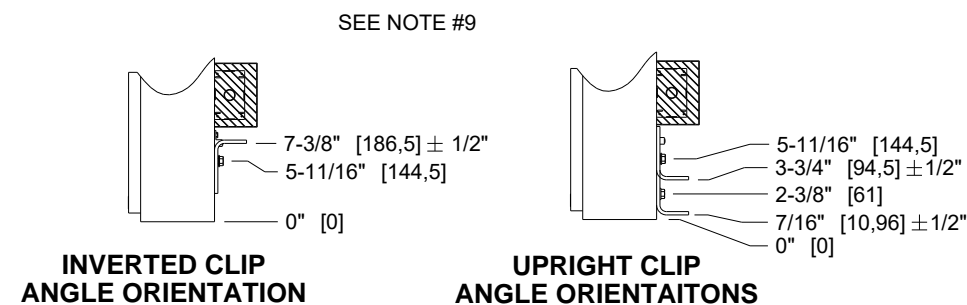
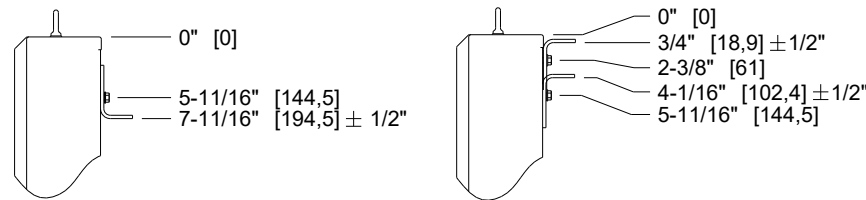
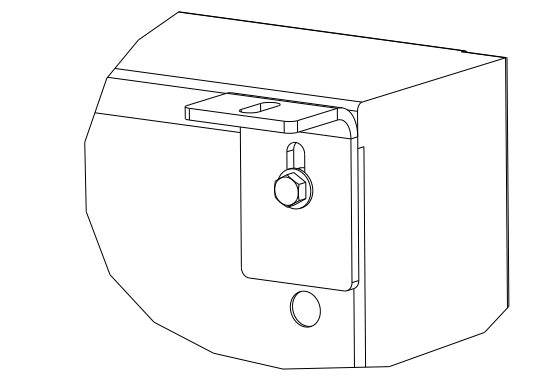
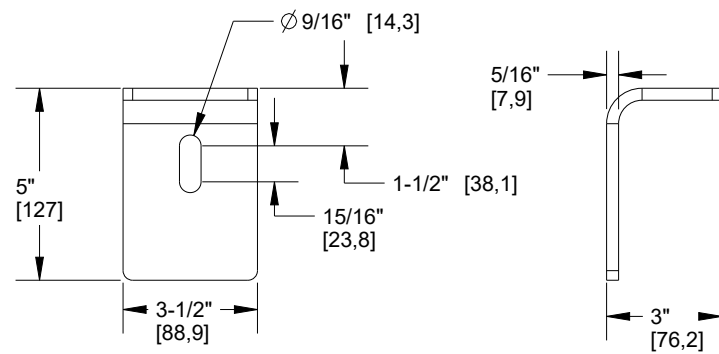
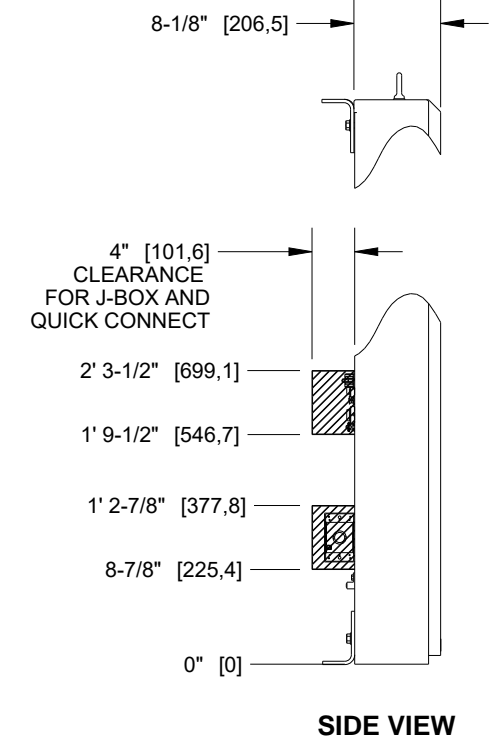


FOR DISPLAYS 2 X \* THROUGH 6 X \* MODS TALL

# APPENDIX A



| INSTALL NOTES |                                                                                                                                                |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 1             | GROUND LUG FOR GROUND CONNECTION                                                                                                               |
| 2             | SIGNAL INPUT AT QUICK CONNECT. PRIMARY/SINGLE FACE DISPLAY SHOWN.                                                                              |
| 3             | TWO 1" CONDUIT KNOCKOUTS FOR OPTIONAL SIGNAL ENTRANCE.                                                                                         |
| 4             | CLIP ANGLE FOR MOUNTING. CLIP ANGLES CAN BE ADJUSTED VERTICALLY AS NEEDED DURING INSTALLATION. CLIP ANGLE CAN BE WELDED OR BOLTED TO STRINGER. |
| 5             | POWER ENTRANCE. SEE SIZE SPECIFIC DRAWING FOR POWER RATING.                                                                                    |
| 6             | SIGNAL INTERCONNECT                                                                                                                            |
| 7             | MECHANICAL AND SIGNAL CONNECTIONS OCCUR EXTERNAL TO DISPLAY.                                                                                   |
| 8             | ALL CLIP ANGLES OR THEIR RESPECTIVE LOCATIONS MUST BE USED FOR MOUNTING                                                                        |
| 9             | INVERTED ORIENTATION FOR STANDARD CLIP ANGLE MOUNTING LOCATION NOT ADVISED                                                                     |



CLIP ANGLE LOCATIONS WITH ± 1/2" RANGE

| REV                                                                                                                                                            | DATE | BY                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------------|
|                                                                                                                                                                |      |                        |
|                                                                                                                                                                |      |                        |
| PROJECT: GALAXY GT6 DISPLAYS<br>TITLE: SHOP DWG, GT6 - SIGNAL, POWER, & MOUNTING DETAILS<br>DATE: 09-AUG-18<br>SCALE: 1/18<br>DESIGN: TWHITEH<br>DRAWN: BDRAKE |      |                        |
| DIM UNITS: INCHES [MILLIMETERS]<br>DO NOT SCALE DRAWING                                                                                                        |      | SHEET 1 OF 1<br>REV 00 |
| JOB NO. P2056<br>FUNC - TYPE - SIZE E - 07 - B                                                                                                                 |      | 3864398                |

# GALAXY® GT6x 8 MM PRODUCT SPECIFICATIONS

## APPENDIX A

The Galaxy® GT6x offers high-value Galaxy features combined with high-resolution 8 mm surface mount LED technology to provide high-quality images.

### 8 MM TECHNICAL SPECIFICATIONS

**Character Height:**

2" (7 pixel font)

**Line Spacing:**

8.13 mm (0.3")

**Pixel Configuration:**

3-in-1 SMD

**Maximum Brightness:**

8,000 nits

**Full Color Capability:**

281 trillion colors

**Viewing Angle:**

160 degrees horizontal x 70 degrees vertical

**Min Viewing Distance:**

18' (8 mm)



### PRODUCT FEATURES

- All sealed components
- Quick connects
- Mounting clips
- High-contrast louvers
- Redundant module signal
- Large sections for fast installation
- Front ventilation on displays less than eight feet tall
- No spreader beam required for displays greater than eight feet tall
- Single-step module removal
- Shallow cabinet depth
- Narrow cabinet borders

### MODEL NUMBER GUIDE

|        |   |            |   |              |   |              |   |           |   |                         |
|--------|---|------------|---|--------------|---|--------------|---|-----------|---|-------------------------|
| GT6x   | - | 90         | x | 135          | - | 8            | - | RGB       | - | SF                      |
| Series |   | Lines High |   | Columns Wide |   | Line Spacing |   | LED Color |   | Single Face or Two View |

### GT6x SERIES SPECIFICATIONS

**Estimated LED Lifetime:**

100,000+ hours

**Contrast Enhancement:**

Non-reflective black louvers and module face grooves disperse light

**Message Capability:**

Text, graphics, logos, basic animation, video clips, multiple font styles, and sizes

**Control Software:**

Venus® Control Suite

**Power:**

120, 120/240 VAC Single Phase

**Display Dimming:**

64 levels (Automatic, scheduled or manual control)

