BID DOCUMENTS COVER SHEET

CONTRACT DOCUMENTS

FOR

L-527
MECHANICAL SYSTEMS UPGRADE

AT

LOS MEDANOS COLLEGE
2700 East Leland Road, Pittsburg, California 94565

CONTRA COSTA COMMUNITY COLLEGE DISTRICT

Consist of the following:

DSA File #7-C1
DSA Application #01-114479

December 4, 2017
SECTION 00007
SEALS PAGE AND DSA TESTS

ARCHITECT:
Salas O’Brien
Joseph Gonzalez

MECHANICAL ENGINEER:
Salas O’Brien
Leslie Locsin

ELECTRICAL ENGINEER:
Salas O’Brien
Thomas Jun
STRUCTURAL ENGINEER: N/A

PLUMBING ENGINEER: N/A

CIVIL ENGINEER: N/A

END OF SECTION 00007
### SECTION 00010

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END OF SECTION 00010
SECTION 00015
PROJECT DIRECTORY

ARCHITECT: Salas O’Brien
Joseph Gonzalez
305 South 11th Street
San Jose, CA 95112
408-282-1500

STRUCTURAL ENGINEER: Not Applicable

ELECTRICAL ENGINEER: Salas O’Brien
Thomas Jun
305 South 11th Street
San Jose, CA 95112
408-282-1500

CIVIL ENGINEER: Not Applicable

MECHANICAL ENGINEER: Salas O’Brien
Leslie Locsin
305 South 11th Street
San Jose, CA 95112
408-282-1500

OWNER: Contra Costa Community College District
500 Court Street
Martinez, CA 94553
925-229-1000

PROJECT MANAGER: Alex Gourtzelis
Critical Solutions, Inc.
alex_g@csipm.com
925-944-5060

CONSTRUCTION MANAGER: Rob Mohr
Critical Solutions, Inc.
robm@csipm.com
925-944-5060

BUILDINGS & GROUNDS MANAGER: Russ Holt
rholt@losmedanos.edu
925-473-7375

END OF SECTION 00015
Pre-bid meeting location in room PS2 20
Notice to Bidders

L-527 Mechanical Systems Upgrade
Los Medanos College
2700 East Leland Drive, Pittsburg, CA 94565

Notice is hereby given that the Governing Board of the Contra Costa Community College District (District), Martinez, California, will receive sealed bid proposals for the furnishing of all labor, materials, equipment, transportation and services for the construction of the project entitled L-527 Mechanical Systems Upgrade.

Construction Cost Estimate (Range): $700,000 to $800,000; License Required: B-General Building Contractor

Scope: In general, the Work consists of: removal and replacement of three (3) rooftop air handling units, demolition of existing air handling equipment, curbs, screens, piping, ductwork, controls & pumps; and supplying and installing all new air handling units, curbs, screens, associated piping, hydronics, pumps, ductwork, flashings, electrical, controls and equipment required for a fully operational system. Other Work includes, but is not limited to removal and replacement of the roof membrane, abatement - see Terracon roof and mechanical surveys dated 8/28/15 and 3/4/16 included in bid docs, and temporary heating/cooling in the areas affected by the project.

The District does not provide hardcopies of bid documents or reimburse cost of printing, delivery, or any expenses related to the bidding process.

For information directly from the District, you may also log in to the District Website: http://www.4cd.edu/webapps/PurchasingViewBids/default.aspx. Project documents available include but are not limited to plans, specifications, addenda, bidders lists, bid results, etc., and can be viewed on this District webpage.

All questions related to this project must be in writing and are directed to:

Jovan Esprit, Contracts Manager
Contra Costa Community College District
500 Court St., Martinez, CA 94553
Email: jesprit@4cd.edu
Facsimile: 925-370-7512;

Each bid shall be made on the bid form, which is included in the Bid Documents and when submitted, shall be accompanied by a Bid Bond or Certified Cashier’s Check in the amount of 10% of bid (made payable to the Contra Costa Community College District). The District reserves the right to forfeit Bid Bond submitted for failure of the successful bidder to secure Payment & Performance Bonds.

All questions related to this project must be in writing and are directed to:

Jovan Esprit – Contract Manager
Contra Costa Community College District, 500 Court St., Martinez, CA 94553
Email: jesprit@4cd.edu

Copy: Najia Sabeen najia_S@csipm.com
IMPORTANT INFORMATION:

Pre-Bid Meeting and Job Walk, Date / Time: Thursday January 4, 2018 at 11:00 AM [MANDATORY]
Pre-Bid Meeting and Job Walk, Location: Los Medanos College
2700 East Leland Drive
Pittsburg, CA 94565
Meet in Room PS 20 (see Campus Map)

Last Date / Time for
Bidder Requests for Information: Thursday, January 25, 2018 PRIOR to 5:00 PM
Last Day to Issue Addendum: Thursday, February 1, 2018
Bids Due No Later Than, Date / Time: Thursday, February 8, 2018 PRIOR to 2:00 PM
Bids Must Be Received at: Contra Costa Community College District (Lobby)
500 Court St, Martinez, CA 94553
Attn: Jovan Esprit – Contracts Manager (CCCCD)

Bids must be received by the District prior to the time and by the date noted above. Bids that are not received by the District prior to the time and by the date noted above will not be accepted or will be returned to the Bidder unopened.

The successful bidder will be required to furnish a labor and material bond in an amount equal to one hundred percent (100%) of the contract price and a faithful performance bond in an amount equal to one hundred percent (100%) of the contract price, said bonds to be secured from a surety company acceptable to the Contra Costa Community College District and authorized to execute such surety in the State of California.

This project is a public works project and is subject to prevailing wage rate laws. A copy of the prevailing rates of wages is on file with the Contracts & Purchasing Office of the Contra Costa Community College District. Said rates of wages shall be included in the contract for the work by this reference. Contractors and Subcontractors performing work on District public works contracts shall pay prevailing wages as determined by the Department of Industrial Relations (DIR), must be registered to perform Public Works with the DIR, and adhere to all labor compliance provisions outlined in Division 2, Part 7, Chapter 1 of the California Labor Code §1720-1861 including, but not limited to, the reporting of certified payroll, payment of prevailing wages and the employment of apprentices. A copy of the Prevailing Wage Rates for this project is available at the DIR / DLSE Website.