**Communication Options:**

Ethernet Fiber Optic, Ethernet Bridge Radio, Remote Cellular, Ethernet CAT5

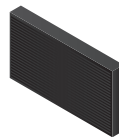
**Operating Temperature:**

-40°F to 120°F with 99% RH non-condensing

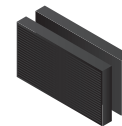
**Compliance Information:**

UL Listed, FCC compliance

### DISPLAY CONFIGURATIONS



**Single-face (SF)**  
Available in all sizes



**Two-view (2V)**  
Available in all sizes



# GALAXY® GT6x 8 MM PRODUCT SPECIFICATIONS

| Lines x Columns | Sections/<br>Ventilated | Cabinet<br>Dimensions Feet-Inches<br>H x W x D | Cabinet<br>Dimensions Meters<br>H x W x D | Cabinet<br>Square Feet<br>(Square Meters) | Active Area<br>Square Feet<br>(Square Meters) | Cabinet Weight<br>Pounds<br>(kilograms) | Lines/<br>Characters<br>per line | Character<br>Height | Maximum Watts<br>RGB |
|-----------------|-------------------------|------------------------------------------------|-------------------------------------------|-------------------------------------------|-----------------------------------------------|-----------------------------------------|----------------------------------|---------------------|----------------------|
| 45x180          | Sing/Ft                 | 1'9" x 5'11" x 7"                              | 0.53 x 1.54 x 0.18                        | 8.6 (0.8)                                 | 5.8 (0.6)                                     | 65 (30)                                 | 5/36                             | 2" - 14"            | 495                  |
| 45x225          | Sing/Ft                 | 1'9" x 6'3" x 7"                               | 0.53 x 1.91 x 0.18                        | 10.7 (1.0)                                | 7.2 (0.8)                                     | 80 (37)                                 | 5/45                             | 2" - 14"            | 610                  |
| 45x270          | Sing/Ft                 | 1'9" x 7'6" x 7"                               | 0.53 x 2.28 x 0.18                        | 12.7 (1.2)                                | 8.7 (0.9)                                     | 95 (44)                                 | 5/54                             | 2" - 14"            | 720                  |
| 45x315          | Sing/Ft                 | 1'9" x 8'8" x 7"                               | 0.53 x 2.64 x 0.18                        | 14.8 (1.4)                                | 10.1 (1.0)                                    | 110 (50)                                | 5/63                             | 2" - 14"            | 835                  |
| 45x360          | Sing/Ft                 | 1'9" x 9'11" x 7"                              | 0.53 x 3.01 x 0.18                        | 16.8 (1.6)                                | 11.6 (1.2)                                    | 125 (57)                                | 5/72                             | 2" - 14"            | 945                  |
| 45x405          | Sing/Ft                 | 1'9" x 11'1" x 7"                              | 0.53 x 3.37 x 0.18                        | 18.8 (1.8)                                | 13.0 (1.3)                                    | 140 (64)                                | 5/81                             | 2" - 14"            | 1060                 |
| 45x450          | Sing/Ft                 | 1'9" x 12'3" x 7"                              | 0.53 x 3.74 x 0.18                        | 20.9 (1.9)                                | 14.4 (1.5)                                    | 155 (71)                                | 5/90                             | 2" - 14"            | 1170                 |
| 45x495          | Sing/Ft                 | 1'9" x 13'6" x 7"                              | 0.53 x 4.1 x 0.18                         | 22.9 (2.1)                                | 15.9 (1.6)                                    | 170 (78)                                | 5/99                             | 2" - 14"            | 1285                 |
| 45x540          | Sing/Ft                 | 1'9" x 14'8" x 7"                              | 0.53 x 4.47 x 0.18                        | 25.0 (2.3)                                | 17.3 (1.8)                                    | 185 (84)                                | 5/108                            | 2" - 14"            | 1395                 |
| 45x585          | Sing/Ft                 | 1'9" x 15'11" x 7"                             | 0.53 x 4.84 x 0.18                        | 27.0 (2.5)                                | 18.8 (1.9)                                    | 200 (91)                                | 5/117                            | 2" - 14"            | 1510                 |
| 45x630          | Sing/Ft                 | 1'9" x 17'1" x 7"                              | 0.53 x 5.2 x 0.18                         | 29.0 (2.7)                                | 20.2 (2.1)                                    | 215 (98)                                | 5/126                            | 2" - 14"            | 1620                 |
| 45x675          | Sing/Ft                 | 1'9" x 18'3" x 7"                              | 0.53 x 5.57 x 0.18                        | 31.1 (2.9)                                | 21.6 (2.2)                                    | 230 (105)                               | 5/135                            | 2" - 14"            | 1735                 |
| 45x720          | Sing/Ft                 | 1'9" x 19'6" x 7"                              | 0.53 x 5.93 x 0.18                        | 33.1 (3.1)                                | 23.1 (2.4)                                    | 245 (112)                               | 5/144                            | 2" - 14"            | 1850                 |
| 45x765          | Sing/Ft                 | 1'9" x 20'8" x 7"                              | 0.53 x 6.3 x 0.18                         | 35.2 (3.3)                                | 24.5 (2.5)                                    | 260 (118)                               | 5/153                            | 2" - 14"            | 1960                 |
| 45x810          | Sing/Ft                 | 1'9" x 21'11" x 7"                             | 0.53 x 6.66 x 0.18                        | 37.2 (3.5)                                | 26.0 (2.6)                                    | 275 (125)                               | 5/162                            | 2" - 14"            | 2075                 |
| 45x855          | Sing/Ft                 | 1'9" x 23'1" x 7"                              | 0.53 x 7.03 x 0.18                        | 39.2 (3.7)                                | 27.4 (2.8)                                    | 290 (132)                               | 5/171                            | 2" - 14"            | 2185                 |
| 45x900          | Sing/Ft                 | 1'9" x 24'3" x 7"                              | 0.53 x 7.4 x 0.18                         | 41.3 (3.8)                                | 28.8 (3.0)                                    | 305 (139)                               | 5/180                            | 2" - 14"            | 2300                 |
| 90x135          | Sing/Ft                 | 2'11" x 3'11" x 7"                             | 0.89 x 1.18 x 0.18                        | 11.2 (1.1)                                | 8.7 (0.9)                                     | 90 (41)                                 | 11/27                            | 2" - 28"            | 630                  |
| 90x180          | Sing/Ft                 | 2'11" x 5'1" x 7"                              | 0.89 x 1.54 x 0.18                        | 14.6 (1.4)                                | 11.6 (1.2)                                    | 125 (57)                                | 11/36                            | 2" - 28"            | 825                  |
| 90x225          | Sing/Ft                 | 2'11" x 6'3" x 7"                              | 0.89 x 1.91 x 0.18                        | 18.1 (1.7)                                | 14.4 (1.5)                                    | 155 (71)                                | 11/45                            | 2" - 28"            | 1020                 |
| 90x270          | Sing/Ft                 | 2'11" x 7'6" x 7"                              | 0.89 x 2.28 x 0.18                        | 21.6 (2.0)                                | 17.3 (1.8)                                    | 185 (84)                                | 11/54                            | 2" - 28"            | 1215                 |
| 90x315          | Sing/Ft                 | 2'11" x 8'8" x 7"                              | 0.89 x 2.64 x 0.18                        | 25.1 (2.3)                                | 20.2 (2.1)                                    | 215 (98)                                | 11/63                            | 2" - 28"            | 1410                 |
| 90x360          | Sing/Ft                 | 2'11" x 9'11" x 7"                             | 0.89 x 3.01 x 0.18                        | 28.6 (2.7)                                | 23.1 (2.4)                                    | 245 (112)                               | 11/72                            | 2" - 28"            | 1610                 |
| 90x405          | Sing/Ft                 | 2'11" x 11'1" x 7"                             | 0.89 x 3.37 x 0.18                        | 32.0 (3.0)                                | 26.0 (2.6)                                    | 275 (125)                               | 11/81                            | 2" - 28"            | 1805                 |
| 90x450          | Sing/Ft                 | 2'11" x 12'3" x 7"                             | 0.89 x 3.74 x 0.18                        | 35.5 (3.3)                                | 28.8 (3.0)                                    | 305 (139)                               | 11/90                            | 2" - 28"            | 2000                 |
| 90x495          | Sing/Ft                 | 2'11" x 13'6" x 7"                             | 0.89 x 4.1 x 0.18                         | 39.0 (3.6)                                | 31.7 (3.3)                                    | 335 (152)                               | 11/99                            | 2" - 28"            | 2195                 |
| 90x540          | Sing/Ft                 | 2'11" x 14'8" x 7"                             | 0.89 x 4.47 x 0.18                        | 42.5 (4.0)                                | 34.6 (3.5)                                    | 365 (166)                               | 11/108                           | 2" - 28"            | 2390                 |
| 90x585          | Sing/Ft                 | 2'11" x 15'11" x 7"                            | 0.89 x 4.84 x 0.18                        | 46.0 (4.3)                                | 37.5 (3.8)                                    | 395 (180)                               | 11/117                           | 2" - 28"            | 2585                 |
| 90x630          | Sing/Ft                 | 2'11" x 17'1" x 7"                             | 0.89 x 5.2 x 0.18                         | 49.4 (4.6)                                | 40.4 (4.2)                                    | 425 (193)                               | 11/126                           | 2" - 28"            | 2780                 |
| 90x675          | Sing/Ft                 | 2'11" x 18'3" x 7"                             | 0.89 x 5.57 x 0.18                        | 52.9 (5.0)                                | 43.2 (4.4)                                    | 455 (207)                               | 11/135                           | 2" - 28"            | 2975                 |
| 90x720          | Sing/Ft                 | 2'11" x 19'6" x 7"                             | 0.89 x 5.93 x 0.18                        | 56.4 (5.3)                                | 46.1 (4.7)                                    | 485 (220)                               | 11/144                           | 2" - 28"            | 3170                 |
| 90x765          | Sing/Ft                 | 2'11" x 20'8" x 7"                             | 0.89 x 6.3 x 0.18                         | 59.9 (5.6)                                | 49.0 (5.0)                                    | 515 (234)                               | 11/153                           | 2" - 28"            | 3365                 |
| 90x810          | Sing/Ft                 | 2'11" x 21'11" x 7"                            | 0.89 x 6.66 x 0.18                        | 63.4 (5.9)                                | 51.9 (5.3)                                    | 545 (248)                               | 11/162                           | 2" - 28"            | 3560                 |
| 90x855          | Sing/Ft                 | 2'11" x 23'1" x 7"                             | 0.89 x 7.03 x 0.18                        | 66.8 (6.3)                                | 54.8 (5.6)                                    | 575 (261)                               | 11/171                           | 2" - 28"            | 3755                 |
| 90x900          | Sing/Ft                 | 2'11" x 24'3" x 7"                             | 0.89 x 7.4 x 0.18                         | 70.3 (6.6)                                | 57.6 (5.9)                                    | 605 (275)                               | 11/180                           | 2" - 28"            | 3950                 |
| 135x90          | Sing/Ft                 | 4'2" x 2'8" x 7"                               | 1.25 x 0.81 x 0.18                        | 10.9 (1.0)                                | 8.7 (0.9)                                     | 95 (44)                                 | 16/18                            | 2" - 43"            | 630                  |
| 135x135         | Sing/Ft                 | 4'2" x 3'11" x 7"                              | 1.25 x 1.18 x 0.18                        | 15.8 (1.5)                                | 13.0 (1.2)                                    | 140 (64)                                | 16/27                            | 2" - 43"            | 970                  |
| 135x180         | Sing/Ft                 | 4'2" x 5'1" x 7"                               | 1.25 x 1.54 x 0.18                        | 20.7 (1.9)                                | 17.3 (1.7)                                    | 185 (84)                                | 16/36                            | 2" - 43"            | 1275                 |
| 135x225         | Sing/Ft                 | 4'2" x 6'3" x 7"                               | 1.25 x 1.91 x 0.18                        | 25.6 (2.4)                                | 21.6 (2.1)                                    | 230 (105)                               | 16/45                            | 2" - 43"            | 1585                 |
| 135x270         | Sing/Ft                 | 4'2" x 7'6" x 7"                               | 1.25 x 2.28 x 0.18                        | 30.5 (2.9)                                | 26.0 (2.4)                                    | 275 (125)                               | 16/54                            | 2" - 43"            | 1895                 |
| 135x315         | Sing/Ft                 | 4'2" x 8'8" x 7"                               | 1.25 x 2.64 x 0.18                        | 35.5 (3.3)                                | 30.3 (2.9)                                    | 320 (146)                               | 16/63                            | 2" - 43"            | 2200                 |
| <b>135x360</b>  | <b>Sing/Ft</b>          | <b>4'2" x 9'11" x 7"</b>                       | <b>1.25 x 3.01 x 0.18</b>                 | <b>40.4 (3.8)</b>                         | <b>34.6 (3.3)</b>                             | <b>365 (166)</b>                        | <b>16/72</b>                     | <b>2" - 43"</b>     | <b>2510</b>          |
| 135x405         | Sing/Ft                 | 4'2" x 11'1" x 7"                              | 1.25 x 3.37 x 0.18                        | 45.3 (4.2)                                | 38.9 (3.6)                                    | 410 (186)                               | 16/81                            | 2" - 43"            | 2815                 |
| 135x450         | Sing/Ft                 | 4'2" x 12'3" x 7"                              | 1.25 x 3.74 x 0.18                        | 50.2 (4.7)                                | 43.2 (4.1)                                    | 455 (207)                               | 16/90                            | 2" - 43"            | 3125                 |
| 135x495         | Sing/Ft                 | 4'2" x 13'6" x 7"                              | 1.25 x 4.1 x 0.18                         | 55.1 (5.1)                                | 47.6 (4.5)                                    | 500 (227)                               | 16/99                            | 2" - 43"            | 3430                 |
| 135x540         | Sing/Ft                 | 4'2" x 14'8" x 7"                              | 1.25 x 4.47 x 0.18                        | 60.1 (5.6)                                | 51.9 (4.8)                                    | 545 (248)                               | 16/108                           | 2" - 43"            | 3740                 |
| 135x585         | Sing/Ft                 | 4'2" x 15'11" x 7"                             | 1.25 x 4.84 x 0.18                        | 65.0 (6.1)                                | 56.2 (5.3)                                    | 590 (268)                               | 16/117                           | 2" - 43"            | 4050                 |
| 135x630         | Sing/Ft                 | 4'2" x 17'1" x 7"                              | 1.25 x 5.2 x 0.18                         | 69.9 (6.5)                                | 60.5 (5.7)                                    | 635 (289)                               | 16/126                           | 2" - 43"            | 4355                 |
| 135x675         | Sing/Ft                 | 4'2" x 18'3" x 7"                              | 1.25 x 5.57 x 0.18                        | 74.8 (7.0)                                | 64.8 (6.1)                                    | 680 (309)                               | 16/135                           | 2" - 43"            | 4665                 |
| 135x720         | Sing/Ft                 | 4'2" x 19'6" x 7"                              | 1.25 x 5.93 x 0.18                        | 79.7 (7.4)                                | 69.2 (6.5)                                    | 725 (329)                               | 16/144                           | 2" - 43"            | 4970                 |
| 135x765         | Sing/Ft                 | 4'2" x 20'8" x 7"                              | 1.25 x 6.3 x 0.18                         | 84.7 (7.9)                                | 73.5 (6.9)                                    | 770 (350)                               | 16/153                           | 2" - 43"            | 5280                 |
| 135x810         | Sing/Ft                 | 4'2" x 21'11" x 7"                             | 1.25 x 6.66 x 0.18                        | 89.6 (8.3)                                | 77.8 (7.3)                                    | 815 (370)                               | 16/162                           | 2" - 43"            | 5585                 |
| 135x855         | Sing/Ft                 | 4'2" x 23'1" x 7"                              | 1.25 x 7.03 x 0.18                        | 94.5 (8.8)                                | 82.1 (7.7)                                    | 860 (391)                               | 16/171                           | 2" - 43"            | 5895                 |
| 135x900         | Sing/Ft                 | 4'2" x 24'3" x 7"                              | 1.25 x 7.4 x 0.18                         | 99.4 (9.3)                                | 86.4 (8.1)                                    | 905 (411)                               | 16/180                           | 2" - 43"            | 6200                 |
| 180x90          | Sing/Ft                 | 5'4" x 2'8" x 7"                               | 1.62 x 0.81 x 0.18                        | 14.1 (1.3)                                | 11.6 (1.2)                                    | 125 (57)                                | 22/18                            | 2" - 57"            | 825                  |
| 180x135         | Sing/Ft                 | 5'4" x 3'11" x 7"                              | 1.62 x 1.18 x 0.18                        | 20.4 (1.9)                                | 17.3 (1.7)                                    | 185 (84)                                | 22/27                            | 2" - 57"            | 1215                 |
| 180x180         | Sing/Ft                 | 5'4" x 5'1" x 7"                               | 1.62 x 1.54 x 0.18                        | 26.8 (2.5)                                | 23.1 (2.3)                                    | 245 (112)                               | 22/36                            | 2" - 57"            | 1610                 |



# GALAXY® GT6x 8 MM PRODUCT SPECIFICATIONS

| Lines x Columns | Sections/Ventilated | Cabinet Dimensions Feet-Inches<br>H x W x D | Cabinet Dimensions Meters<br>H x W x D | Cabinet Square Feet<br>(Square Meters) | Active Area Square Feet<br>(Square Meters) | Cabinet Weight Pounds<br>(kilograms) | Lines/Characters per line | Character Height | Maximum Watts RGB |
|-----------------|---------------------|---------------------------------------------|----------------------------------------|----------------------------------------|--------------------------------------------|--------------------------------------|---------------------------|------------------|-------------------|
| 180x225         | Sing/Ft             | 5'4" x 6'3" x 7"                            | 1.62 x 1.91 x 0.18                     | 33.1 (3.1)                             | 28.8 (2.9)                                 | 305 (139)                            | 22/45                     | 2" - 57"         | 2000              |
| 180x270         | Sing/Ft             | 5'4" x 7'6" x 7"                            | 1.62 x 2.28 x 0.18                     | 39.5 (3.7)                             | 34.6 (3.3)                                 | 365 (166)                            | 22/54                     | 2" - 57"         | 2390              |
| 180x315         | Sing/Ft             | 5'4" x 8'8" x 7"                            | 1.62 x 2.64 x 0.18                     | 45.8 (4.3)                             | 40.4 (3.9)                                 | 425 (193)                            | 22/63                     | 2" - 57"         | 2780              |
| 180x360         | Sing/Ft             | 5'4" x 9'11" x 7"                           | 1.62 x 3.01 x 0.18                     | 52.2 (4.9)                             | 46.1 (4.5)                                 | 485 (220)                            | 22/72                     | 2" - 57"         | 3170              |
| 180x405         | Sing/Ft             | 5'4" x 11'1" x 7"                           | 1.62 x 3.37 x 0.18                     | 58.6 (5.5)                             | 51.9 (5.0)                                 | 545 (248)                            | 22/81                     | 2" - 57"         | 3560              |
| 180x450         | Sing/Ft             | 5'4" x 12'3" x 7"                           | 1.62 x 3.74 x 0.18                     | 64.9 (6.1)                             | 57.6 (5.6)                                 | 605 (275)                            | 22/90                     | 2" - 57"         | 3950              |
| 180x495         | Sing/Ft             | 5'4" x 13'6" x 7"                           | 1.62 x 4.1 x 0.18                      | 71.3 (6.6)                             | 63.4 (6.2)                                 | 665 (302)                            | 22/99                     | 2" - 57"         | 4340              |
| 180x540         | Sing/Ft             | 5'4" x 14'8" x 7"                           | 1.62 x 4.47 x 0.18                     | 77.6 (7.2)                             | 69.2 (6.6)                                 | 725 (329)                            | 22/108                    | 2" - 57"         | 4730              |
| 180x585         | Sing/Ft             | 5'4" x 15'11" x 7"                          | 1.62 x 4.84 x 0.18                     | 84.0 (7.8)                             | 74.9 (7.2)                                 | 785 (357)                            | 22/117                    | 2" - 57"         | 5120              |
| 180x630         | Sing/Ft             | 5'4" x 17'1" x 7"                           | 1.62 x 5.2 x 0.18                      | 90.4 (8.4)                             | 80.7 (7.8)                                 | 845 (384)                            | 22/126                    | 2" - 57"         | 5510              |
| 180x675         | Sing/Ft             | 5'4" x 18'3" x 7"                           | 1.62 x 5.57 x 0.18                     | 96.7 (9.0)                             | 86.4 (8.3)                                 | 905 (411)                            | 22/135                    | 2" - 57"         | 5900              |
| 180x720         | Sing/Ft             | 5'4" x 19'6" x 7"                           | 1.62 x 5.93 x 0.18                     | 103.1 (9.6)                            | 92.2 (8.9)                                 | 965 (438)                            | 22/144                    | 2" - 57"         | 6295              |
| 180x765         | Sing/Ft             | 5'4" x 20'8" x 7"                           | 1.62 x 6.3 x 0.18                      | 109.4 (10.2)                           | 98.0 (9.5)                                 | 1030 (468)                           | 22/153                    | 2" - 57"         | 6685              |
| 180x810         | Sing/Ft             | 5'4" x 21'11" x 7"                          | 1.62 x 6.66 x 0.18                     | 115.8 (10.8)                           | 103.7 (9.9)                                | 1090 (495)                           | 22/162                    | 2" - 57"         | 7075              |
| 180x855         | Sing/Ft             | 5'4" x 23'1" x 7"                           | 1.62 x 7.03 x 0.18                     | 122.2 (11.4)                           | 109.5 (10.5)                               | 1150 (522)                           | 22/171                    | 2" - 57"         | 7465              |
| 180x900         | Sing/Ft             | 5'4" x 24'3" x 7"                           | 1.62 x 7.4 x 0.18                      | 128.5 (12.0)                           | 115.2 (11.1)                               | 1210 (549)                           | 22/180                    | 2" - 57"         | 7855              |
| 225x90          | Sing/Ft             | 6'6" x 2'8" x 7"                            | 1.99 x 0.81 x 0.18                     | 17.3 (1.6)                             | 14.4 (1.5)                                 | 155 (71)                             | 28/18                     | 2" - 71"         | 1020              |
| 225x135         | Sing/Ft             | 6'6" x 3'11" x 7"                           | 1.99 x 1.18 x 0.18                     | 25.0 (2.3)                             | 21.6 (2.1)                                 | 230 (105)                            | 28/27                     | 2" - 72"         | 1465              |
| 225x180         | Sing/Ft             | 6'6" x 5'1" x 7"                            | 1.99 x 1.54 x 0.18                     | 32.8 (3.1)                             | 28.8 (2.9)                                 | 305 (139)                            | 28/36                     | 2" - 72"         | 1940              |
| 225x225         | Sing/Ft             | 6'6" x 6'3" x 7"                            | 1.99 x 1.91 x 0.18                     | 40.6 (3.8)                             | 36.0 (3.6)                                 | 380 (173)                            | 28/45                     | 2" - 72"         | 2410              |
| 225x270         | Sing/Ft             | 6'6" x 7'6" x 7"                            | 1.99 x 2.28 x 0.18                     | 48.4 (4.5)                             | 43.2 (4.2)                                 | 455 (207)                            | 28/54                     | 2" - 72"         | 2885              |
| 225x315         | Sing/Ft             | 6'6" x 8'8" x 7"                            | 1.99 x 2.64 x 0.18                     | 56.2 (5.3)                             | 50.4 (4.9)                                 | 530 (241)                            | 28/63                     | 2" - 72"         | 3355              |
| 225x360         | Sing/Ft             | 6'6" x 9'11" x 7"                           | 1.99 x 3.01 x 0.18                     | 64.0 (6.0)                             | 57.6 (5.7)                                 | 605 (275)                            | 28/72                     | 2" - 72"         | 3830              |
| 225x405         | Sing/Ft             | 6'6" x 11'1" x 7"                           | 1.99 x 3.37 x 0.18                     | 71.8 (6.7)                             | 64.8 (6.3)                                 | 680 (309)                            | 28/81                     | 2" - 72"         | 4305              |
| 225x450         | Sing/Ft             | 6'6" x 12'3" x 7"                           | 1.99 x 3.74 x 0.18                     | 79.6 (7.4)                             | 72.0 (7.0)                                 | 755 (343)                            | 28/90                     | 2" - 72"         | 4775              |
| 225x495         | Sing/Ft             | 6'6" x 13'6" x 7"                           | 1.99 x 4.1 x 0.18                      | 87.4 (8.2)                             | 79.2 (7.8)                                 | 830 (377)                            | 28/99                     | 2" - 72"         | 5250              |
| 225x540         | Sing/Ft             | 6'6" x 14'8" x 7"                           | 1.99 x 4.47 x 0.18                     | 95.2 (8.9)                             | 86.4 (8.4)                                 | 905 (411)                            | 28/108                    | 2" - 72"         | 5720              |
| 225x585         | Sing/Ft             | 6'6" x 15'11" x 7"                          | 1.99 x 4.84 x 0.18                     | 103.0 (9.6)                            | 93.6 (9.1)                                 | 980 (445)                            | 28/117                    | 2" - 72"         | 6195              |
| 225x630         | Sing/Ft             | 6'6" x 17'1" x 7"                           | 1.99 x 5.2 x 0.18                      | 110.8 (10.3)                           | 100.8 (9.9)                                | 1060 (481)                           | 28/126                    | 2" - 72"         | 6670              |
| 225x675         | Sing/Ft             | 6'6" x 18'3" x 7"                           | 1.99 x 5.57 x 0.18                     | 118.6 (11.1)                           | 108.0 (10.5)                               | 1135 (515)                           | 28/135                    | 2" - 72"         | 7140              |
| 225x720         | Sing/Ft             | 6'6" x 19'6" x 7"                           | 1.99 x 5.93 x 0.18                     | 126.4 (11.8)                           | 115.2 (11.2)                               | 1210 (549)                           | 28/144                    | 2" - 72"         | 7615              |
| 225x765         | Sing/Ft             | 6'6" x 20'8" x 7"                           | 1.99 x 6.3 x 0.18                      | 134.2 (12.5)                           | 122.4 (12.0)                               | 1285 (583)                           | 28/153                    | 2" - 72"         | 8090              |
| 225x810         | Sing/Ft             | 6'6" x 21'11" x 7"                          | 1.99 x 6.66 x 0.18                     | 142.0 (13.3)                           | 129.6 (12.5)                               | 1360 (617)                           | 28/162                    | 2" - 72"         | 8560              |
| 225x855         | Sing/Ft             | 6'6" x 23'1" x 7"                           | 1.99 x 7.03 x 0.18                     | 149.8 (14.0)                           | 136.8 (13.3)                               | 1435 (651)                           | 28/171                    | 2" - 72"         | 9035              |
| 225x900         | Sing/Ft             | 6'6" x 24'3" x 7"                           | 1.99 x 7.4 x 0.18                      | 157.6 (14.7)                           | 144.0 (14.1)                               | 1510 (685)                           | 28/180                    | 2" - 72"         | 9505              |
| 270x90          | Sing/Ft             | 7'9" x 2'8" x 7"                            | 2.35 x 0.81 x 0.18                     | 20.5 (1.9)                             | 17.3 (1.8)                                 | 185 (84)                             | 33/18                     | 2" - 86"         | 1215              |
| 270x135         | Sing/Ft             | 7'9" x 3'11" x 7"                           | 2.35 x 1.18 x 0.18                     | 29.6 (2.8)                             | 26.0 (2.4)                                 | 275 (125)                            | 33/27                     | 2" - 86"         | 1715              |
| 270x180         | Sing/Ft             | 7'9" x 5'1" x 7"                            | 2.35 x 1.54 x 0.18                     | 38.9 (3.6)                             | 34.6 (3.3)                                 | 365 (166)                            | 33/36                     | 2" - 86"         | 2270              |
| 270x225         | Sing/Ft             | 7'9" x 6'3" x 7"                            | 2.35 x 1.91 x 0.18                     | 48.1 (4.5)                             | 43.2 (4.2)                                 | 455 (207)                            | 33/45                     | 2" - 86"         | 2825              |
| 270x270         | Sing/Ft             | 7'9" x 7'6" x 7"                            | 2.35 x 2.28 x 0.18                     | 57.4 (5.4)                             | 51.9 (4.8)                                 | 545 (248)                            | 33/54                     | 2" - 86"         | 3380              |
| 270x315         | Sing/Ft             | 7'9" x 8'8" x 7"                            | 2.35 x 2.64 x 0.18                     | 66.6 (6.2)                             | 60.5 (5.7)                                 | 635 (289)                            | 33/63                     | 2" - 86"         | 3935              |
| 270x360         | Sing/Ft             | 7'9" x 9'11" x 7"                           | 2.35 x 3.01 x 0.18                     | 75.8 (7.1)                             | 69.2 (6.6)                                 | 725 (329)                            | 33/72                     | 2" - 86"         | 4490              |
| 270x405         | Sing/Ft             | 7'9" x 11'1" x 7"                           | 2.35 x 3.37 x 0.18                     | 85.1 (7.9)                             | 77.8 (7.3)                                 | 815 (370)                            | 33/81                     | 2" - 86"         | 5045              |
| 270x450         | Sing/Ft             | 7'9" x 12'3" x 7"                           | 2.35 x 3.74 x 0.18                     | 94.3 (8.8)                             | 86.4 (8.1)                                 | 905 (411)                            | 33/90                     | 2" - 86"         | 5600              |
| 270x495         | Sing/Ft             | 7'9" x 13'6" x 7"                           | 2.35 x 4.1 x 0.18                      | 103.6 (9.6)                            | 95.1 (9.0)                                 | 995 (452)                            | 33/99                     | 2" - 86"         | 6160              |
| 270x540         | Sing/Ft             | 7'9" x 14'8" x 7"                           | 2.35 x 4.47 x 0.18                     | 112.8 (10.5)                           | 103.7 (9.7)                                | 1090 (495)                           | 33/108                    | 2" - 86"         | 6715              |
| 270x585         | Sing/Ft             | 7'9" x 15'11" x 7"                          | 2.35 x 4.84 x 0.18                     | 122.0 (11.4)                           | 112.4 (10.6)                               | 1180 (536)                           | 33/117                    | 2" - 86"         | 7270              |
| 270x630         | Sing/Ft             | 7'9" x 17'1" x 7"                           | 2.35 x 5.2 x 0.18                      | 131.3 (12.2)                           | 121.0 (11.4)                               | 1270 (577)                           | 33/126                    | 2" - 86"         | 7825              |
| 270x675         | Sing/Ft             | 7'9" x 18'3" x 7"                           | 2.35 x 5.57 x 0.18                     | 140.5 (13.1)                           | 129.6 (12.1)                               | 1360 (617)                           | 33/135                    | 2" - 86"         | 8380              |
| 270x720         | Sing/Ft             | 7'9" x 19'6" x 7"                           | 2.35 x 5.93 x 0.18                     | 149.8 (13.9)                           | 138.3 (13.0)                               | 1450 (658)                           | 33/144                    | 2" - 86"         | 8935              |
| 270x765         | Sing/Ft             | 7'9" x 20'8" x 7"                           | 2.35 x 6.3 x 0.18                      | 159.0 (14.8)                           | 146.9 (13.9)                               | 1540 (699)                           | 33/153                    | 2" - 86"         | 9490              |
| 270x810         | Sing/Ft             | 7'9" x 21'11" x 7"                          | 2.35 x 6.66 x 0.18                     | 168.2 (15.7)                           | 155.6 (14.5)                               | 1630 (740)                           | 33/162                    | 2" - 86"         | 10050             |
| 270x855         | Sing/Ft             | 7'9" x 23'1" x 7"                           | 2.35 x 7.03 x 0.18                     | 177.5 (16.5)                           | 164.2 (15.4)                               | 1720 (781)                           | 33/171                    | 2" - 86"         | 10605             |
| 270x900         | Sing/Ft             | 7'9" x 24'3" x 7"                           | 2.35 x 7.4 x 0.18                      | 186.7 (17.4)                           | 172.8 (16.3)                               | 1810 (822)                           | 33/180                    | 2" - 86"         | 11160             |
| 315x180         | Sing/Bk             | 8'11" x 5'4" x 11"                          | 2.72 x 1.62 x 0.28                     | 47.2 (4.4)                             | 40.4 (3.9)                                 | 690 (313)                            | 39/36                     | 2" - 100"        | 2480              |
| 315x225         | Sing/Bk             | 8'11" x 6'6" x 11"                          | 2.72 x 1.99 x 0.28                     | 57.9 (5.4)                             | 50.4 (4.9)                                 | 780 (354)                            | 39/45                     | 2" - 100"        | 3055              |
| 315x270         | Sing/Bk             | 8'11" x 7'9" x 11"                          | 2.72 x 2.35 x 0.28                     | 68.6 (6.4)                             | 60.5 (5.7)                                 | 870 (395)                            | 39/54                     | 2" - 100"        | 3635              |



# GALAXY® GT6x 8 MM PRODUCT SPECIFICATIONS

| Lines x Columns | Sections/Ventilated | Cabinet Dimensions Feet-Inches H x W x D | Cabinet Dimensions Meters H x W x D | Cabinet Square Feet (Square Meters) | Active Area Square Feet (Square Meters) | Cabinet Weight Pounds (kilograms) | Lines/Characters per line | Character Height | Maximum Watts RGB |
|-----------------|---------------------|------------------------------------------|-------------------------------------|-------------------------------------|-----------------------------------------|-----------------------------------|---------------------------|------------------|-------------------|
| 315x315         | Sing/Bk             | 8'11" x 8'11" x 11"                      | 2.72 x 2.72 x 0.28                  | 79.3 (7.4)                          | 70.6 (6.8)                              | 985 (447)                         | 39/63                     | 2" - 100"        | 4275              |
| 315x360         | Sing/Bk             | 8'11" x 10'2" x 11"                      | 2.72 x 3.08 x 0.28                  | 89.9 (8.4)                          | 80.7 (7.8)                              | 1075 (488)                        | 39/72                     | 2" - 100"        | 4850              |
| 315x405         | Sing/Bk             | 8'11" x 11'4" x 11"                      | 2.72 x 3.45 x 0.28                  | 100.6 (9.4)                         | 90.8 (8.6)                              | 1165 (529)                        | 39/81                     | 2" - 100"        | 5430              |
| 315x450         | Sing/Bk             | 8'11" x 12'6" x 11"                      | 2.72 x 3.81 x 0.28                  | 111.3 (10.4)                        | 100.8 (9.6)                             | 1285 (583)                        | 39/90                     | 2" - 100"        | 6070              |
| 315x495         | Sing/Bk             | 8'11" x 13'9" x 11"                      | 2.72 x 4.18 x 0.28                  | 122 (11.4)                          | 110.9 (10.7)                            | 1375 (624)                        | 39/99                     | 2" - 100"        | 7185              |
| 315x540         | Sing/Bk             | 8'11" x 14'11" x 11"                     | 2.72 x 4.55 x 0.28                  | 132.7 (12.4)                        | 121 (11.4)                              | 1460 (663)                        | 39/108                    | 2" - 100"        | 7765              |
| 315x585         | Sing/Bk             | 8'11" x 16'2" x 11"                      | 2.72 x 4.91 x 0.28                  | 143.3 (13.4)                        | 131.1 (12.5)                            | 1580 (717)                        | 39/117                    | 2" - 100"        | 8405              |
| 315x630         | Sing/Bk             | 8'11" x 17'4" x 11"                      | 2.72 x 5.28 x 0.28                  | 154 (14.4)                          | 141.2 (13.5)                            | 1670 (758)                        | 39/126                    | 2" - 100"        | 8980              |
| 315x675         | Sing/Bk             | 8'11" x 18'6" x 11"                      | 2.72 x 5.64 x 0.28                  | 164.7 (15.3)                        | 151.2 (14.3)                            | 1760 (799)                        | 39/135                    | 2" - 100"        | 9560              |
| 315x720         | Sing/Bk             | 8'11" x 19'9" x 11"                      | 2.72 x 6.01 x 0.28                  | 175.4 (16.3)                        | 161.3 (15.3)                            | 1875 (851)                        | 39/144                    | 2" - 100"        | 10200             |
| 315x765         | Sing/Bk             | 8'11" x 20'11" x 11"                     | 2.72 x 6.38 x 0.28                  | 186.1 (17.4)                        | 171.4 (16.4)                            | 1965 (892)                        | 39/153                    | 2" - 100"        | 10775             |
| 315x810         | Sing/Bk             | 8'11" x 22'2" x 11"                      | 2.72 x 6.74 x 0.28                  | 196.7 (18.3)                        | 181.5 (17.2)                            | 2055 (933)                        | 39/162                    | 2" - 100"        | 11355             |
| 315x855         | Sing/Bk             | 8'11" x 23'4" x 11"                      | 2.72 x 7.11 x 0.28                  | 207.4 (19.3)                        | 191.6 (18.2)                            | 2275 (1032)                       | 39/171                    | 2" - 100"        | 11995             |
| 315x900         | Sing/Bk             | 8'11" x 24'6" x 11"                      | 2.72 x 7.47 x 0.28                  | 218.1 (20.3)                        | 201.6 (19.2)                            | 2360 (1071)                       | 39/180                    | 2" - 100"        | 12570             |
| 315x945         | Sing/Bk             | 8'11" x 25'9" x 11"                      | 2.72 x 7.84 x 0.28                  | 228.8 (21.3)                        | 211.7 (20.0)                            | 2450 (1112)                       | 39/189                    | 2" - 100"        | 13150             |
| 315x990         | Sing/Bk             | 8'11" x 26'11" x 11"                     | 2.72 x 8.2 x 0.28                   | 239.5 (22.3)                        | 221.8 (21.1)                            | 2570 (1166)                       | 39/198                    | 2" - 100"        | 13790             |
| 315x1035        | Sing/Bk             | 8'11" x 28'2" x 11"                      | 2.72 x 8.57 x 0.28                  | 250.1 (23.3)                        | 231.9 (22.1)                            | 2660 (1207)                       | 39/207                    | 2" - 100"        | 14365             |
| 315x1080        | Sing/Bk             | 8'11" x 29'4" x 11"                      | 2.72 x 8.94 x 0.28                  | 260.8 (24.3)                        | 242 (22.9)                              | 2745 (1246)                       | 39/216                    | 2" - 100"        | 14945             |
| 315x1125        | Sing/Bk             | 8'11" x 30'6" x 11"                      | 2.72 x 9.3 x 0.28                   | 271.5 (25.3)                        | 252 (23.9)                              | 2865 (1300)                       | 39/225                    | 2" - 100"        | 15580             |
| 315x1170        | Sing/Bk             | 8'11" x 31'9" x 11"                      | 2.72 x 9.67 x 0.28                  | 282.2 (26.3)                        | 262.1 (25.0)                            | 2955 (1341)                       | 39/234                    | 2" - 100"        | 16160             |
| 315x1215        | Sing/Bk             | 8'11" x 32'11" x 11"                     | 2.72 x 10.03 x 0.28                 | 292.9 (27.3)                        | 272.2 (25.7)                            | 3045 (1382)                       | 39/243                    | 2" - 100"        | 16740             |
| 315x1260        | Sing/Bk             | 8'11" x 34'2" x 11"                      | 2.72 x 10.4 x 0.28                  | 303.5 (28.3)                        | 282.3 (26.8)                            | 3160 (1434)                       | 39/252                    | 2" - 100"        | 17375             |
| 315x1305        | Sing/Bk             | 8'11" x 35'4" x 11"                      | 2.72 x 10.76 x 0.28                 | 314.2 (29.3)                        | 292.4 (27.8)                            | 3250 (1475)                       | 39/261                    | 2" - 100"        | 17955             |
| 315x1350        | Sing/Bk             | 8'11" x 36'6" x 11"                      | 2.72 x 11.13 x 0.28                 | 324.9 (30.3)                        | 302.4 (28.6)                            | 3340 (1515)                       | 39/270                    | 2" - 100"        | 18535             |
| 315x1395        | Sing/Bk             | 8'11" x 37'9" x 11"                      | 2.72 x 11.5 x 0.28                  | 335.6 (31.3)                        | 312.5 (29.6)                            | 3455 (1568)                       | 39/279                    | 2" - 100"        | 19170             |
| 360x180         | Sing/Bk             | 10'2" x 5'4" x 11"                       | 3.08 x 1.62 x 0.28                  | 53.6 (5.0)                          | 46.1 (4.5)                              | 745 (338)                         | 45/36                     | 2" - 115"        | 2810              |
| 360x225         | Sing/Bk             | 10'2" x 6'6" x 11"                       | 3.08 x 1.99 x 0.28                  | 65.7 (6.1)                          | 57.6 (5.7)                              | 840 (382)                         | 45/45                     | 2" - 115"        | 3470              |
| 360x270         | Sing/Bk             | 10'2" x 7'9" x 11"                       | 3.08 x 2.35 x 0.28                  | 77.8 (7.2)                          | 69.2 (6.6)                              | 935 (425)                         | 45/54                     | 2" - 115"        | 4130              |
| 360x315         | Sing/Bk             | 10'2" x 8'11" x 11"                      | 3.08 x 2.72 x 0.28                  | 89.9 (8.4)                          | 80.7 (7.8)                              | 1065 (484)                        | 45/63                     | 2" - 115"        | 4850              |
| 360x360         | Sing/Bk             | 10'2" x 10'2" x 11"                      | 3.08 x 3.08 x 0.28                  | 102.1 (9.5)                         | 92.2 (9.0)                              | 1160 (527)                        | 45/72                     | 2" - 115"        | 5515              |
| 360x405         | Sing/Bk             | 10'2" x 11'4" x 11"                      | 3.08 x 3.45 x 0.28                  | 114.2 (10.6)                        | 103.7 (9.9)                             | 1260 (572)                        | 45/81                     | 2" - 115"        | 6175              |
| 360x450         | Sing/Bk             | 10'2" x 12'6" x 11"                      | 3.08 x 3.81 x 0.28                  | 126.3 (11.7)                        | 115.2 (11.1)                            | 1385 (629)                        | 45/90                     | 2" - 115"        | 7435              |
| 360x495         | Sing/Bk             | 10'2" x 13'9" x 11"                      | 3.08 x 4.18 x 0.28                  | 138.4 (12.9)                        | 126.8 (12.3)                            | 1485 (674)                        | 45/99                     | 2" - 115"        | 8095              |
| 360x540         | Sing/Bk             | 10'2" x 14'11" x 11"                     | 3.08 x 4.55 x 0.28                  | 150.5 (14.0)                        | 138.3 (13.2)                            | 1580 (717)                        | 45/108                    | 2" - 115"        | 8755              |
| 360x585         | Sing/Bk             | 10'2" x 16'2" x 11"                      | 3.08 x 4.91 x 0.28                  | 162.7 (15.1)                        | 149.8 (14.4)                            | 1710 (776)                        | 45/117                    | 2" - 115"        | 9475              |
| 360x630         | Sing/Bk             | 10'2" x 17'4" x 11"                      | 3.08 x 5.28 x 0.28                  | 174.8 (16.3)                        | 161.3 (15.6)                            | 1805 (819)                        | 45/126                    | 2" - 115"        | 10140             |
| 360x675         | Sing/Bk             | 10'2" x 18'6" x 11"                      | 3.08 x 5.64 x 0.28                  | 186.9 (17.4)                        | 172.8 (16.5)                            | 1900 (862)                        | 45/135                    | 2" - 115"        | 10800             |
| 360x720         | Sing/Bk             | 10'2" x 19'9" x 11"                      | 3.08 x 6.01 x 0.28                  | 199 (18.5)                          | 184.4 (17.7)                            | 2030 (921)                        | 45/144                    | 2" - 115"        | 11520             |
| 360x765         | Sing/Bk             | 10'2" x 20'11" x 11"                     | 3.08 x 6.38 x 0.28                  | 211.1 (19.7)                        | 195.9 (18.9)                            | 2240 (1017)                       | 45/153                    | 2" - 115"        | 12180             |
| 360x810         | Sing/Bk             | 10'2" x 22'2" x 11"                      | 3.08 x 6.74 x 0.28                  | 223.3 (20.8)                        | 207.4 (19.8)                            | 2335 (1060)                       | 45/162                    | 2" - 115"        | 12840             |
| 360x855         | Sing/Bk             | 10'2" x 23'4" x 11"                      | 3.08 x 7.11 x 0.28                  | 235.4 (21.9)                        | 218.9 (21.0)                            | 2465 (1119)                       | 45/171                    | 2" - 115"        | 13560             |
| 360x900         | Sing/Bk             | 10'2" x 24'6" x 11"                      | 3.08 x 7.47 x 0.28                  | 247.5 (23.0)                        | 230.4 (22.2)                            | 2560 (1162)                       | 45/180                    | 2" - 115"        | 14225             |
| 360x945         | Sing/Bk             | 10'2" x 25'9" x 11"                      | 3.08 x 7.84 x 0.28                  | 259.6 (24.1)                        | 242 (23.1)                              | 2655 (1205)                       | 45/189                    | 2" - 115"        | 14885             |
| 360x990         | Sing/Bk             | 10'2" x 26'11" x 11"                     | 3.08 x 8.2 x 0.28                   | 271.7 (25.3)                        | 253.5 (24.3)                            | 2785 (1264)                       | 45/198                    | 2" - 115"        | 15605             |
| 360x1035        | Sing/Bk             | 10'2" x 28'2" x 11"                      | 3.08 x 8.57 x 0.28                  | 283.9 (26.4)                        | 265 (25.5)                              | 2880 (1307)                       | 45/207                    | 2" - 115"        | 16265             |
| 360x1080        | Sing/Bk             | 10'2" x 29'4" x 11"                      | 3.08 x 8.94 x 0.28                  | 296 (27.5)                          | 276.5 (26.4)                            | 2980 (1352)                       | 45/216                    | 2" - 115"        | 16925             |
| 360x1125        | Sing/Bk             | 10'2" x 30'6" x 11"                      | 3.08 x 9.3 x 0.28                   | 308.1 (28.6)                        | 288 (27.6)                              | 3105 (1409)                       | 45/225                    | 2" - 115"        | 17650             |
| 360x1170        | Sing/Bk             | 10'2" x 31'9" x 11"                      | 3.08 x 9.67 x 0.28                  | 320.2 (29.8)                        | 299.6 (28.8)                            | 3205 (1454)                       | 45/234                    | 2" - 115"        | 18310             |
| 360x1215        | Sing/Bk             | 10'2" x 32'11" x 11"                     | 3.08 x 10.03 x 0.28                 | 332.3 (30.9)                        | 311.1 (29.7)                            | 3300 (1497)                       | 45/243                    | 2" - 115"        | 18970             |
| 360x1260        | Sing/Bk             | 10'2" x 34'2" x 11"                      | 3.08 x 10.4 x 0.28                  | 344.5 (32.0)                        | 322.6 (30.9)                            | 3430 (1556)                       | 45/252                    | 2" - 115"        | 19690             |
| 360x1305        | Sing/Bk             | 10'2" x 35'4" x 11"                      | 3.08 x 10.76 x 0.28                 | 356.6 (33.1)                        | 334.1 (32.1)                            | 3525 (1599)                       | 45/261                    | 2" - 115"        | 20350             |
| 360x1350        | Sing/Bk             | 10'2" x 36'6" x 11"                      | 3.08 x 11.13 x 0.28                 | 368.7 (34.3)                        | 345.6 (33.0)                            | 3620 (1643)                       | 45/270                    | 2" - 115"        | 21010             |
| 360x1395        | Sing/Bk             | 10'2" x 37'9" x 11"                      | 3.08 x 11.5 x 0.28                  | 380.8 (35.4)                        | 357.2 (34.2)                            | 3750 (1701)                       | 45/279                    | 2" - 115"        | 21735             |
| 405x180         | Multi/Bk            | 11'4" x 5'4" x 11"                       | 3.45 x 1.62 x 0.28                  | 59.9 (5.6)                          | 51.9 (5.0)                              | 960 (436)                         | 50/36                     | 2" - 129"        | 3260              |
| 405x225         | Multi/Bk            | 11'4" x 6'6" x 11"                       | 3.45 x 1.99 x 0.28                  | 73.5 (6.9)                          | 64.8 (6.3)                              | 1080 (490)                        | 50/45                     | 2" - 129"        | 4005              |
| 405x270         | Multi/Bk            | 11'4" x 7'9" x 11"                       | 3.45 x 2.35 x 0.28                  | 87.1 (8.1)                          | 77.8 (7.3)                              | 1195 (543)                        | 50/54                     | 2" - 129"        | 4745              |
| 405x315         | Multi/Bk            | 11'4" x 8'11" x 11"                      | 3.45 x 2.72 x 0.28                  | 100.6 (9.4)                         | 90.8 (8.6)                              | 1360 (617)                        | 50/63                     | 2" - 129"        | 5610              |