Attention is directed to Section 4100 through 4113 of the Public Contract Code concerning subcontractors.

Attention is directed to Agreement Form, Article 5, and GENERAL CONDITIONS, Article 8, paragraphs 8.4.1 and 8.4.2, regarding liquidated damages. Liquidated Damages shall be set at $1,000 Dollars for each calendar day the work is delayed beyond Substantial Completion and $500 Dollars for each calendar day beyond Final Completion. The Governing Board of the Contra Costa Community College District reserves the right to reject all bids and/or waive any informality or irregularity in any bid received. No bidder may withdraw their Bid for a period of ninety (90) days after the date set for opening thereof.

END OF SECTION 00100
1.1 ISSUING OF DOCUMENTS
A. Bidding Documents may be examined at the Contra Costa Community College District, 500 Court Street, Martinez, CA 94553. By Appointment: Georgette Stewart, Facilities Department, phone: (925) 229-6847.

1.2 QUALIFICATIONS OF BIDDERS
A. Bidders may be required to furnish evidence satisfactory to the District and the Architect that he has sufficient means and has had sufficient experience in the class of work called for to enable him to complete the Contract in a satisfactory manner.
B. Bidders shall be Contractors properly licensed in accordance with the laws of the State of California.
C. The successful Bidder shall furnish satisfactory Certificates of Insurance coverage as specified in the Contract Documents.

1.3 RECEIPT AND OPENING OF BIDS
A. Contra Costa Community College District hereinafter referred to as the District, will receive Bids at the same time and place specified in the Notice inviting Bids.
B. Complete the Bid Form included in the Project Manual.
C. The envelopes containing the Bids shall be sealed, addressed to the District, and designated as “L-527 Mechanical Systems Upgrade – Contra Costa Community College District”. The envelope shall contain the name and address of the Bidder.
D. Bids that are mailed shall have the previously described envelope placed inside an envelope addressed to: CONTRA COSTA COMMUNITY COLLEGE DISTRICT, 500 Court Street, Martinez, CA 94553 ATTENTION: JOVAN ESPRIT, Contracts Manager. Bids should be mailed in time to be received prior to the time set forth in the Advertisement for Bids.
E. Bids which are conditional (or which make alterations, omissions, or reservations to the terms of the Bidding Documents) may be rejected as non-responsive.
F. All monetary figures are required, both in writing and in numerals. In event of conflict between written quotations and numerical quotations, written quotations shall govern.
G. Type or print all bid data legibly in ink except signatures which shall be in script. Mistakes may be crossed out and corrections inserted, if each is initialed in ink by signer of Bid.
H. Bidder’s business address and signature shall be on the Bid. A Bid by a partnership shall furnish the full names of partners and be signed in the partnership name by one member of the partnership, or by authorized representative, followed by the signature and designation of the person signing. Bids by corporations, with corporate seal affixed, shall be signed with the legal name of the corporation followed by the name of the state of incorporation and by the signature and designation of the person authorized to bind it to the matter. The name of each person signing shall also be typed or printed below the respective signatures. When required
by the District, satisfactory evidence of authority of the office signing in behalf of the corporation shall be furnished.

I. No Bids will be received after the date and time set forth in the Notice Inviting Bids.

1.4 BID SECURITY
   A. Submit with the Bid a Bid Security in the amount of 10 percent (10%) of the Bid.
   B. The District reserves the right to forfeit the Bid Bond submitted for failure of the successful bidder to secure Payment & Performance Bonds.

1.5 SURETY BONDS
   A. The successful Bidder shall furnish a Labor and Material Payment Bond in the amount equal to one hundred percent (100%) of the Contract Price and a faithful Performance Bond in the amount equal to 100 percent (100%) of the Contract Price as security for the successful performance of the work and payment of persons performing labor and furnishing materials. The Bonds shall be executed by a surety company or companies acceptable to the District and authorized to execute such in the State in which the Project is located and shall be furnished within 10 days after Notice of Acceptance of said Bid. Surety shall be made in favor of the District and shall cover the guarantee periods as well as the construction period.

1.6 WITHDRAWAL OR REVISIONS OF BID
   A. This Bid may be withdrawn or revised prior to the scheduled time for receipt. Bids not withdrawn prior to the scheduled time for receipt may not be withdrawn for a period of 90 days.

1.7 BID PROTESTS
   A. Inquiries or questions based on alleged patent ambiguity of the plans, specifications or estimate must be communicated as a bidder inquiry prior to bid opening. Any such inquiries or questions, submitted after bid opening, will not be treated as a bid protest.
   B. Bidder may file a protest with the District against the Bid of other Bidder or Bidders (“Bid Protest”) subject to the provisions of this Article. The procedures and time limits set forth in this Article are mandatory and are a Bidder’s sole and exclusive remedy in protesting other Bidders' bids. Failure to comply with these procedures shall constitute a waiver of any right to pursue a Bid Protest, or to contest the District’s award of the contract for the work that is the subject of the Bid, in any legal proceeding before any authority with jurisdiction.
   C. Bid Protests and Responses shall be governed by the following time limitations:
      1. Bidder must deliver any Bid Protest to the District in writing before 2:00PM, five (5) working days after the date of bid opening. The District will reject any Bid Protest not received by the District by this deadline. Bidder must concurrently deliver a copy of its Bid Protest to all Bidders against whose Bids the Bid Protest is directed. The Bidder must include with its Bid Protest written proof to the District’s satisfaction that Bidder has delivered a copy of its Bid Protest to the other Bidder whose bid is the subject of the Bid Protest.
2. A Bidder whose Bid is the subject of a Bid Protest must deliver its written response, if any, (“Response”) to the District, before 2:00PM, ten (10) working days after the date of bid opening. The District will reject any Response not received by the District by this deadline.