# GALAXY® GT6x 8 MM PRODUCT SPECIFICATIONS

| Lines x Columns | Sections/Ventilated | Cabinet Dimensions Feet-Inches H x W x D | Cabinet Dimensions Meters H x W x D | Cabinet Square Feet (Square Meters) | Active Area Square Feet (Square Meters) | Cabinet Weight Pounds (kilograms) | Lines/Characters per line | Character Height | Maximum Watts RGB |
|-----------------|---------------------|------------------------------------------|-------------------------------------|-------------------------------------|-----------------------------------------|-----------------------------------|---------------------------|------------------|-------------------|
| 405x360         | Multi/Bk            | 11'4" x 10'2" x 11"                      | 3.45 x 3.08 x 0.28                  | 114.2 (10.6)                        | 103.7 (9.9)                             | 1480 (672)                        | 50/72                     | 2" - 129"        | 6355              |
| 405x405         | Multi/Bk            | 11'4" x 11'4" x 11"                      | 3.45 x 3.45 x 0.28                  | 127.7 (11.9)                        | 116.7 (10.9)                            | 1595 (724)                        | 50/81                     | 2" - 129"        | 7095              |
| 405x450         | Multi/Bk            | 11'4" x 12'6" x 11"                      | 3.45 x 3.81 x 0.28                  | 141.3 (13.1)                        | 129.6 (12.2)                            | 1760 (799)                        | 50/90                     | 2" - 129"        | 7960              |
| 405x495         | Multi/Bk            | 11'4" x 13'9" x 11"                      | 3.45 x 4.18 x 0.28                  | 154.9 (14.4)                        | 142.6 (13.5)                            | 1880 (853)                        | 50/99                     | 2" - 129"        | 8705              |
| 405x540         | Multi/Bk            | 11'4" x 14'11" x 11"                     | 3.45 x 4.55 x 0.28                  | 168.4 (15.7)                        | 155.6 (14.5)                            | 1995 (905)                        | 50/108                    | 2" - 129"        | 9450              |
| 405x585         | Multi/Bk            | 11'4" x 16'2" x 11"                      | 3.45 x 4.91 x 0.28                  | 182 (16.9)                          | 168.5 (15.8)                            | 2160 (980)                        | 50/117                    | 2" - 129"        | 10310             |
| 405x630         | Multi/Bk            | 11'4" x 17'4" x 11"                      | 3.45 x 5.28 x 0.28                  | 195.5 (18.2)                        | 181.5 (17.2)                            | 2280 (1035)                       | 50/126                    | 2" - 129"        | 11055             |
| 405x675         | Multi/Bk            | 11'4" x 18'6" x 11"                      | 3.45 x 5.64 x 0.28                  | 209.1 (19.5)                        | 194.4 (18.2)                            | 2395 (1087)                       | 50/135                    | 2" - 129"        | 12340             |
| 405x720         | Multi/Bk            | 11'4" x 19'9" x 11"                      | 3.45 x 6.01 x 0.28                  | 222.7 (20.7)                        | 207.4 (19.5)                            | 2560 (1162)                       | 50/144                    | 2" - 129"        | 13200             |
| 405x765         | Multi/Bk            | 11'4" x 20'11" x 11"                     | 3.45 x 6.38 x 0.28                  | 236.2 (22.0)                        | 220.4 (20.8)                            | 2680 (1216)                       | 50/153                    | 2" - 129"        | 13945             |
| 405x810         | Multi/Bk            | 11'4" x 22'2" x 11"                      | 3.45 x 6.74 x 0.28                  | 249.8 (23.3)                        | 233.3 (21.8)                            | 2795 (1268)                       | 50/162                    | 2" - 129"        | 14690             |
| 405x855         | Multi/Bk            | 11'4" x 23'4" x 11"                      | 3.45 x 7.11 x 0.28                  | 263.3 (24.5)                        | 246.3 (23.1)                            | 2960 (1343)                       | 50/171                    | 2" - 129"        | 15555             |
| 405x900         | Multi/Bk            | 11'4" x 24'6" x 11"                      | 3.45 x 7.47 x 0.28                  | 276.9 (25.8)                        | 259.2 (24.4)                            | 3080 (1398)                       | 50/180                    | 2" - 129"        | 16295             |
| 405x945         | Multi/Bk            | 11'4" x 25'9" x 11"                      | 3.45 x 7.84 x 0.28                  | 290.5 (27.0)                        | 272.2 (25.4)                            | 3195 (1450)                       | 50/189                    | 2" - 129"        | 17040             |
| 405x990         | Multi/Bk            | 11'4" x 26'11" x 11"                     | 3.45 x 8.2 x 0.28                   | 304 (28.3)                          | 285.2 (26.7)                            | 3380 (1534)                       | 50/198                    | 2" - 129"        | 17905             |
| 405x1035        | Multi/Bk            | 11'4" x 28'2" x 11"                      | 3.45 x 8.57 x 0.28                  | 317.6 (29.6)                        | 298.1 (28.1)                            | 3500 (1588)                       | 50/207                    | 2" - 129"        | 18645             |
| 405x1080        | Multi/Bk            | 11'4" x 29'4" x 11"                      | 3.45 x 8.94 x 0.28                  | 331.1 (30.8)                        | 311.1 (29.0)                            | 3615 (1640)                       | 50/216                    | 2" - 129"        | 19390             |
| 405x1125        | Multi/Bk            | 11'4" x 30'6" x 11"                      | 3.45 x 9.3 x 0.28                   | 344.7 (32.1)                        | 324 (30.4)                              | 3780 (1715)                       | 50/225                    | 2" - 129"        | 20255             |
| 405x1170        | Multi/Bk            | 11'4" x 31'9" x 11"                      | 3.45 x 9.67 x 0.28                  | 358.3 (33.4)                        | 337 (31.7)                              | 4035 (1831)                       | 50/234                    | 2" - 129"        | 20995             |
| 405x1215        | Multi/Bk            | 11'4" x 32'11" x 11"                     | 3.45 x 10.03 x 0.28                 | 371.8 (34.6)                        | 350 (32.7)                              | 4150 (1883)                       | 50/243                    | 2" - 129"        | 21740             |
| 405x1260        | Multi/Bk            | 11'4" x 34'2" x 11"                      | 3.45 x 10.4 x 0.28                  | 385.4 (35.9)                        | 362.9 (34.0)                            | 4315 (1958)                       | 50/252                    | 2" - 129"        | 22605             |
| 405x1305        | Multi/Bk            | 11'4" x 35'4" x 11"                      | 3.45 x 10.76 x 0.28                 | 398.9 (37.1)                        | 375.9 (35.3)                            | 4435 (2012)                       | 50/261                    | 2" - 129"        | 23345             |
| 405x1350        | Multi/Bk            | 11'4" x 36'6" x 11"                      | 3.45 x 11.13 x 0.28                 | 412.5 (38.4)                        | 388.8 (36.3)                            | 4550 (2064)                       | 50/270                    | 2" - 129"        | 24090             |
| 405x1395        | Multi/Bk            | 11'4" x 37'9" x 11"                      | 3.45 x 11.5 x 0.28                  | 426.1 (39.7)                        | 401.8 (37.6)                            | 4715 (2139)                       | 50/279                    | 2" - 129"        | 24955             |
| 450x180         | Multi/Bk            | 12'6" x 5'4" x 11"                       | 3.81 x 1.62 x 0.28                  | 66.3 (6.2)                          | 57.6 (5.6)                              | 1015 (461)                        | 56/36                     | 2" - 144"        | 3635              |
| 450x225         | Multi/Bk            | 12'6" x 6'6" x 11"                       | 3.81 x 1.99 x 0.28                  | 81.3 (7.6)                          | 72 (7.0)                                | 1145 (520)                        | 56/45                     | 2" - 144"        | 4460              |
| 450x270         | Multi/Bk            | 12'6" x 7'9" x 11"                       | 3.81 x 2.35 x 0.28                  | 96.3 (9.0)                          | 86.4 (8.1)                              | 1280 (581)                        | 56/54                     | 2" - 144"        | 5285              |
| 450x315         | Multi/Bk            | 12'6" x 8'11" x 11"                      | 3.81 x 2.72 x 0.28                  | 111.3 (10.4)                        | 100.8 (9.6)                             | 1450 (658)                        | 56/63                     | 2" - 144"        | 6230              |
| 450x360         | Multi/Bk            | 12'6" x 10'2" x 11"                      | 3.81 x 3.08 x 0.28                  | 126.3 (11.7)                        | 115.2 (11.1)                            | 1580 (717)                        | 56/72                     | 2" - 144"        | 7060              |
| 450x405         | Multi/Bk            | 12'6" x 11'4" x 11"                      | 3.81 x 3.45 x 0.28                  | 141.3 (13.1)                        | 129.6 (12.2)                            | 1715 (778)                        | 56/81                     | 2" - 144"        | 7885              |
| 450x450         | Multi/Bk            | 12'6" x 12'6" x 11"                      | 3.81 x 3.81 x 0.28                  | 156.3 (14.5)                        | 144 (13.7)                              | 1880 (853)                        | 56/90                     | 2" - 144"        | 8830              |
| 450x495         | Multi/Bk            | 12'6" x 13'9" x 11"                      | 3.81 x 4.18 x 0.28                  | 171.3 (15.9)                        | 158.4 (15.2)                            | 2015 (914)                        | 56/99                     | 2" - 144"        | 9655              |
| 450x540         | Multi/Bk            | 12'6" x 14'11" x 11"                     | 3.81 x 4.55 x 0.28                  | 186.3 (17.3)                        | 172.8 (16.3)                            | 2150 (976)                        | 56/108                    | 2" - 144"        | 10480             |
| 450x585         | Multi/Bk            | 12'6" x 16'2" x 11"                      | 3.81 x 4.91 x 0.28                  | 201.3 (18.7)                        | 187.2 (17.8)                            | 2315 (1051)                       | 56/117                    | 2" - 144"        | 11430             |
| 450x630         | Multi/Bk            | 12'6" x 17'4" x 11"                      | 3.81 x 5.28 x 0.28                  | 216.3 (20.1)                        | 201.6 (19.2)                            | 2450 (1112)                       | 56/126                    | 2" - 144"        | 12255             |
| 450x675         | Multi/Bk            | 12'6" x 18'6" x 11"                      | 3.81 x 5.64 x 0.28                  | 231.3 (21.5)                        | 216 (20.4)                              | 2585 (1173)                       | 56/135                    | 2" - 144"        | 14160             |
| 450x720         | Multi/Bk            | 12'6" x 19'9" x 11"                      | 3.81 x 6.01 x 0.28                  | 246.3 (22.9)                        | 230.4 (21.8)                            | 2750 (1248)                       | 56/144                    | 2" - 144"        | 15110             |
| 450x765         | Multi/Bk            | 12'6" x 20'11" x 11"                     | 3.81 x 6.38 x 0.28                  | 261.3 (24.3)                        | 244.8 (23.3)                            | 2885 (1309)                       | 56/153                    | 2" - 144"        | 15935             |
| 450x810         | Multi/Bk            | 12'6" x 22'2" x 11"                      | 3.81 x 6.74 x 0.28                  | 276.3 (25.7)                        | 259.2 (24.4)                            | 3020 (1370)                       | 56/162                    | 2" - 144"        | 16760             |
| 450x855         | Multi/Bk            | 12'6" x 23'4" x 11"                      | 3.81 x 7.11 x 0.28                  | 291.3 (27.1)                        | 273.6 (25.9)                            | 3185 (1445)                       | 56/171                    | 2" - 144"        | 17705             |
| 450x900         | Multi/Bk            | 12'6" x 24'6" x 11"                      | 3.81 x 7.47 x 0.28                  | 306.3 (28.5)                        | 288 (27.4)                              | 3320 (1506)                       | 56/180                    | 2" - 144"        | 18530             |
| 450x945         | Multi/Bk            | 12'6" x 25'9" x 11"                      | 3.81 x 7.84 x 0.28                  | 321.3 (29.9)                        | 302.4 (28.5)                            | 3455 (1568)                       | 56/189                    | 2" - 144"        | 19360             |
| 450x990         | Multi/Bk            | 12'6" x 26'11" x 11"                     | 3.81 x 8.2 x 0.28                   | 336.3 (31.2)                        | 316.8 (30.0)                            | 3640 (1652)                       | 56/198                    | 2" - 144"        | 20305             |
| 450x1035        | Multi/Bk            | 12'6" x 28'2" x 11"                      | 3.81 x 8.57 x 0.28                  | 351.3 (32.7)                        | 331.2 (31.5)                            | 3775 (1713)                       | 56/207                    | 2" - 144"        | 21130             |
| 450x1080        | Multi/Bk            | 12'6" x 29'4" x 11"                      | 3.81 x 8.94 x 0.28                  | 366.3 (34.1)                        | 345.6 (32.6)                            | 3910 (1774)                       | 56/216                    | 2" - 144"        | 21955             |
| 450x1125        | Multi/Bk            | 12'6" x 30'6" x 11"                      | 3.81 x 9.3 x 0.28                   | 381.3 (35.4)                        | 360 (34.0)                              | 4075 (1849)                       | 56/225                    | 2" - 144"        | 22900             |
| 450x1170        | Multi/Bk            | 12'6" x 31'9" x 11"                      | 3.81 x 9.67 x 0.28                  | 396.3 (36.8)                        | 374.4 (35.5)                            | 4355 (1976)                       | 56/234                    | 2" - 144"        | 23730             |
| 450x1215        | Multi/Bk            | 12'6" x 32'11" x 11"                     | 3.81 x 10.03 x 0.28                 | 411.3 (38.2)                        | 388.8 (36.6)                            | 4490 (2037)                       | 56/243                    | 2" - 144"        | 24555             |
| 450x1260        | Multi/Bk            | 12'6" x 34'2" x 11"                      | 3.81 x 10.4 x 0.28                  | 426.3 (39.6)                        | 403.2 (38.1)                            | 4655 (2112)                       | 56/252                    | 2" - 144"        | 25500             |
| 450x1305        | Multi/Bk            | 12'6" x 35'4" x 11"                      | 3.81 x 10.76 x 0.28                 | 441.3 (41.0)                        | 417.6 (39.6)                            | 4790 (2173)                       | 56/261                    | 2" - 144"        | 26325             |
| 450x1350        | Multi/Bk            | 12'6" x 36'6" x 11"                      | 3.81 x 11.13 x 0.28                 | 456.3 (42.4)                        | 432 (40.7)                              | 4925 (2234)                       | 56/270                    | 2" - 144"        | 27150             |
| 450x1395        | Multi/Bk            | 12'6" x 37'9" x 11"                      | 3.81 x 11.5 x 0.28                  | 471.3 (43.8)                        | 446.4 (42.2)                            | 5090 (2309)                       | 56/279                    | 2" - 144"        | 28100             |
| 495x180         | Multi/Bk            | 13'9" x 5'4" x 11"                       | 4.18 x 1.62 x 0.28                  | 72.7 (6.8)                          | 63.4 (6.2)                              | 1080 (490)                        | 61/36                     | 2" - 158"        | 3965              |
| 495x225         | Multi/Bk            | 13'9" x 6'6" x 11"                       | 4.18 x 1.99 x 0.28                  | 89.1 (8.3)                          | 79.2 (7.8)                              | 1225 (556)                        | 61/45                     | 2" - 158"        | 4875              |
| 495x270         | Multi/Bk            | 13'9" x 7'9" x 11"                       | 4.18 x 2.35 x 0.28                  | 105.5 (9.8)                         | 95.1 (9.0)                              | 1365 (620)                        | 61/54                     | 2" - 158"        | 5780              |
| 495x315         | Multi/Bk            | 13'9" x 8'11" x 11"                      | 4.18 x 2.72 x 0.28                  | 122 (11.4)                          | 110.9 (10.7)                            | 1550 (704)                        | 61/63                     | 2" - 158"        | 6810              |
| 495x360         | Multi/Bk            | 13'9" x 10'2" x 11"                      | 4.18 x 3.08 x 0.28                  | 138.4 (12.9)                        | 126.8 (12.3)                            | 1690 (767)                        | 61/72                     | 2" - 158"        | 7720              |