D. Delivery of Bid Protest or Response:
1. Bidder may deliver a Bid Protest to the District by personal delivery or electronic transmission such as by facsimile. Bidder is solely responsible for ensuring that the District receives any Bid Protest or Response by the deadlines set forth herein.
2. The District will not consider Bid Protests or Responses by telephone conversation or any other non-written communication.
3. Bidder shall submit any Bid Protest or Response to: David Wetmore, Director of Purchasing and Contract Services, Contra Costa Community College District, 500 Court Street, Martinez, CA 94553, Facsimile: 925-370-7512.

E. Content of Bid Protest:
1. A Bid Protest must state the basis for the protest and provide supporting evidence.
2. A Bid Protest must refer to the specific portion of the Bid that forms the basis of the protest.
3. A Bid Protest must include the name, address, and telephone number of the person representing the protesting Bidder.
4. A Bid Protest must be clearly identified as a Bid Protest.

1.8 AWARD AND REJECTION OF BIDS
A. In awarding or rejecting Bids, the District reserves the following rights:
1. Identification of successful Bidder will not be determined at time of opening Bids.
2. To obtain opinion of counsel on legality and sufficiency of bids.
3. To reject all Bids, to re-bid, or waive irregularities or informalities in a Bid, and to accept or reject alternates.
4. Request proof that the successful Bidder can provide performance and payment bonds as required.

1.9 EXAMINE DOCUMENTS AND VISIT SITE
A. Before submitting a Bid, the Bidder shall examine the Bidding Documents, visit the site of the work, attend the required site visit arranged by the District and obtain Certification of Attendance signed by the District, ascertain existing conditions and limitations, including those of labor, and include in the Bid a sum to cover the cost of all items described in the Contract Documents.
B. No consideration will be granted for alleged misunderstanding of the materials to be furnished or work to be done. The tender of a Bid carries with it the agreement to terms and conditions referred to in the Contract Documents.

1.10 DISCREPANCIES, AMBIGUITIES, OR CONFLICTS
A. If the Bidder is in doubt as to the true meaning of any part of the Contract Documents; finds discrepancies, errors or omissions therein; or finds variances in any of the Contract Documents
with applicable rules, regulations, ordinances and/or laws, a written request for an interpretation or correction thereof must be submitted to the District’s Contract Manager. Bidders are solely responsible for submitting to District’s Contract Manager such request. Ambiguities or inconsistencies arising as a result of separation of sections or portions of the drawings or specifications by or for subcontractor bidding shall not relieve the Contractor for providing the complete Work without increase to or adjustment in the Contract Price or the Time for performance. Interpretations or corrections of the Contract Documents will be by written addendum issued by the Architect. 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.

1.11 ADDENDA
A. Cost for work included in any Addenda issued during the time of bidding shall be included in the Bid, and will become a part of the Contract. List Addenda received as indicated on the Bid Form.

1.12 FORM OF AGREEMENT
A. The form of agreement to be used for the Contract is provided by the District and is included in the Project Manual.

1.13 AWARD OF CONTRACT
A. The District will be allowed a period of ninety (90) days after Bid Opening Date for evaluating the Bids.
B. Bidders of record will be notified of the results of the District’s evaluation of bids and Award of Contract, if any.
C. The contractor shall begin work within ten (10) calendar days of receipt of Notice to Proceed.

END OF SECTION 00200
PART 1 - REPORT AND INFORMATION

1.1 Existence of reports, record drawings, and utility surveys: Contra Costa Community College District, its consultants, and prior contractors may have collected documents providing a general description of the site and conditions of the work. These documents may consist of geotechnical reports for and around the site, record drawings, utility drawings, and information regarding underground utilities. These reports, documents and other information are not part of the Contract Documents and do not show new work to be constructed, rather, they show existing conditions that Contractor may have to address as part of its construction planning.

1.2 Available Documentation: The following existing documentation is available for review through District office for this project:

A. Existing building Drawings
   1. Building construction drawings
   2. Campus Utilities Maps

1.3 Contractor shall acknowledge and accept that the documents are not a part of the Contract Documents and are made available to bidders for reference only. The District and its representatives are not responsible for any and all discrepancies between the documents and the existing and actual as-built conditions, and do not guarantee the accuracy of the documents.

1.4 The District and Architect assume no responsibility for the completeness or accuracy of the documents or the records compiled there from and the interpretations made from the documents. There is no express or implied guarantee that the conditions indicated in the documents are representative of those existing throughout the building and/or site Conditions differing substantially from those indicated may be encountered.

END OF SECTION 00210
SECTION 00300
BID PROPOSAL FORM

PROJECT NUMBER / NAME: L-527 Mechanical Systems Upgrade

CAMPUS / LOCATION: Los Medanos College, 2700 East Leland Drive, Pittsburg, CA 94565

DISTRICT: CONTRA COSTA COMMUNITY COLLEGE DISTRICT
500 Court St, Martinez, CA 94553

Herein Referred to as "District"

1. INTRODUCTION

A. The Bidder proposes to perform the Work for the Contract Sum and within the proposed Contract Time, based upon an examination of the site and the Bid and Contract Documents.

B. The Bidder certifies this Bid is submitted in good faith.

C. The Bidder agrees that the Contract Sum and other proposed terms will be considered in evaluating Bids and may be negotiated and adjusted before awarding of Contract.

D. The signed copy of the Certification of the Visit to the Site shall be attached to the Bid Form Submittal.

E. A fully executed Statement of Bidder's Qualifications signed by an authorized officer of the Bidder submitting the Bid shall be attached to the Bid Form.

F. A fully executed Non-Collusion Affidavit signed by an authorized officer of the Bidder submitting Bid shall be attached to the Bid Form.

G. The District shall award the contract to the lowest responsive and responsible Bidder. The evaluation of the low bid shall be based on either Bid Item 2.A.3, 2.B.3, 2.C.1 or any combination of Bid Items that can be completed up to the Engineer’s Estimate of $750,000 or more should additional District funds become available. It is expected Contract Award for this project will be prior to March 1, 2018. Construction work may not commence until May 21, 2018. Between March 1, 2018 and May 21, 2018, Contractor is expected to have completed the procurement of long lead items and other materials so the removal and replacement of the mechanical system upgrade is substantially complete and operational by July 30, 2018.

H. The District reserves the right to award the Additive/Deductive Alternates, if any, through change orders as budget allows within 30 calendar days after the Award of Contract.

Attention is directed to Labor Code Section 1725.5 regarding Department of Industrial Relations (DIR) contractor registration process; registration criteria and implementation of DIR registration requirements. Labor Code Section 1771.7 establishes contractor’s obligation to submit Certified Payroll...
(CPR) to the Department of Labor and Standards Enforcement (DLSE) and public works monitoring and enforcement. Labor Code Section 1773.3 requires the District to submit a PWC-100 to DIR for all public works contract awarded effective January 1, 2015.

2. **CONTRACT SUM**

   **A. BID ITEM 1 – SECTOR 13 (College Complex):**

   1) **BASE BID SECTOR 13:**
   For labor, materials, bonds, fixtures, equipment, tools, transportation, services, sales taxes, and other costs necessary to complete the general construction in accordance with the Contract Documents, to include reroofing, for a stipulated Contract Sum in the amount of:

   ___________________________________________ Dollars ($_________________________)

   2) **ADD ALTERNATE SECTOR 13:**
   All required work associated with temp cooling/heating shown on MD1.1 notes 6 & 7:

   ___________________________________________ Dollars ($_________________________)

   3) **TOTAL BASE BID ITEM 1 PLUS ADD ALTERNATE (A.1 + A.2):**

   ___________________________________________ Dollars ($_________________________)

   **B. BID ITEM 2– SECTOR 14 (College Complex)**

   1) **BASE BID SECTOR 14:**
   For labor, materials, bonds, fixtures, equipment, tools, transportation, services, sales taxes, and other costs necessary to complete the general construction in accordance with the Contract Documents, to include reroofing, for a stipulated Contract Sum in the amount of:

   ___________________________________________ Dollars ($_________________________)

   2) **ADD ALTERNATE SECTOR 14:**
   All required work associated with temp cooling/heating shown on MD1.2 notes 5 & 6:

   ___________________________________________ Dollars ($_________________________)

   3) **TOTAL BASE BID ITEM 2 PLUS ADD ALTERNATE (B.1 + B.2):**

   ___________________________________________ Dollars ($_________________________)

   **C. BID ITEM 3-- SECTOR 10 (Art Area)**
1) **TOTAL BASE BID SECTOR 10:**

For labor, materials, bonds, fixtures, equipment, tools, transportation, services, sales taxes, and other costs necessary to complete the general construction in accordance with the Contract Documents, to include reroofing, for a stipulated Contract Sum in the amount of:

____________________________________________ Dollars ($________________________)

3. **COMPLETION TIME**

A. For establishing the Date of Final Completion the contract time for the Base Bid shall be as indicated in Section 00600, Construction Agreement. This time may be subject to modification to facilitate the work, as mutually agreed upon at a later date.

B. The Bidder certifies that the Bid is based on the Contract Time for completion as stated in Section 00600, Construction Agreement. Bidder further certifies that the Base Bid amount is sufficient to cover all labor, materials, central office and construction site overhead, profit, and all other costs related to the completion of the Project for the entire Project construction time for both the General Contractor and all Subcontractors, as stated above in paragraphs 2 and 3.

4. **ADDENDA**

A. The Bidder acknowledges receipt of the following Addenda, and certifies the Bid has provided for all modifications and considerations required therein.

None [    ]

Addendum No.: _______ dated _________________

Addendum No.: _______ dated _________________

Addendum No.: _______ dated _________________

B. List of Additional Addenda Attached: Yes [    ] No. [    ].

5. **DESIGNATION OF SUBCONTRACTORS**

A. The Bidder has set forth a complete list indicating the type of work, name, and business address of each Subcontractor who will perform work in excess of one-half of one percent of the Contract Sum.

B. Any portion of the work in excess of the specified amount having no designated Subcontractor shall be performed by the Bidder.
C. Substitution of listed Subcontractors will not be permitted unless approved in advance by the District.

D. Prior to signing the Contract, the District reserves the right to reject any listed Subcontractor.

Attention is directed to Section 4100 through 4113 of the Public Contract Code concerning Subcontractors, with emphasis on Section 4104, known as the “Subletting and Subcontracting Fair Practices Act, effective July 1, 2014.

<table>
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<th>Subcontractor's Name</th>
<th>Business Address/Phone</th>
<th>CSLB License # and DIR Registration #</th>
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</table>

E. Complete list of Subcontractors is attached: Yes [ ] No [ ]

F. Continuation list of Subcontractors is attached: Yes [ ] No [ ]

6. ACCEPTANCE AND AWARD

A. The District reserves the right to reject this Bid and to negotiate changes before or after execution of the Contract. This Bid shall remain open and shall not be withdrawn for a period of 90 days after Bid Opening date.

B. If written notice of acceptance of this Bid is mailed or delivered to the Bidder within 90 days after the date set for the receipt of this Bid, or other time before it is withdrawn, the Bidder will execute and deliver to the District a Contract prepared by District with the required Surety Bonds and Certificates of Insurance, within 10 days after personal delivery or deposit in the mail of the notification of acceptance.

C. Notice of acceptance or request for additional information may be addressed to the Bidder at the address provided.

7. BID SECURITY

A. The required 10 percent (10%) Bid Security for this Bid is attached in the form of:
8. **BIDDER'S BUSINESS INFORMATION**

**B. Individual [ ]:**

- Personal Name: ____________________________
- Business Name: ____________________________
- Address: __________________________________
  
  ____________ Zip Code: ____________
- Telephone: ____________________________
- Fax Number: ____________________________

**C. Partnership [ ]:**

- Co-partners' Names: ____________________________
- Business Name: ____________________________
- Address: __________________________________
  
  ____________ Zip Code: ____________
- Telephone: ____________________________
- Fax Number: ____________________________

**D. Corporation [ ]:**

- Firm Name: ____________________________
- Address: __________________________________
  
  ____________ Zip Code: ____________
- Telephone: ____________________________
Fax Number: ______________________________

State of Incorporation: ______________________

President: ________________________________

Secretary: ________________________________

Treasurer: ________________________________

Manager: ________________________________

E. **Power of Attorney:** Name: ______________________

   Title: ________________________________

F. **Contractor License No.** ____________ State of ____________

G. Bidder is submitting this proposal on behalf of a Joint Venture. Names, license numbers,
   and relevant information are given on a separate attachment:
   Yes [ ] No [ ].