# GALAXY® GT6x 8 MM PRODUCT SPECIFICATIONS

| Lines x Columns | Sections/Ventilated | Cabinet Dimensions Feet-Inches H x W x D | Cabinet Dimensions Meters H x W x D | Cabinet Square Feet (Square Meters) | Active Area Square Feet (Square Meters) | Cabinet Weight Pounds (kilograms) | Lines/Characters per line | Character Height | Maximum Watts RGB |
|-----------------|---------------------|------------------------------------------|-------------------------------------|-------------------------------------|-----------------------------------------|-----------------------------------|---------------------------|------------------|-------------------|
| 495x405         | Multi/Bk            | 13'9" x 11'4" x 11"                      | 4.18 x 3.45 x 0.28                  | 154.9 (14.4)                        | 142.6 (13.5)                            | 1835 (833)                        | 61/81                     | 2" - 158"        | 8630              |
| 495x450         | Multi/Bk            | 13'9" x 12'6" x 11"                      | 4.18 x 3.81 x 0.28                  | 171.3 (15.9)                        | 158.4 (15.2)                            | 2020 (917)                        | 61/90                     | 2" - 158"        | 9655              |
| 495x495         | Multi/Bk            | 13'9" x 13'9" x 11"                      | 4.18 x 4.18 x 0.28                  | 187.7 (17.5)                        | 174.3 (16.8)                            | 2160 (980)                        | 61/99                     | 2" - 158"        | 10565             |
| 495x540         | Multi/Bk            | 13'9" x 14'11" x 11"                     | 4.18 x 4.55 x 0.28                  | 204.2 (19.0)                        | 190.1 (18.0)                            | 2300 (1044)                       | 61/108                    | 2" - 158"        | 11475             |
| 495x585         | Multi/Bk            | 13'9" x 16'2" x 11"                      | 4.18 x 4.91 x 0.28                  | 220.6 (20.5)                        | 206 (19.7)                              | 2490 (1130)                       | 61/117                    | 2" - 158"        | 13045             |
| 495x630         | Multi/Bk            | 13'9" x 17'4" x 11"                      | 4.18 x 5.28 x 0.28                  | 237.1 (22.1)                        | 221.8 (21.3)                            | 2630 (1193)                       | 61/126                    | 2" - 158"        | 13950             |
| 495x675         | Multi/Bk            | 13'9" x 18'6" x 11"                      | 4.18 x 5.64 x 0.28                  | 253.5 (23.6)                        | 237.6 (22.6)                            | 2770 (1257)                       | 61/135                    | 2" - 158"        | 15400             |
| 495x720         | Multi/Bk            | 13'9" x 19'9" x 11"                      | 4.18 x 6.01 x 0.28                  | 269.9 (25.1)                        | 253.5 (24.2)                            | 2960 (1343)                       | 61/144                    | 2" - 158"        | 16430             |
| 495x765         | Multi/Bk            | 13'9" x 20'11" x 11"                     | 4.18 x 6.38 x 0.28                  | 286.4 (26.7)                        | 269.3 (25.8)                            | 3100 (1407)                       | 61/153                    | 2" - 158"        | 17340             |
| 495x810         | Multi/Bk            | 13'9" x 22'2" x 11"                      | 4.18 x 6.74 x 0.28                  | 302.8 (28.2)                        | 285.2 (27.1)                            | 3240 (1470)                       | 61/162                    | 2" - 158"        | 18245             |
| 495x855         | Multi/Bk            | 13'9" x 23'4" x 11"                      | 4.18 x 7.11 x 0.28                  | 319.3 (29.7)                        | 301 (28.7)                              | 3430 (1556)                       | 61/171                    | 2" - 158"        | 19275             |
| 495x900         | Multi/Bk            | 13'9" x 24'6" x 11"                      | 4.18 x 7.47 x 0.28                  | 335.7 (31.2)                        | 316.8 (30.3)                            | 3570 (1620)                       | 61/180                    | 2" - 158"        | 20185             |
| 495x945         | Multi/Bk            | 13'9" x 25'9" x 11"                      | 4.18 x 7.84 x 0.28                  | 352.1 (32.8)                        | 332.7 (31.6)                            | 3710 (1683)                       | 61/189                    | 2" - 158"        | 21095             |
| 495x990         | Multi/Bk            | 13'9" x 26'11" x 11"                     | 4.18 x 8.2 x 0.28                   | 368.6 (34.3)                        | 348.5 (33.2)                            | 3915 (1776)                       | 61/198                    | 2" - 158"        | 22120             |
| 495x1035        | Multi/Bk            | 13'9" x 28'2" x 11"                      | 4.18 x 8.57 x 0.28                  | 385 (35.8)                          | 364.4 (34.9)                            | 4060 (1842)                       | 61/207                    | 2" - 158"        | 23030             |
| 495x1080        | Multi/Bk            | 13'9" x 29'4" x 11"                      | 4.18 x 8.94 x 0.28                  | 401.5 (37.4)                        | 380.2 (36.1)                            | 4200 (1906)                       | 61/216                    | 2" - 158"        | 23940             |
| 495x1125        | Multi/Bk            | 13'9" x 30'6" x 11"                      | 4.18 x 9.3 x 0.28                   | 417.9 (38.9)                        | 396 (37.7)                              | 4385 (1990)                       | 61/225                    | 2" - 158"        | 24965             |
| 495x1170        | Multi/Bk            | 13'9" x 31'9" x 11"                      | 4.18 x 9.67 x 0.28                  | 434.3 (40.4)                        | 411.9 (39.4)                            | 4680 (2123)                       | 61/234                    | 2" - 158"        | 25875             |
| 495x1215        | Multi/Bk            | 13'9" x 32'11" x 11"                     | 4.18 x 10.03 x 0.28                 | 450.8 (41.9)                        | 427.7 (40.6)                            | 4825 (2189)                       | 61/243                    | 2" - 158"        | 26785             |
| 495x1260        | Multi/Bk            | 13'9" x 34'2" x 11"                      | 4.18 x 10.4 x 0.28                  | 467.2 (43.5)                        | 443.6 (42.2)                            | 5010 (2273)                       | 61/252                    | 2" - 158"        | 27815             |
| 495x1305        | Multi/Bk            | 13'9" x 35'4" x 11"                      | 4.18 x 10.76 x 0.28                 | 483.7 (45.0)                        | 459.4 (43.9)                            | 5150 (2337)                       | 61/261                    | 2" - 158"        | 28720             |
| 495x1350        | Multi/Bk            | 13'9" x 36'6" x 11"                      | 4.18 x 11.13 x 0.28                 | 500.1 (46.5)                        | 475.2 (45.1)                            | 5290 (2400)                       | 61/270                    | 2" - 158"        | 29630             |
| 495x1395        | Multi/Bk            | 13'9" x 37'9" x 11"                      | 4.18 x 11.5 x 0.28                  | 516.5 (48.1)                        | 491.1 (46.7)                            | 5480 (2486)                       | 61/279                    | 2" - 158"        | 30660             |
| 540x180         | Multi/Bk            | 14'11" x 5'4" x 11"                      | 4.55 x 1.62 x 0.28                  | 79 (7.4)                            | 69.2 (6.6)                              | 1135 (515)                        | 67/36                     | 2" - 172"        | 4295              |
| 540x225         | Multi/Bk            | 14'11" x 6'6" x 11"                      | 4.55 x 1.99 x 0.28                  | 96.9 (9.1)                          | 86.4 (8.4)                              | 1290 (586)                        | 67/45                     | 2" - 172"        | 5285              |
| 540x270         | Multi/Bk            | 14'11" x 7'9" x 11"                      | 4.55 x 2.35 x 0.28                  | 114.8 (10.7)                        | 103.7 (9.7)                             | 1450 (658)                        | 67/54                     | 2" - 172"        | 6280              |
| 540x315         | Multi/Bk            | 14'11" x 8'11" x 11"                     | 4.55 x 2.72 x 0.28                  | 132.7 (12.4)                        | 121 (11.4)                              | 1640 (744)                        | 67/63                     | 2" - 172"        | 7390              |
| 540x360         | Multi/Bk            | 14'11" x 10'2" x 11"                     | 4.55 x 3.08 x 0.28                  | 150.5 (14.0)                        | 138.3 (13.2)                            | 1795 (815)                        | 67/72                     | 2" - 172"        | 8380              |
| 540x405         | Multi/Bk            | 14'11" x 11'4" x 11"                     | 4.55 x 3.45 x 0.28                  | 168.4 (15.7)                        | 155.6 (14.5)                            | 1950 (885)                        | 67/81                     | 2" - 172"        | 9370              |
| 540x450         | Multi/Bk            | 14'11" x 12'6" x 11"                     | 4.55 x 3.81 x 0.28                  | 186.3 (17.3)                        | 172.8 (16.3)                            | 2140 (971)                        | 67/90                     | 2" - 172"        | 10480             |
| 540x495         | Multi/Bk            | 14'11" x 13'9" x 11"                     | 4.55 x 4.18 x 0.28                  | 204.2 (19.0)                        | 190.1 (18.0)                            | 2300 (1044)                       | 67/99                     | 2" - 172"        | 11475             |
| 540x540         | Multi/Bk            | 14'11" x 14'11" x 11"                    | 4.55 x 4.55 x 0.28                  | 222.1 (20.7)                        | 207.4 (19.4)                            | 2455 (1114)                       | 67/108                    | 2" - 172"        | 12465             |
| 540x585         | Multi/Bk            | 14'11" x 16'2" x 11"                     | 4.55 x 4.91 x 0.28                  | 239.9 (22.3)                        | 224.7 (21.1)                            | 2645 (1200)                       | 67/117                    | 2" - 172"        | 14655             |
| 540x630         | Multi/Bk            | 14'11" x 17'4" x 11"                     | 4.55 x 5.28 x 0.28                  | 257.8 (24.0)                        | 242 (22.9)                              | 2805 (1273)                       | 67/126                    | 2" - 172"        | 15650             |
| 540x675         | Multi/Bk            | 14'11" x 18'6" x 11"                     | 4.55 x 5.64 x 0.28                  | 275.7 (25.7)                        | 259.2 (24.2)                            | 2960 (1343)                       | 67/135                    | 2" - 172"        | 16640             |
| 540x720         | Multi/Bk            | 14'11" x 19'9" x 11"                     | 4.55 x 6.01 x 0.28                  | 293.6 (27.3)                        | 276.5 (26.0)                            | 3150 (1429)                       | 67/144                    | 2" - 172"        | 17750             |
| 540x765         | Multi/Bk            | 14'11" x 20'11" x 11"                    | 4.55 x 6.38 x 0.28                  | 311.5 (29.0)                        | 293.8 (27.7)                            | 3305 (1500)                       | 67/153                    | 2" - 172"        | 18740             |
| 540x810         | Multi/Bk            | 14'11" x 22'2" x 11"                     | 4.55 x 6.74 x 0.28                  | 329.3 (30.7)                        | 311.1 (29.0)                            | 3465 (1572)                       | 67/162                    | 2" - 172"        | 19735             |
| 540x855         | Multi/Bk            | 14'11" x 23'4" x 11"                     | 4.55 x 7.11 x 0.28                  | 347.2 (32.4)                        | 328.4 (30.8)                            | 3655 (1658)                       | 67/171                    | 2" - 172"        | 20845             |
| 540x900         | Multi/Bk            | 14'11" x 24'6" x 11"                     | 4.55 x 7.47 x 0.28                  | 365.1 (34.0)                        | 345.6 (32.6)                            | 3810 (1729)                       | 67/180                    | 2" - 172"        | 21835             |
| 540x945         | Multi/Bk            | 14'11" x 25'9" x 11"                     | 4.55 x 7.84 x 0.28                  | 383 (35.7)                          | 362.9 (33.9)                            | 3970 (1801)                       | 67/189                    | 2" - 172"        | 22830             |
| 540x990         | Multi/Bk            | 14'11" x 26'11" x 11"                    | 4.55 x 8.2 x 0.28                   | 400.9 (37.3)                        | 380.2 (35.6)                            | 4175 (1894)                       | 67/198                    | 2" - 172"        | 23940             |
| 540x1035        | Multi/Bk            | 14'11" x 28'2" x 11"                     | 4.55 x 8.57 x 0.28                  | 418.7 (39.0)                        | 397.5 (37.4)                            | 4335 (1967)                       | 67/207                    | 2" - 172"        | 24930             |
| 540x1080        | Multi/Bk            | 14'11" x 29'4" x 11"                     | 4.55 x 8.94 x 0.28                  | 436.6 (40.7)                        | 414.8 (38.7)                            | 4490 (2037)                       | 67/216                    | 2" - 172"        | 25920             |
| 540x1125        | Multi/Bk            | 14'11" x 30'6" x 11"                     | 4.55 x 9.3 x 0.28                   | 454.5 (42.3)                        | 432 (40.5)                              | 4680 (2123)                       | 67/225                    | 2" - 172"        | 27030             |
| 540x1170        | Multi/Bk            | 14'11" x 31'9" x 11"                     | 4.55 x 9.67 x 0.28                  | 472.4 (44.0)                        | 449.3 (42.2)                            | 5000 (2268)                       | 67/234                    | 2" - 172"        | 28025             |
| 540x1215        | Multi/Bk            | 14'11" x 32'11" x 11"                    | 4.55 x 10.03 x 0.28                 | 490.3 (45.6)                        | 466.6 (43.6)                            | 5160 (2341)                       | 67/243                    | 2" - 172"        | 29015             |
| 540x1260        | Multi/Bk            | 14'11" x 34'2" x 11"                     | 4.55 x 10.4 x 0.28                  | 508.1 (47.3)                        | 483.9 (45.3)                            | 5350 (2427)                       | 67/252                    | 2" - 172"        | 30125             |
| 540x1305        | Multi/Bk            | 14'11" x 35'4" x 11"                     | 4.55 x 10.76 x 0.28                 | 526 (49.0)                          | 501.2 (47.1)                            | 5505 (2498)                       | 67/261                    | 2" - 172"        | 31120             |
| 540x1350        | Multi/Bk            | 14'11" x 36'6" x 11"                     | 4.55 x 11.13 x 0.28                 | 543.9 (50.6)                        | 518.4 (48.4)                            | 5665 (2570)                       | 67/270                    | 2" - 172"        | 32110             |
| 540x1395        | Multi/Bk            | 14'11" x 37'9" x 11"                     | 4.55 x 11.5 x 0.28                  | 561.8 (52.3)                        | 535.7 (50.2)                            | 5855 (2656)                       | 67/279                    | 2" - 172"        | 33220             |
| 585x180         | Multi/Bk            | 16'2" x 5'4" x 11"                       | 4.91 x 1.62 x 0.28                  | 85.4 (8.0)                          | 74.9 (7.2)                              | 1205 (547)                        | 73/36                     | 2" - 187"        | 4625              |
| 585x225         | Multi/Bk            | 16'2" x 6'6" x 11"                       | 4.91 x 1.99 x 0.28                  | 104.7 (9.8)                         | 93.6 (9.1)                              | 1370 (622)                        | 73/45                     | 2" - 187"        | 5700              |
| 585x270         | Multi/Bk            | 16'2" x 7'9" x 11"                       | 4.91 x 2.35 x 0.28                  | 124 (11.5)                          | 112.4 (10.6)                            | 1540 (699)                        | 73/54                     | 2" - 187"        | 6775              |
| 585x315         | Multi/Bk            | 16'2" x 8'11" x 11"                      | 4.91 x 2.72 x 0.28                  | 143.3 (13.4)                        | 131.1 (12.5)                            | 1745 (792)                        | 73/63                     | 2" - 187"        | 7970              |
| 585x360         | Multi/Bk            | 16'2" x 10'2" x 11"                      | 4.91 x 3.08 x 0.28                  | 162.7 (15.1)                        | 149.8 (14.4)                            | 1915 (869)                        | 73/72                     | 2" - 187"        | 9040              |
| 585x405         | Multi/Bk            | 16'2" x 11'4" x 11"                      | 4.91 x 3.45 x 0.28                  | 182 (16.9)                          | 168.5 (15.8)                            | 2080 (944)                        | 73/81                     | 2" - 187"        | 10115             |