H. Upon request, furnish appropriate documentation to substantiate and/or support the
   data given.
9. The undersigned hereby certifies under penalty of perjury under the laws of the State of California that all the information submitted by the Bidder in connection with this Bid and all the representations herein made are true and correct.

Executed this ______________ day of __________________________, 20________

CSLB License No.: Exp: DIR Registration No.:

Firm Name

Signature

By (Print or Type Name)

Title

End of Section 00300
NONCOLLUSION AFFIDAVIT
(TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID)

State of California
County of Contra Costa

__________________________________________________________, being first duly sworn, deposes and says that he or she is of ____________________________________________________, the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that 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 bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

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

Date: ___________________________                        Signature: __________________________________________

State of California
County of Contra Costa

On ___________________________, before me, ___________________________, Notary Public, personally appeared ___________________________, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing is true and correct.

WITNESS my hand and official seal.

Date: ___________________________                        Signature: __________________________________________

[SEAL]

END OF SECTION 00350
SECTION 00400

STATEMENT OF BIDDER’S QUALIFICATIONS

Contra Costa Community College District (District), in accordance with Public Contract Code Section 20651.5, requires each prospective bidder for a contract, as described under Section 20651, to complete and submit to the District a standardized questionnaire and financial statement in a form specified by the District, including a complete statement of the prospective bidder’s financial ability and experience in performing public works. The questionnaire and financial statement shall be verified under oath by the bidder in the manner in which civil pleadings in civil actions are verified. The questionnaire responses of prospective bidders and their financial statements shall not be deemed public records and shall not be open to public inspection. All information requested must be provided and be current as of the date of the Bid.

I, ________________________________________________ being first duly sworn, depose and say:

(Name)

I am the ___________________________ of __________________________________

(Title) (Company / Entity)

Firm Name: ___________________________ Check One: □ Corporation

(as it appears on license) □ Partnership

 □ Sole Proprietor □ Joint Venture

Contact Person: ___________________________

Address: ________________________________

Phone: ________________________________ Fax: ________________________________

Email: ________________________________ Tax ID No.: ________________________________

If firm is a sole proprietor or partnership:

Owner(s) of Company ____________________________________________________________

Contractor’s License Number(s): (California State License Board Classification)

________________________________________

________________________________________

________________________________________
For Bidders That Are Corporations:

1a. Date incorporated: ____________________________

1b. Under the laws of what state: ____________________________

1c. Provide all the following information for each person who is either (a) an officer of the corporation (president, vice president, secretary, treasurer), or (b) the owner of at least ten percent of the corporation’s stock.

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Years with Company</th>
<th>% Ownership</th>
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<tbody>
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</tbody>
</table>

1d. Identify every construction firm that any person listed above has been associated with (as owner, general partner, limited partner or officer) at any time during the last five years.

**NOTE:** For this question, “owner” and “partner” refer to ownership of ten percent or more of the business, or 10 per cent or more of its stock, if the business is a corporation.

<table>
<thead>
<tr>
<th>Person’s Name</th>
<th>Construction Firm</th>
<th>Dates of Person’s Participation with Firm</th>
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</table>
**For Bidders That Are Partnerships:**

1a. Date of formation: ________________________________

1b. Under the laws of what state: ________________________________

1c. Provide all the following information for each partner who owns 10 per cent or more of the firm.

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Years with Partnership</th>
<th>% Ownership</th>
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</table>

1d. Identify every construction company that any partner has been associated with (as owner, general partner, limited partner or officer) at any time during the last five years.

**NOTE:** For this question, “owner” and “partner” refer to ownership of ten per cent or more of the business, or ten per cent or more of its stock, if the business is a corporation.

<table>
<thead>
<tr>
<th>Person’s Name</th>
<th>Construction Company</th>
<th>Dates of Person’s Participation with Company</th>
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</table>
**For Bidders That Are Sole Proprietorships:**

1a. Date of commencement of business. ______________________________

1b. Tax ID number of company owner ______________________________

1c. Identify every construction firm that the business owner has been associated with (as owner, general partner, limited partner or officer) at any time during the last five years.

**NOTE:** For this question, “owner” and “partner” refer to ownership of ten per cent or more of the business, or ten per cent or more of its stock, if the business is a corporation.

<table>
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<tr>
<th>Person’s Name</th>
<th>Construction Company</th>
<th>Dates of Person’s Participation with Company</th>
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**For Bidders That Intend to Make a Bid as Part of a Joint Venture:**

1a. Date of commencement of joint venture. ______________________________

1b. Provide all of the following information for each firm that is a member of the joint venture that expects to bid on one or more projects:

<table>
<thead>
<tr>
<th>Name of Firm</th>
<th>% Ownership of Joint Venture</th>
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</tbody>
</table>
For All Bidders

2. Has there been any change in ownership of the firm at any time during the last five years?  
   NOTE: A corporation whose shares are publicly traded is not required to answer this question.  
   ☐ Yes ☐ No  
   If “yes,” explain on a separate signed page (referring to this question).

3. Is the firm a subsidiary, parent, holding company or affiliate of another construction firm?  
   NOTE: Include information about other firms if one firm owns 50 percent or more of another,  
   or if an owner, partner, or officer of your firm holds a similar position in another firm.  
   ☐ Yes ☐ No  
   If “yes,” explain on a separate signed page (referring to this question).

4. Are any corporate officers, partners or owners connected to any other construction firms?  
   NOTE: Include information about other firms if an owner, partner, or officer of your firm  
   holds a similar position in another firm.  
   ☐ Yes ☐ No  
   If “yes,” explain on a separate signed page (referring to this question).

5. List all California construction license numbers, classifications and expiration dates of the  
   California contractor licenses held by your firm:  
   __________________________________________________________________________  
   __________________________________________________________________________  
   If more space is needed add a separate signed page (referring to this question).

6. If any of your firm’s license(s) are held in the name of a corporation or partnership, list below the  
   names of the qualifying individual(s) listed on the CSLB records who meet(s) the experience and examination requirements for each license.  
   __________________________________________________________________________  
   __________________________________________________________________________  
   If more space is needed add a separate signed page (referring to this question).

7. Has your firm changed names or license number in the past five (5) years?  
   ☐ Yes ☐ No  
   If “yes,” explain on a separate signed page, including the reason for the change, and all former  
   names under which the firm has conducted business.

8. Has any owner, partner or (for corporations) officer of your firm operated another construction  
   firm under any other name in the last five (5) years?  
   ☐ Yes ☐ No  
   If “yes,” explain on a separate signed page (referring to this question), including the reason for the change.
9. Have you attached your latest copy of a REVIEWED OR AUDITED financial statement with accompanying notes and supplemental information?

☐ Yes ☐ No

NOTE: A financial statement that is not either reviewed or audited is not acceptable. A letter verifying availability of a line of credit may also be attached; however, it will be considered as supplemental information only, and is not a substitute for the required financial statement.

10. Is the attached Financial Statement for the identical organization of the Bidder?

☐ Yes ☐ No

If “no”, explain the relationship and financial responsibility of the organization whose financial statement of provided (i.e., parent/subsidiary, etc.)

________________________________________________________________________

If more space is needed add a separate signed page (referring to this question).

11. Contractor possesses a VALID AND CURRENT California Contractor’s license for the project or projects for which it intends to submit a bid.

☐ Yes ☐ No

12. List the categories of work your firm typically performs with its own forces, and check the adjacent boxes of those categories of work that will be self-performed on this project

☐ ____________________________________________ ☐ ____________________________________________

☐ ____________________________________________ ☐ ____________________________________________

☐ ____________________________________________ ☐ ____________________________________________

13. On a separate signed page (referring to this question), list all construction projects your organization has in progress and for each project listed, state; (i) a general description of the work performed or to be performed by your organization; (ii) the owner’s name, name of the owner's representative, the owner's address and telephone number; (iii) the project architect, address and telephone number; (iv) percent presently completed and (v) the scheduled completion date.

14. On a separate signed page (referring to this question), list all construction projects completed by your organization in the past three years, and for each project, state: (i) a general description of the work performed by your organization on the project; (ii) the owner’s name, name of the owner's representative, the owner's address and telephone number; (iii) the initial and final contract amount; (iv) the initial and final dates of completion; and (v) whether the project was completed within contract time and contract budget.

15. Has a claim or other demand ever been made against your organization’s California Contractors License Bond?
☐ Yes ☐ No
If yes, on a separate signed page (referring to this question), state the following: (i) the name, address and telephone number of each person or entity making claim or demand; (ii) the date of each claim or demand; (iii) the circumstances giving rise to each such claim or demand; and (iv) the disposition of each such claim or demand.

16. Has a complaint ever been filed against your organization’s California Contractors License with the California Contractors State License Board (CSLB)?
☐ Yes ☐ No
If yes, on a separate signed page (referring to this question), state the following for each complaint: (i) the name, address and telephone number of each person or entity making the complaint; (ii) the date of each complaint; (iii) the circumstances giving rise to each such complaint; and (iv) the disposition of each such complaint, including without limitation, any disciplinary or other action imposed or taken by the California Contractors State License Board as a result of any such complaint.

17. Have any lawsuits or other proceedings ever been brought against your organization or any of its principals or officers in connection with any construction contract or construction project?
☐ Yes ☐ No
If “yes,” on a separate signed page (referring to this question) describe the circumstances, the amount or relief sought and the disposition of each such lawsuit or other proceeding.

18. Has your organization ever filed a lawsuit or initiated other proceedings in connection with any construction contract or construction project?
☐ Yes ☐ No
If “yes,” on a separate signed page (referring to this question) describe the circumstances, the amount or relief sought and the disposition of each such lawsuit or other proceeding.

19. Are there any judgments, orders or arbitration awards pending, outstanding or by which your organization or any of its officers or principals are bound by?
☐ Yes ☐ No
If “yes,” on a separate signed page (referring to this question) describe each such judgment, order or arbitration award and the present status of the satisfaction or discharge thereof.

20. Has any California State License Board (CSLB) license held by your firm, or its Responsible Managing Employee (RME) or Responsible Managing Officer (RMO) been suspended or revoked within the last five (5) years?
☐ Yes ☐ No

21. Has your organization ever failed to complete a construction contract?
☐ Yes ☐ No
If “yes,” on a separate signed page (referring to this question) state the following; (i) describe each such contract; (ii) the owner’s name, address and telephone number; (iii) a description of the project; and (iv) the circumstances of the failure to complete.

22. Has your organization ever been declared in default of a construction contract?
☐ Yes    ☐ No
If “yes,” on a separate signed page (referring to this question) state the following: (i) describe each such contract; (ii) the owner’s name, address and telephone number; (iii) a description of the project; and (iv) the circumstances of the declaration of default.

23. Has a claim or other demand ever been asserted against any Bid Bond, Performance Bond or Labor and Material Payment Bond posted by your organization in connection with any construction contract or your submittal of a bid or proposal on a construction contract?
☐ Yes    ☐ No
If “yes,” on a separate signed page (referring to this question) state the following: (i) state the name, address and telephone number of each such claimant; (ii) the date of the claim; and (iii) the disposition thereof.