# GALAXY® GT6x 8 MM PRODUCT SPECIFICATIONS

| Lines x Columns | Sections/Ventilated | Cabinet Dimensions Feet-Inches H x W x D | Cabinet Dimensions Meters H x W x D | Cabinet Square Feet (Square Meters) | Active Area Square Feet (Square Meters) | Cabinet Weight Pounds (kilograms) | Lines/Characters per line | Character Height | Maximum Watts RGB |
|-----------------|---------------------|------------------------------------------|-------------------------------------|-------------------------------------|-----------------------------------------|-----------------------------------|---------------------------|------------------|-------------------|
| 585x450         | Multi/Bk            | 16'2" x 12'6" x 11"                      | 4.91 x 3.81 x 0.28                  | 201.3 (18.7)                        | 187.2 (17.8)                            | 2290 (1039)                       | 73/90                     | 2" - 187"        | 11310             |
| 585x495         | Multi/Bk            | 16'2" x 13'9" x 11"                      | 4.91 x 4.18 x 0.28                  | 220.6 (20.5)                        | 206 (19.7)                              | 2455 (1114)                       | 73/99                     | 2" - 187"        | 12925             |
| 585x540         | Multi/Bk            | 16'2" x 14'11" x 11"                     | 4.91 x 4.55 x 0.28                  | 239.9 (22.3)                        | 224.7 (21.1)                            | 2620 (1189)                       | 73/108                    | 2" - 187"        | 13995             |
| 585x585         | Multi/Bk            | 16'2" x 16'2" x 11"                      | 4.91 x 4.91 x 0.28                  | 259.3 (24.1)                        | 243.4 (23.0)                            | 2830 (1284)                       | 73/117                    | 2" - 187"        | 15730             |
| 585x630         | Multi/Bk            | 16'2" x 17'4" x 11"                      | 4.91 x 5.28 x 0.28                  | 278.6 (25.9)                        | 262.1 (25.0)                            | 2995 (1359)                       | 73/126                    | 2" - 187"        | 16805             |
| 585x675         | Multi/Bk            | 16'2" x 18'6" x 11"                      | 4.91 x 5.64 x 0.28                  | 297.9 (27.7)                        | 280.8 (26.4)                            | 3160 (1434)                       | 73/135                    | 2" - 187"        | 17880             |
| 585x720         | Multi/Bk            | 16'2" x 19'9" x 11"                      | 4.91 x 6.01 x 0.28                  | 317.2 (29.5)                        | 299.6 (28.3)                            | 3370 (1529)                       | 73/144                    | 2" - 187"        | 19070             |
| 585x765         | Multi/Bk            | 16'2" x 20'11" x 11"                     | 4.91 x 6.38 x 0.28                  | 336.5 (31.3)                        | 318.3 (30.2)                            | 3535 (1604)                       | 73/153                    | 2" - 187"        | 20145             |
| 585x810         | Multi/Bk            | 16'2" x 22'2" x 11"                      | 4.91 x 6.74 x 0.28                  | 355.9 (33.1)                        | 337 (31.7)                              | 3700 (1679)                       | 73/162                    | 2" - 187"        | 21220             |
| 585x855         | Multi/Bk            | 16'2" x 23'4" x 11"                      | 4.91 x 7.11 x 0.28                  | 375.2 (34.9)                        | 355.7 (33.6)                            | 3910 (1774)                       | 73/171                    | 2" - 187"        | 22415             |
| 585x900         | Multi/Bk            | 16'2" x 24'6" x 11"                      | 4.91 x 7.47 x 0.28                  | 394.5 (36.7)                        | 374.4 (35.5)                            | 4075 (1849)                       | 73/180                    | 2" - 187"        | 23490             |
| 585x945         | Multi/Bk            | 16'2" x 25'9" x 11"                      | 4.91 x 7.84 x 0.28                  | 413.8 (38.5)                        | 393.2 (37.0)                            | 4240 (1924)                       | 73/189                    | 2" - 187"        | 24560             |
| 585x990         | Multi/Bk            | 16'2" x 26'11" x 11"                     | 4.91 x 8.2 x 0.28                   | 433.1 (40.3)                        | 411.9 (38.9)                            | 4470 (2028)                       | 73/198                    | 2" - 187"        | 25755             |
| 585x1035        | Multi/Bk            | 16'2" x 28'2" x 11"                      | 4.91 x 8.57 x 0.28                  | 452.5 (42.1)                        | 430.6 (40.8)                            | 4635 (2103)                       | 73/207                    | 2" - 187"        | 26830             |
| 585x1080        | Multi/Bk            | 16'2" x 29'4" x 11"                      | 4.91 x 8.94 x 0.28                  | 471.8 (43.9)                        | 449.3 (42.2)                            | 4805 (2180)                       | 73/216                    | 2" - 187"        | 27905             |
| 585x1125        | Multi/Bk            | 16'2" x 30'6" x 11"                      | 4.91 x 9.3 x 0.28                   | 491.1 (45.7)                        | 468 (44.2)                              | 5010 (2273)                       | 73/225                    | 2" - 187"        | 29095             |
| 585x1170        | Multi/Bk            | 16'2" x 31'9" x 11"                      | 4.91 x 9.67 x 0.28                  | 510.4 (47.5)                        | 486.8 (46.1)                            | 5350 (2427)                       | 73/234                    | 2" - 187"        | 30170             |
| 585x1215        | Multi/Bk            | 16'2" x 32'11" x 11"                     | 4.91 x 10.03 x 0.28                 | 529.7 (49.2)                        | 505.5 (47.5)                            | 5515 (2502)                       | 73/243                    | 2" - 187"        | 31245             |
| 585x1260        | Multi/Bk            | 16'2" x 34'2" x 11"                      | 4.91 x 10.4 x 0.28                  | 549.1 (51.1)                        | 524.2 (49.4)                            | 5725 (2597)                       | 73/252                    | 2" - 187"        | 32440             |
| 585x1305        | Multi/Bk            | 16'2" x 35'4" x 11"                      | 4.91 x 10.76 x 0.28                 | 568.4 (52.8)                        | 542.9 (51.4)                            | 5890 (2672)                       | 73/261                    | 2" - 187"        | 33515             |
| 585x1350        | Multi/Bk            | 16'2" x 36'6" x 11"                      | 4.91 x 11.13 x 0.28                 | 587.7 (54.6)                        | 561.6 (52.8)                            | 6060 (2749)                       | 73/270                    | 2" - 187"        | 34590             |
| 585x1395        | Multi/Bk            | 16'2" x 37'9" x 11"                      | 4.91 x 11.5 x 0.28                  | 607 (56.5)                          | 580.4 (54.7)                            | 6265 (2842)                       | 73/279                    | 2" - 187"        | 35780             |
| 630x180         | Multi/Bk            | 17'4" x 5'4" x 11"                       | 5.28 x 1.62 x 0.28                  | 91.7 (8.6)                          | 80.7 (7.8)                              | 1280 (581)                        | 78/36                     | 2" - 201"        | 4955              |
| 630x225         | Multi/Bk            | 17'4" x 6'6" x 11"                       | 5.28 x 1.99 x 0.28                  | 112.5 (10.5)                        | 100.8 (9.9)                             | 1455 (660)                        | 78/45                     | 2" - 201"        | 6110              |
| 630x270         | Multi/Bk            | 17'4" x 7'9" x 11"                       | 5.28 x 2.35 x 0.28                  | 133.3 (12.4)                        | 121 (11.4)                              | 1625 (738)                        | 78/54                     | 2" - 201"        | 7270              |
| 630x315         | Multi/Bk            | 17'4" x 8'11" x 11"                      | 5.28 x 2.72 x 0.28                  | 154 (14.4)                          | 141.2 (13.5)                            | 1855 (842)                        | 78/63                     | 2" - 201"        | 8545              |
| 630x360         | Multi/Bk            | 17'4" x 10'2" x 11"                      | 5.28 x 3.08 x 0.28                  | 174.8 (16.3)                        | 161.3 (15.6)                            | 2030 (921)                        | 78/72                     | 2" - 201"        | 9700              |
| 630x405         | Multi/Bk            | 17'4" x 11'4" x 11"                      | 5.28 x 3.45 x 0.28                  | 195.5 (18.2)                        | 181.5 (17.2)                            | 2205 (1001)                       | 78/81                     | 2" - 201"        | 10860             |
| 630x450         | Multi/Bk            | 17'4" x 12'6" x 11"                      | 5.28 x 3.81 x 0.28                  | 216.3 (20.1)                        | 201.6 (19.2)                            | 2435 (1105)                       | 78/90                     | 2" - 201"        | 12135             |
| 630x495         | Multi/Bk            | 17'4" x 13'9" x 11"                      | 5.28 x 4.18 x 0.28                  | 237.1 (22.1)                        | 221.8 (21.3)                            | 2610 (1184)                       | 78/99                     | 2" - 201"        | 14370             |
| 630x540         | Multi/Bk            | 17'4" x 14'11" x 11"                     | 5.28 x 4.55 x 0.28                  | 257.8 (24.0)                        | 242 (22.9)                              | 2780 (1261)                       | 78/108                    | 2" - 201"        | 15530             |
| 630x585         | Multi/Bk            | 17'4" x 16'2" x 11"                      | 5.28 x 4.91 x 0.28                  | 278.6 (25.9)                        | 262.1 (25.0)                            | 3010 (1366)                       | 78/117                    | 2" - 201"        | 16805             |
| 630x630         | Multi/Bk            | 17'4" x 17'4" x 11"                      | 5.28 x 5.28 x 0.28                  | 299.3 (27.9)                        | 282.3 (27.0)                            | 3185 (1445)                       | 78/126                    | 2" - 201"        | 17960             |
| 630x675         | Multi/Bk            | 17'4" x 18'6" x 11"                      | 5.28 x 5.64 x 0.28                  | 320.1 (29.8)                        | 302.4 (28.6)                            | 3360 (1525)                       | 78/135                    | 2" - 201"        | 19120             |
| 630x720         | Multi/Bk            | 17'4" x 19'9" x 11"                      | 5.28 x 6.01 x 0.28                  | 340.9 (31.7)                        | 322.6 (30.7)                            | 3590 (1629)                       | 78/144                    | 2" - 201"        | 20395             |
| 630x765         | Multi/Bk            | 17'4" x 20'11" x 11"                     | 5.28 x 6.38 x 0.28                  | 361.6 (33.7)                        | 342.8 (32.8)                            | 3765 (1708)                       | 78/153                    | 2" - 201"        | 21550             |
| 630x810         | Multi/Bk            | 17'4" x 22'2" x 11"                      | 5.28 x 6.74 x 0.28                  | 382.4 (35.6)                        | 362.9 (34.3)                            | 3940 (1788)                       | 78/162                    | 2" - 201"        | 22710             |
| 630x855         | Multi/Bk            | 17'4" x 23'4" x 11"                      | 5.28 x 7.11 x 0.28                  | 403.1 (37.5)                        | 383.1 (36.4)                            | 4165 (1890)                       | 78/171                    | 2" - 201"        | 23985             |
| 630x900         | Multi/Bk            | 17'4" x 24'6" x 11"                      | 5.28 x 7.47 x 0.28                  | 423.9 (39.4)                        | 403.2 (38.5)                            | 4340 (1969)                       | 78/180                    | 2" - 201"        | 25140             |
| 630x945         | Multi/Bk            | 17'4" x 25'9" x 11"                      | 5.28 x 7.84 x 0.28                  | 444.7 (41.4)                        | 423.4 (40.0)                            | 4515 (2048)                       | 78/189                    | 2" - 201"        | 26295             |
| 630x990         | Multi/Bk            | 17'4" x 26'11" x 11"                     | 5.28 x 8.2 x 0.28                   | 465.4 (43.3)                        | 443.6 (42.1)                            | 4765 (2162)                       | 78/198                    | 2" - 201"        | 27575             |
| 630x1035        | Multi/Bk            | 17'4" x 28'2" x 11"                      | 5.28 x 8.57 x 0.28                  | 486.2 (45.2)                        | 463.7 (44.2)                            | 4940 (2241)                       | 78/207                    | 2" - 201"        | 28730             |
| 630x1080        | Multi/Bk            | 17'4" x 29'4" x 11"                      | 5.28 x 8.94 x 0.28                  | 506.9 (47.2)                        | 483.9 (45.8)                            | 5115 (2321)                       | 78/216                    | 2" - 201"        | 29885             |
| 630x1125        | Multi/Bk            | 17'4" x 30'6" x 11"                      | 5.28 x 9.3 x 0.28                   | 527.7 (49.1)                        | 504 (47.8)                              | 5345 (2425)                       | 78/225                    | 2" - 201"        | 31160             |
| 630x1170        | Multi/Bk            | 17'4" x 31'9" x 11"                      | 5.28 x 9.67 x 0.28                  | 548.5 (51.1)                        | 524.2 (49.9)                            | 5700 (2586)                       | 78/234                    | 2" - 201"        | 32320             |
| 630x1215        | Multi/Bk            | 17'4" x 32'11" x 11"                     | 5.28 x 10.03 x 0.28                 | 569.2 (53.0)                        | 544.4 (51.5)                            | 5875 (2665)                       | 78/243                    | 2" - 201"        | 33475             |
| 630x1260        | Multi/Bk            | 17'4" x 34'2" x 11"                      | 5.28 x 10.4 x 0.28                  | 590 (54.9)                          | 564.5 (53.6)                            | 6105 (2770)                       | 78/252                    | 2" - 201"        | 34750             |
| 630x1305        | Multi/Bk            | 17'4" x 35'4" x 11"                      | 5.28 x 10.76 x 0.28                 | 610.7 (56.8)                        | 584.7 (55.6)                            | 6280 (2849)                       | 78/261                    | 2" - 201"        | 35910             |
| 630x1350        | Multi/Bk            | 17'4" x 36'6" x 11"                      | 5.28 x 11.13 x 0.28                 | 631.5 (58.8)                        | 604.8 (57.2)                            | 6450 (2926)                       | 78/270                    | 2" - 201"        | 37065             |
| 630x1395        | Multi/Bk            | 17'4" x 37'9" x 11"                      | 5.28 x 11.5 x 0.28                  | 652.3 (60.7)                        | 625 (59.3)                              | 6680 (3030)                       | 78/279                    | 2" - 201"        | 38340             |
| 675x180         | Multi/Bk            | 18'6" x 5'4" x 11"                       | 5.64 x 1.62 x 0.28                  | 98.1 (9.1)                          | 86.4 (8.3)                              | 1330 (604)                        | 84/36                     | 2" - 216"        | 5285              |
| 675x225         | Multi/Bk            | 18'6" x 6'6" x 11"                       | 5.64 x 1.99 x 0.28                  | 120.3 (11.2)                        | 108 (10.5)                              | 1510 (685)                        | 84/45                     | 2" - 216"        | 6525              |
| 675x270         | Multi/Bk            | 18'6" x 7'9" x 11"                       | 5.64 x 2.35 x 0.28                  | 142.5 (13.3)                        | 129.6 (12.1)                            | 1695 (769)                        | 84/54                     | 2" - 216"        | 7765              |
| 675x315         | Multi/Bk            | 18'6" x 8'11" x 11"                      | 5.64 x 2.72 x 0.28                  | 164.7 (15.3)                        | 151.2 (14.3)                            | 1935 (878)                        | 84/63                     | 2" - 216"        | 9125              |
| 675x360         | Multi/Bk            | 18'6" x 10'2" x 11"                      | 5.64 x 3.08 x 0.28                  | 186.9 (17.4)                        | 172.8 (16.5)                            | 2115 (960)                        | 84/72                     | 2" - 216"        | 10365             |
| 675x405         | Multi/Bk            | 18'6" x 11'4" x 11"                      | 5.64 x 3.45 x 0.28                  | 209.1 (19.5)                        | 194.4 (18.2)                            | 2295 (1041)                       | 84/81                     | 2" - 216"        | 11600             |
| 675x450         | Multi/Bk            | 18'6" x 12'6" x 11"                      | 5.64 x 3.81 x 0.28                  | 231.3 (21.5)                        | 216 (20.4)                              | 2535 (1150)                       | 84/90                     | 2" - 216"        | 13500             |





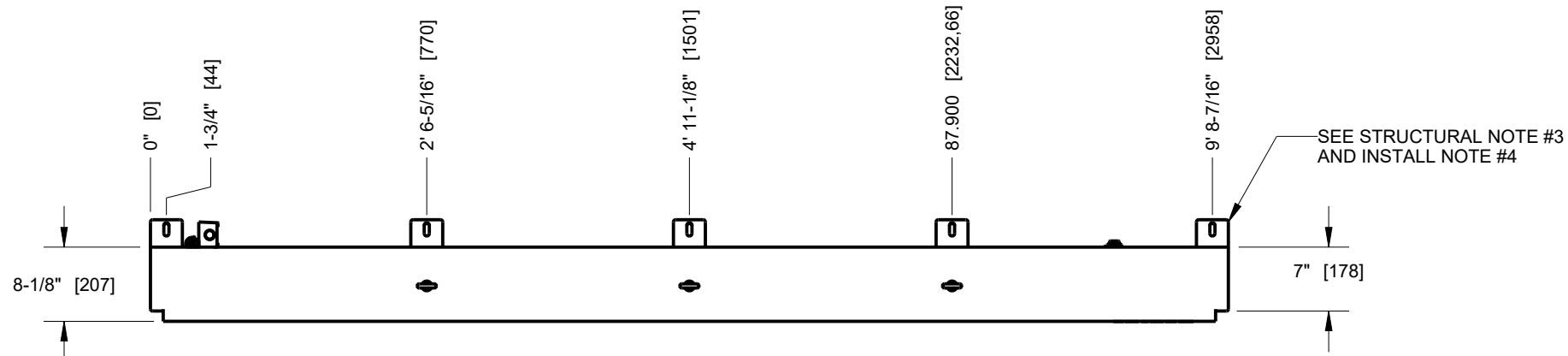
# GALAXY® GT6x 8 MM PRODUCT SPECIFICATIONS

| Lines x Columns | Sections/Ventilated | Cabinet Dimensions Feet-Inches<br>H x W x D | Cabinet Dimensions Meters<br>H x W x D | Cabinet Square Feet<br>(Square Meters) | Active Area Square Feet<br>(Square Meters) | Cabinet Weight Pounds<br>(kilograms) | Lines/Characters per line | Character Height | Maximum Watts RGB |
|-----------------|---------------------|---------------------------------------------|----------------------------------------|----------------------------------------|--------------------------------------------|--------------------------------------|---------------------------|------------------|-------------------|
| 675x495         | Multi/Bk            | 18'6" x 13'9" x 11"                         | 5.64 x 4.18 x 0.28                     | 253.5 (23.6)                           | 237.6 (22.6)                               | 2720 (1234)                          | 84/99                     | 2" - 216"        | 15280             |
| 675x540         | Multi/Bk            | 18'6" x 14'11" x 11"                        | 5.64 x 4.55 x 0.28                     | 275.7 (25.7)                           | 259.2 (24.2)                               | 2900 (1316)                          | 84/108                    | 2" - 216"        | 16520             |
| 675x585         | Multi/Bk            | 18'6" x 16'2" x 11"                         | 5.64 x 4.91 x 0.28                     | 297.9 (27.7)                           | 280.8 (26.4)                               | 3140 (1425)                          | 84/117                    | 2" - 216"        | 17880             |
| 675x630         | Multi/Bk            | 18'6" x 17'4" x 11"                         | 5.64 x 5.28 x 0.28                     | 320.1 (29.8)                           | 302.4 (28.6)                               | 3325 (1509)                          | 84/126                    | 2" - 216"        | 19120             |
| 675x675         | Multi/Bk            | 18'6" x 18'6" x 11"                         | 5.64 x 5.64 x 0.28                     | 342.3 (31.8)                           | 324 (30.3)                                 | 3505 (1590)                          | 84/135                    | 2" - 216"        | 20355             |
| 675x720         | Multi/Bk            | 18'6" x 19'9" x 11"                         | 5.64 x 6.01 x 0.28                     | 364.5 (33.9)                           | 345.6 (32.5)                               | 3745 (1699)                          | 84/144                    | 2" - 216"        | 21715             |
| 675x765         | Multi/Bk            | 18'6" x 20'11" x 11"                        | 5.64 x 6.38 x 0.28                     | 386.7 (36.0)                           | 367.2 (34.7)                               | 3925 (1781)                          | 84/153                    | 2" - 216"        | 22955             |
| 675x810         | Multi/Bk            | 18'6" x 22'2" x 11"                         | 5.64 x 6.74 x 0.28                     | 408.9 (38.0)                           | 388.8 (36.3)                               | 4110 (1865)                          | 84/162                    | 2" - 216"        | 24195             |
| 675x855         | Multi/Bk            | 18'6" x 23'4" x 11"                         | 5.64 x 7.11 x 0.28                     | 431.1 (40.1)                           | 410.4 (38.5)                               | 4350 (1974)                          | 84/171                    | 2" - 216"        | 25555             |
| 675x900         | Multi/Bk            | 18'6" x 24'6" x 11"                         | 5.64 x 7.47 x 0.28                     | 453.3 (42.1)                           | 432 (40.7)                                 | 4530 (2055)                          | 84/180                    | 2" - 216"        | 26790             |
| 675x945         | Multi/Bk            | 18'6" x 25'9" x 11"                         | 5.64 x 7.84 x 0.28                     | 475.5 (44.2)                           | 453.6 (42.4)                               | 4710 (2137)                          | 84/189                    | 2" - 216"        | 28030             |
| 675x990         | Multi/Bk            | 18'6" x 26'11" x 11"                        | 5.64 x 8.2 x 0.28                      | 497.7 (46.2)                           | 475.2 (44.6)                               | 4970 (2255)                          | 84/198                    | 2" - 216"        | 29390             |
| 675x1035        | Multi/Bk            | 18'6" x 28'2" x 11"                         | 5.64 x 8.57 x 0.28                     | 519.9 (48.3)                           | 496.8 (46.8)                               | 5155 (2339)                          | 84/207                    | 2" - 216"        | 30630             |
| 675x1080        | Multi/Bk            | 18'6" x 29'4" x 11"                         | 5.64 x 8.94 x 0.28                     | 542.1 (50.4)                           | 518.4 (48.4)                               | 5335 (2420)                          | 84/216                    | 2" - 216"        | 31870             |
| 675x1125        | Multi/Bk            | 18'6" x 30'6" x 11"                         | 5.64 x 9.3 x 0.28                      | 564.3 (52.5)                           | 540 (50.6)                                 | 5575 (2529)                          | 84/225                    | 2" - 216"        | 33230             |
| 675x1170        | Multi/Bk            | 18'6" x 31'9" x 11"                         | 5.64 x 9.67 x 0.28                     | 586.5 (54.5)                           | 561.6 (52.8)                               | 5950 (2699)                          | 84/234                    | 2" - 216"        | 34470             |
| 675x1215        | Multi/Bk            | 18'6" x 32'11" x 11"                        | 5.64 x 10.03 x 0.28                    | 608.7 (56.6)                           | 583.2 (54.5)                               | 6130 (2781)                          | 84/243                    | 2" - 216"        | 35705             |
| 675x1260        | Multi/Bk            | 18'6" x 34'2" x 11"                         | 5.64 x 10.4 x 0.28                     | 630.9 (58.7)                           | 604.8 (56.7)                               | 6370 (2890)                          | 84/252                    | 2" - 216"        | 37065             |
| 675x1305        | Multi/Bk            | 18'6" x 35'4" x 11"                         | 5.64 x 10.76 x 0.28                    | 653.1 (60.7)                           | 626.4 (58.9)                               | 6555 (2974)                          | 84/261                    | 2" - 216"        | 38305             |
| 675x1350        | Multi/Bk            | 18'6" x 36'6" x 11"                         | 5.64 x 11.13 x 0.28                    | 675.3 (62.8)                           | 648 (60.5)                                 | 6735 (3055)                          | 84/270                    | 2" - 216"        | 39545             |
| 675x1395        | Multi/Bk            | 18'6" x 37'9" x 11"                         | 5.64 x 11.5 x 0.28                     | 697.5 (64.9)                           | 669.6 (62.7)                               | 6975 (3164)                          | 84/279                    | 2" - 216"        | 40905             |
| 720x180         | Multi/Bk            | 19'9" x 5'4" x 11"                          | 6.01 x 1.62 x 0.28                     | 104.5 (9.7)                            | 92.2 (8.9)                                 | 1380 (626)                           | 90/36                     | 2" - 230"        | 5615              |
| 720x225         | Multi/Bk            | 19'9" x 6'6" x 11"                          | 6.01 x 1.99 x 0.28                     | 128.1 (12.0)                           | 115.2 (11.2)                               | 1570 (713)                           | 90/45                     | 2" - 230"        | 6940              |
| 720x270         | Multi/Bk            | 19'9" x 7'9" x 11"                          | 6.01 x 2.35 x 0.28                     | 151.7 (14.1)                           | 138.3 (13.0)                               | 1760 (799)                           | 90/54                     | 2" - 230"        | 8260              |
| 720x315         | Multi/Bk            | 19'9" x 8'11" x 11"                         | 6.01 x 2.72 x 0.28                     | 175.4 (16.3)                           | 161.3 (15.3)                               | 2010 (912)                           | 90/63                     | 2" - 230"        | 9700              |
| 720x360         | Multi/Bk            | 19'9" x 10'2" x 11"                         | 6.01 x 3.08 x 0.28                     | 199 (18.5)                             | 184.4 (17.7)                               | 2200 (998)                           | 90/72                     | 2" - 230"        | 11025             |
| 720x405         | Multi/Bk            | 19'9" x 11'4" x 11"                         | 6.01 x 3.45 x 0.28                     | 222.7 (20.7)                           | 207.4 (19.5)                               | 2390 (1085)                          | 90/81                     | 2" - 230"        | 12345             |
| 720x450         | Multi/Bk            | 19'9" x 12'6" x 11"                         | 6.01 x 3.81 x 0.28                     | 246.3 (22.9)                           | 230.4 (21.8)                               | 2640 (1198)                          | 90/90                     | 2" - 230"        | 14870             |
| 720x495         | Multi/Bk            | 19'9" x 13'9" x 11"                         | 6.01 x 4.18 x 0.28                     | 269.9 (25.1)                           | 253.5 (24.2)                               | 2830 (1284)                          | 90/99                     | 2" - 230"        | 16190             |
| 720x540         | Multi/Bk            | 19'9" x 14'11" x 11"                        | 6.01 x 4.55 x 0.28                     | 293.6 (27.3)                           | 276.5 (26.0)                               | 3020 (1370)                          | 90/108                    | 2" - 230"        | 17510             |
| 720x585         | Multi/Bk            | 19'9" x 16'2" x 11"                         | 6.01 x 4.91 x 0.28                     | 317.2 (29.5)                           | 299.6 (28.3)                               | 3270 (1484)                          | 90/117                    | 2" - 230"        | 18950             |
| 720x630         | Multi/Bk            | 19'9" x 17'4" x 11"                         | 6.01 x 5.28 x 0.28                     | 340.9 (31.7)                           | 322.6 (30.7)                               | 3460 (1570)                          | 90/126                    | 2" - 230"        | 20275             |
| 720x675         | Multi/Bk            | 19'9" x 18'6" x 11"                         | 6.01 x 5.64 x 0.28                     | 364.5 (33.9)                           | 345.6 (32.5)                               | 3650 (1656)                          | 90/135                    | 2" - 230"        | 21595             |
| 720x720         | Multi/Bk            | 19'9" x 19'9" x 11"                         | 6.01 x 6.01 x 0.28                     | 388.1 (36.1)                           | 368.7 (34.8)                               | 3900 (1770)                          | 90/144                    | 2" - 230"        | 23040             |
| 720x765         | Multi/Bk            | 19'9" x 20'11" x 11"                        | 6.01 x 6.38 x 0.28                     | 411.8 (38.3)                           | 391.7 (37.2)                               | 4090 (1856)                          | 90/153                    | 2" - 230"        | 24360             |
| 720x810         | Multi/Bk            | 19'9" x 22'2" x 11"                         | 6.01 x 6.74 x 0.28                     | 435.4 (40.5)                           | 414.8 (38.9)                               | 4280 (1942)                          | 90/162                    | 2" - 230"        | 25680             |
| 720x855         | Multi/Bk            | 19'9" x 23'4" x 11"                         | 6.01 x 7.11 x 0.28                     | 459.1 (42.7)                           | 437.8 (41.3)                               | 4530 (2055)                          | 90/171                    | 2" - 230"        | 27120             |
| 720x900         | Multi/Bk            | 19'9" x 24'6" x 11"                         | 6.01 x 7.47 x 0.28                     | 482.7 (44.9)                           | 460.8 (43.7)                               | 4720 (2141)                          | 90/180                    | 2" - 230"        | 28445             |
| 720x945         | Multi/Bk            | 19'9" x 25'9" x 11"                         | 6.01 x 7.84 x 0.28                     | 506.3 (47.1)                           | 483.9 (45.4)                               | 4905 (2225)                          | 90/189                    | 2" - 230"        | 29765             |
| 720x990         | Multi/Bk            | 19'9" x 26'11" x 11"                        | 6.01 x 8.2 x 0.28                      | 530 (49.3)                             | 506.9 (47.8)                               | 5180 (2350)                          | 90/198                    | 2" - 230"        | 31210             |
| 720x1035        | Multi/Bk            | 19'9" x 28'2" x 11"                         | 6.01 x 8.57 x 0.28                     | 553.6 (51.5)                           | 530 (50.2)                                 | 5365 (2434)                          | 90/207                    | 2" - 230"        | 32530             |
| 720x1080        | Multi/Bk            | 19'9" x 29'4" x 11"                         | 6.01 x 8.94 x 0.28                     | 577.3 (53.7)                           | 553 (51.9)                                 | 5555 (2520)                          | 90/216                    | 2" - 230"        | 33850             |
| 720x1125        | Multi/Bk            | 19'9" x 30'6" x 11"                         | 6.01 x 9.3 x 0.28                      | 600.9 (55.9)                           | 576 (54.3)                                 | 5805 (2634)                          | 90/225                    | 2" - 230"        | 35295             |
| 720x1170        | Multi/Bk            | 19'9" x 31'9" x 11"                         | 6.01 x 9.67 x 0.28                     | 624.5 (58.1)                           | 599.1 (56.6)                               | 6200 (2813)                          | 90/234                    | 2" - 230"        | 36615             |
| 720x1215        | Multi/Bk            | 19'9" x 32'11" x 11"                        | 6.01 x 10.03 x 0.28                    | 648.2 (60.3)                           | 622.1 (58.4)                               | 6390 (2899)                          | 90/243                    | 2" - 230"        | 37935             |
| 720x1260        | Multi/Bk            | 19'9" x 34'2" x 11"                         | 6.01 x 10.4 x 0.28                     | 671.8 (62.5)                           | 645.2 (60.8)                               | 6640 (3012)                          | 90/252                    | 2" - 230"        | 39380             |
| 720x1305        | Multi/Bk            | 19'9" x 35'4" x 11"                         | 6.01 x 10.76 x 0.28                    | 695.5 (64.7)                           | 668.2 (63.1)                               | 6830 (3099)                          | 90/261                    | 2" - 230"        | 40700             |
| 720x1350        | Multi/Bk            | 19'9" x 36'6" x 11"                         | 6.01 x 11.13 x 0.28                    | 719.1 (66.9)                           | 691.2 (64.9)                               | 7015 (3182)                          | 90/270                    | 2" - 230"        | 42020             |
| 720x1395        | Multi/Bk            | 19'9" x 37'9" x 11"                         | 6.01 x 11.5 x 0.28                     | 742.7 (69.1)                           | 714.3 (67.3)                               | 7270 (3298)                          | 90/279                    | 2" - 230"        | 43465             |