24. At the time of submitting this qualification form, is your firm ineligible to bid on or be awarded a public works contract, or perform as a subcontractor on a public works contract, pursuant to either Labor Code section 1777.1 or Labor Code section 1777.7?
☐ Yes    ☐ No

25. At any time during the last five (5) years, has your firm, or any of its owners, officers, or partners been convicted of a crime involving the awarding of a contract of a government or Public construction project, or the bidding or performance of a government or Public contract?
☐ Yes    ☐ No

26. Has your firm or any of its owners, officers, or partners ever been convicted of a crime involving any federal, state, or local law related to bidding, awarding, or performance of any construction contract?
☐ Yes    ☐ No

27. Has your firm or any of its owners, officers or partners ever been found liable in a civil suit or found guilty in a criminal action for making any false claim or material misrepresentation to any public agency or entity in any way related to any construction contract?
☐ Yes    ☐ No

28. Is your firm CURRENTLY the debtor in a bankruptcy case?
☐ Yes    ☐ No

29. In the last twelve (12) months has your firm, or any firm with which any of your company’s owners, officers or partners was associated, been debarred, disqualified, removed or otherwise prevented from bidding on, or completing, any government agency or public works project for any reason?
NOTE: “Associated with” refers to another construction firm in which an owner, partner or officer of your firm held a similar position.
☐ Yes    ☐ No
If YES, on a separate signed page (referring to this question) state the following: (i) describe each such project; (ii) the owner’s name, address and telephone number; (iii) the circumstances and specific reason given for being prevented from bidding on or completing the project.
30. Has your organization ever refused to sign a contract awarded to it?
   ☐ Yes ☐ No
   If YES, on a separate signed page (referring to this question) state the following: (i) describe each
   such contract; (ii) the owner's name, address and telephone number; (iii) a description of the
   project; and (iv) the circumstances of the refusal to sign the contract.

31. In the last twelve (12) months has your firm been denied an award of a public works contract
    based on a finding by a public agency that your company was NOT a responsible bidder?
   ☐ Yes ☐ No
   If YES, on a separate signed page (referring to this question) state the following: (i) describe each
   such contract; (ii) the owner's name, address and telephone number; (iii) a description of the
   project; and (iv) the circumstances of the determination.

32. Contractor has CURRENT workers' compensation insurance policy as required by the Labor Code
    or is legally self-insured pursuant to Labor Code section 3700 et. seq.
   ☐ Yes ☐ No
   Contractor is exempt from this requirement, because it has no employees

33. Within the last two (2) years has there ever been a period when your firm had employees but was
    without Workers' Compensation insurance or state-approved self-insurance?
   ☐ Yes ☐ No

34. Attach to this statement true and correct copies of the following:

   34.1 Your organization's California Contractor's License (the copy must clearly and legibly show:
       (i) the licensee name; (ii) the expiration date; and (iii) the classification(s) of licensure).

   34.2 The Contractor's License Bond posted by your organization in connection with your
       organization's California Contractor's License pursuant to California Business & Professions
       Code 7071.5 and 7071.6 (the copy must clearly and legibly show; (i) the Bond number or
       other information sufficient for identification; (ii) the name, address and telephone number
       of the Surety on the Bond; (iii) the signature of the individual executing the Bond on behalf
       of the Surety and if such individual's authority is conferred by a power of attorney or by
       such individual's authority is conferred by a power of attorney or by such individual's
       designation as an attorney in fact on behalf of the Surety, include a clear and legible copy
       of such power of attorney or attorney in fact designation; (iv) the principal on such Bond;
       and (v) the expiration date of such Bond).

   34.3 If your organization's California Contractor's License is issued by virtue of the qualification
       of a responsible managing employee or responsible managing officer of your organization,
       the Qualifier's Bond, if required pursuant to California business & Professions Code 7071.9
       (the copy must clearly and legibly show; (i) the bond number or other information sufficient
       for identification; (ii) the name, address and telephone number of the Surety on the Bond;
       (iii) the signature of the individual executing the Bond on behalf of the Surety and if such
       individual's authority is conferred by a power of attorney or by such individual's designation
       as an attorney in fact on behalf of the Surety, include a clear and legible copy of such power

Contra Costa Community College District
Los Medanos College
L-527 Mechanical Systems Upgrade
of attorney or attorney in fact designation; (iv) the principal on such Bond; and (v) the expiration date of such Bond.

35. Certification

The responses to each and all of the foregoing are complete and accurate; there are no omissions of material fact or information such that would render any of the foregoing false or misleading; there are no misstatements of fact in any of the foregoing.

I, the undersigned, certify and declare that I have read all the foregoing answers to this Section and know their contents. The matters stated in the above answers are true of my own knowledge and belief, except as to those matters stated on information and belief, and as to those matters I believe them to be true. I declare under penalty of perjury under the laws of the State of California, that the foregoing is correct.

Dated: 

__________________________    __________________________
(Printed Name)

__________________________    __________________________
(Signature)

NOTARY PUBLIC

========================================================================================================

ACKNOWLEDGEMENT (By Corporation, Partnership or Individual)

STATE OF CALIFORNIA    )
) ss.  
COUNTY OF CONTRA COSTA  )

On ______________, before me, _____________________________, Notary Public, personally appeared _______________________________, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing is true and correct.

Witness my hand and official seal.

__________________________    __________________________
Notary Public

[SEAL]

========================================================================================================
SECTION 00450
CERTIFICATION OF SITE VISIT

The Governing Board of the
Contra Costa Community College District
500 Court Street
Martinez, California  94553

Gentlemen/Ladies:

I visited the Los Medanos L-527 Mechanical System Upgrade Project job site on,

_____________________________ at ________________ A.M.  P.M (Circle one)

to inspect the proposed work, which would be turned over to me in its present condition, with a representative of the Contra Costa Community College District in order to acquaint myself with the proposed work so that I might fully understand the facilities, difficulties, and restrictions attending the execution of the work under the contract, and acknowledge I had the opportunity to check the Record Drawing as-built drawings and/or previous Contract Documents, site conditions and Bid Documents with the authorized representative of the District.

OWNER REPRESENTATIVE:

_________________________________________ __________________________
Project Manager – CCC Facilities Date

or

_________________________________________ __________________________
Construction Manager Date

BIDDER:

_________________________________________
Name of Firm or Company

_________________________________________
Authorized Signatory

_________________________________________
Address

_________________________________________
Phone Number Fax Number

NOTE:  Any bidder who fails to return this CERTIFICATION, fully executed, including signature of company representative AND a Contra Costa Community College District representative, with the proposal form, may have their bid rejected as non-responsive.