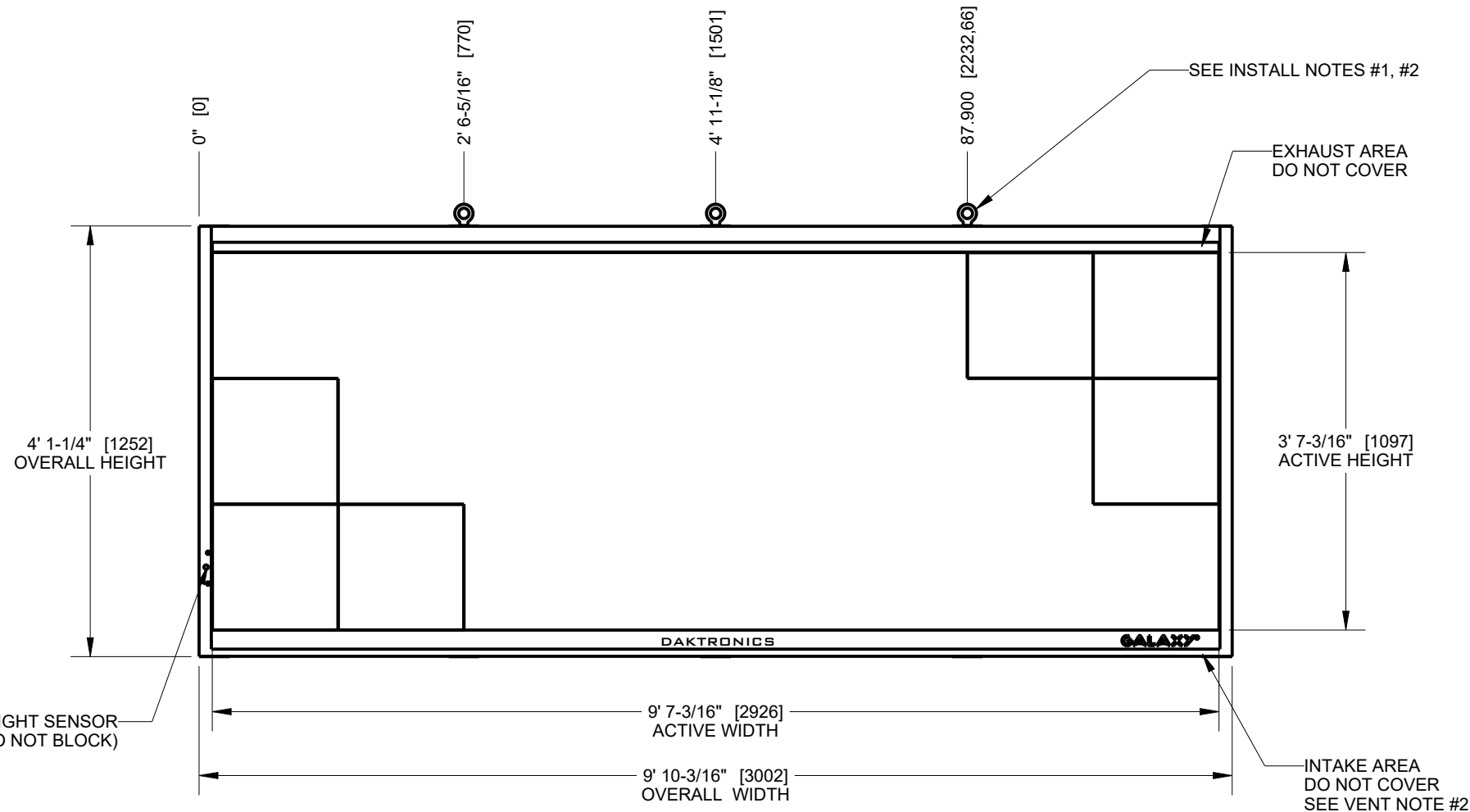


| PIXELS HIGH (AAA) | PIXELS WIDE (BBB) | PIXEL SPACING (CC) |
|-------------------|-------------------|--------------------|
| 180               | 480               | 6mm                |
| 135               | 360               | 8mm                |
| 108               | 288               | 10mm               |

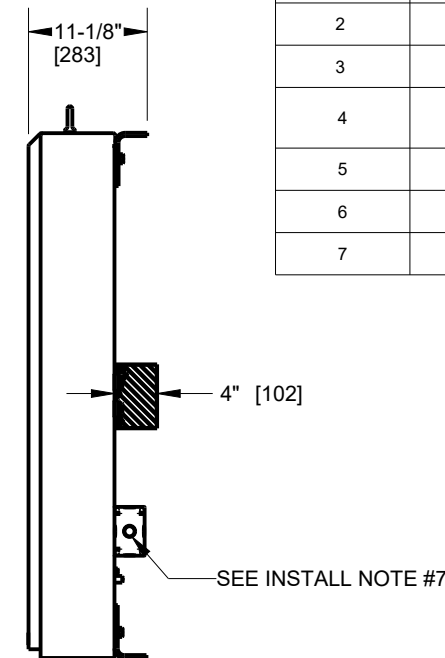
# APPENDIX A



TOP VIEW



FRONT VIEW



RIGHT VIEW

| #  | DETAIL       | DESCRIPTION                             |
|----|--------------|-----------------------------------------|
| 1  | DISPLAY      | GT6x-AAAxBBB-CC (SEE CHART IN TOP LEFT) |
| 2  | LED COLOR    | RGB                                     |
| 3  | ACTIVE AREA  | 3' 7-3/16" [1097] X 9' 7-3/16" [2926]   |
| 4  | OVERALL SIZE | 4' 1-1/4" [1252] X 9' 10-3/16" [3002]   |
| 5  | CABINET      | ALUMINUM & STEEL                        |
| 6  | VENTILATION  | FRONT                                   |
| 7  | ACCESS       | SERVICE FROM FRONT OF DISPLAY           |
| 8  | WEIGHT       | 361 LBS 164 KG (APPROX)                 |
| 9  | SHIPPING     | SHIPPED AS A SINGLE UNIT                |
| 10 | DIMENSIONS   | FEET AND INCHES [MILLIMETERS]           |
| 11 | PAINTED      | SEMI-GLOSS BLACK                        |

| STRUCTURAL RATING |                                               |                                          |
|-------------------|-----------------------------------------------|------------------------------------------|
| 1                 | DESIGN WIND PRESSURE "P" (CASE A)             | P<=:100 PSF (ASD)                        |
| 2                 | STANDARD/CODE                                 | SEE DD4145274 FOR APPLICABLE DESIGN CODE |
| 3                 | ALL CLIP ANGLES MUST BE USED TO MOUNT DISPLAY |                                          |

| POWER RATING PER SINGLE FACE: FOR SIZING ELEC.SERVICE MAX REQ'D SHOWN |       |           |                                     |                                         |                  |                                                                      |
|-----------------------------------------------------------------------|-------|-----------|-------------------------------------|-----------------------------------------|------------------|----------------------------------------------------------------------|
| TECHNOLOGY                                                            | COLOR | MAX WATTS | 120 VAC<br>1 PH<br>50/60 HZ<br>AMPS | 120/240 VAC1PH<br>50/60Hz (3 WIRES+GND) |                  | 240VAC 1PH 50Hz<br>(2 WIRES + GND)<br>INTERNATIONAL<br>SPECIAL ORDER |
|                                                                       |       |           |                                     | LINE 1<br>(AMPS)                        | LINE 2<br>(AMPS) | LINE 1<br>(AMPS)                                                     |
| GT6x                                                                  | RGB   | 2507      | N/A                                 | 12.62                                   | 8.26             | 10.45                                                                |

| VENTILATION REQUIREMENTS |                                                                                                                                                                              |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                        | DISPLAY RELIES ON VENTILATION TO FUNCTION PROPERLY. INTAKES, LOCATED AT THE FRONT OF THE DISPLAY, MUST BE ABLE TO DRAW IN AIR AT A TEMPERATURE NO GREATER THAN 120° F.       |
| 2                        | IN ORDER TO ENSURE AMBIENT TEMPERATURE AIRFLOW IS MAINTAINED, NO PORTION OF THE VENTILATION OPENINGS ALONG THE FRONT OF THE DISPLAY MAY BE COVERED OR OBSTRUCTED IN ANY WAY. |

| INSTALL NOTES |                                                                                                                                                                                                                          |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1             | IN ORDER TO PRESERVE THE STRUCTURAL INTEGRITY OF THE DISPLAY CABINET, THE 90° ANGLE BETWEEN THE CABINET AND THE LIFTEYE MUST BE MAINTAINED - USING A SPREADER BEAM IS SUGGESTED. ALL EYEBOLTS MUST BE USED WHEN LIFTING. |
| 2             | 1/2" LIFTEYES TO ASSIST WITH DISPLAY INSTALLATION. LIFTEYES MAY NOT BE USED FOR PERMANENT INSTALLATION. LIFTEYES MAY BE REMOVED.                                                                                         |
| 3             | MECHANICAL AND SIGNAL CONNECTIONS OCCUR EXTERNAL TO DISPLAY.                                                                                                                                                             |
| 4             | CLIP ANGLE FOR MOUNTING. CLIP ANGLES CAN BE ADJUSTED VERTICALLY DURING INSTALLATION. CLIP ANGLE CAN BE WELDED OR BOLTED TO STRINGER. ALL CLIP ANGLE LOCATIONS MUST BE USED.                                              |
| 5             | DAKTRONICS IS NOT RESPONSIBLE FOR THE MOUNTING HARDWARE OR THE INTEGRITY OF THE MOUNTING STRUCTURE.                                                                                                                      |
| 6             | DAKTRONICS IS NOT RESPONSIBLE FOR THE MAIN ELECTRICAL DISCONNECT. SEE POWER RATINGS ABOVE.                                                                                                                               |
| 7             | <b>SEE DWG-03864398 FOR SIGNAL &amp; MTG DETAILS</b>                                                                                                                                                                     |

|      |           |                                                                                    |              |
|------|-----------|------------------------------------------------------------------------------------|--------------|
| 01   | 11 MAY 21 | PER CN-119371: UNDER STRUCTURAL RATING-STANDARD/CODE. NOTED TO REFERENCE DD4145274 | CJC<br>20633 |
| REV: | DATE:     | DESCRIPTION:                                                                       | BY:          |

|                                                |  |                                 |  |                                                                                                                                                                                                                                                                         |  |         |  |
|------------------------------------------------|--|---------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------|--|
|                                                |  |                                 |  | <small>THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESS WRITTEN CONSENT OF DAKTRONICS, INC. OR ITS WHOLLY OWNED SUBSIDIARIES. COPYRIGHT 2019 DAKTRONICS, INC. (USA)</small> |  |         |  |
| PROJECT: GT6x DISPLAYS                         |  |                                 |  |                                                                                                                                                                                                                                                                         |  |         |  |
| TITLE: SHOP DWG, GT6x, 4' 2"x9' 11" (3x8 MODS) |  |                                 |  |                                                                                                                                                                                                                                                                         |  |         |  |
| DATE: 21-APR-21                                |  | DIM UNITS: INCHES [MILLIMETERS] |  | SHEET                                                                                                                                                                                                                                                                   |  | REV     |  |
| SCALE: 1/18                                    |  | DO NOT SCALE DRAWING            |  | 1 OF 1                                                                                                                                                                                                                                                                  |  | 01      |  |
| DESIGN: TWHITEH                                |  | JOB NO. P2056                   |  | FUNC - TYPE - SIZE                                                                                                                                                                                                                                                      |  | 4296121 |  |
| DRAWN: LSIEH                                   |  | E - 07 - B                      |  |                                                                                                                                                                                                                                                                         |  |         |  |