END OF SECTION 00450
PAYMENT BOND
(CALIFORNIA PUBLIC WORK)

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, the Contra Costa Community College District (sometimes referred to hereinafter as “Obligee”) has awarded to __________________________________ (hereinafter designated as the “Principal” or “Contractor”), an agreement for the work described as follows: ______________________________________ (hereinafter referred to as the “Public Work”); and

WHEREAS, said Contractor is required to furnish a bond in connection with said Contract, and pursuant to California Civil Code Section 9550;

NOW, THEREFORE, We, _______________________________________, the undersigned Contractor, as Principal; and ________________________________, a corporation organized and existing under the laws of the State of ________________, and duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto the Contra Costa Community College District and to any and all persons, companies, or corporations entitled by law to file stop notices under California Civil Code Section 9100, or any person, company, or corporation entitled to make a claim on this bond, in the sum of ______________________ Dollars ($_____________), said sum being not less than one hundred percent (100%) of the total amount payable by said Obligee under the terms of said Contract, for which payment will and truly to be made, we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal, its heirs, executors, administrators, successors, or assigns, or subcontractor, shall fail to pay any person or persons named in Civil Code Section 9100; or fail to pay for any materials, provisions, or other supplies, used in, upon, or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Insurance Code, with respect to work or labor thereon of any kind; or shall fail to deduct, withhold, and pay over to the Employment Development Department, any amounts required to be deducted, withheld, and paid over by Unemployment Insurance Code Section 13020 with respect to work and labor thereon of any kind, then said Surety will pay for the same, in an amount not exceeding the amount herein above set forth, and in the event suit is brought upon this bond, also will pay such reasonable attorneys’ fees as shall be fixed by the court, awarded and taxed as provided in California Civil Code Sections 9550 et seq.

This bond shall inure to the benefit of any person named in Civil Code Section 9100 giving such person or his/her assigns a right of action in any suit brought upon this bond.

It is further stipulated and agreed that the Surety of this bond shall not be exonerated or released from the obligation of the bond by any change, extension of time for performance, addition, alteration or modification in, to, or of any contract, plans, or specifications, or agreement pertaining or relating to any scheme or work of improvement herein above described; or pertaining or relating to the furnishing of labor, materials, or equipment therefor; nor by any
change or modification of any terms of payment or extension of time for payment pertaining or relating to any scheme or work of improvement herein above described; nor by any rescission or attempted rescission of the contract, agreement or bond; nor by any conditions precedent or subsequent in the bond attempting to limit the right of recovery of claimants otherwise entitled to recover under any such contract or agreement or under the bond; nor by any fraud practiced by any person other than the claimant seeking to recover on the bond; and that this bond be construed most strongly against the Surety and in favor of all persons for whose benefit such bond is given; and under no circumstances shall the Surety be released from liability to those for whose benefit such bond has been given, by reason of any breach of contract between the Obligee and the Contractor or on the part of any obligee named in such bond; that the sole condition of recovery shall be that the claimant is a person described in California Civil Code Sections 9100, and who has not been paid the full amount of his or her claim; and that the Surety does hereby waive notice of any such change, extension of time, addition, alteration or modification herein mentioned.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this_____________ day of __________, 20____.

PRINCIPAL/CONTRACTOR:

________________________________________

By: _____________________________________

SURETY:

________________________________________

By: _____________________________________

Attorney-in-Fact
IMPORTANT: THIS IS A REQUIRED FORM.

Surety companies executing bonds must possess a certificate of authority from the California Insurance Commissioner authorizing them to write surety insurance defined in California Insurance Code Section 105, and if the work or project is financed, in whole or in part, with federal, grant or loan funds, Surety’s name must also appear on the Treasury Department’s most current list (Circular 570 as amended).

Any claims under this bond may be addressed to:

(Name and Address of Surety)  
________________________________________  
________________________________________  

(Name and Address of agent or representative for service for service of process in California)  
________________________________________  
________________________________________

Telephone: ___________________________  
Telephone: ___________________________

STATE OF CALIFORNIA  )
COUNTY OF    ) ss.

On ___________________________ before me, ______________________________________, (insert name and title of the officer), a Notary Public in and for said State, personally appeared _______________________________, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument as the Attorney-in-Fact of the _____________________ (Surety) and acknowledged to me that he/she/they subscribed the name of the _____________________ (Surety) thereto and his own name as Attorney-in-Fact on the executed instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

______________________________  
Notary Public in and for said State  
(SEAL)

Commission expires: ________________

NOTE: A copy of the power-of-attorney to local representatives of the bonding company must be attached hereto.
CONTRACT PERFORMANCE BOND
(CALIFORNIA PUBLIC WORK)

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, Contra Costa Community College District (sometimes referred to hereinafter as “Obligee”) has awarded to __________________________________________ (hereinafter designated as the “Principal” or “Contractor”), an agreement for the work described as follows: ____________________________________ (hereinafter referred to as the “Public Work”); and

WHEREAS, the work to be performed by the Contractor is more particularly set forth in that certain contract for said Public Work dated _____________ ____________________, (hereinafter referred to as the “Contract”), which Contract is incorporated herein by this reference; and

WHEREAS, the Contractor is required by said Contract to perform the terms thereof and to provide a bond both for the performance and guaranty thereof.

NOW, THEREFORE, we, ______________________________________, the undersigned Contractor, as Principal, and ________________________________, a corporation organized and existing under the laws of the State of ________________, and duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto the Contra Costa Community College District in the sum of _______________________________________ Dollars ($_______________), said sum being not less than one hundred percent (100%) of the total amount payable by said Obligee under the terms of said Contract, for which amount well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT, if the bounded Contractor, his or her heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions, and agreements in said Contract and any alteration thereof made as therein provided, on his or her part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their intent and meaning; and shall faithfully fulfill guarantees of all materials and workmanship; and indemnify, defend and save harmless the Obligee, its officers and agents, as stipulated in said Contract, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

The Surety, for value received, hereby stipulates and agrees that it shall not be exonerated or released from the obligation of this bond (either by total exoneration or pro tanto) by any change, extension of time, alteration in or addition to the terms of the contract or to the work to be performed there under or the specifications accompanying the same, nor by any change or modification to any terms of payment or extension of time for any payment pertaining or relating to any scheme of work of improvement under the contract. Surety also stipulates and agrees that it shall not be exonerated or released from the obligation of this bond (either by total exoneration
or pro tanto) by any overpayment or underpayment by the Obligee that is based upon estimates approved by the Architect. The Surety stipulates and agrees that none of the aforementioned changes, modifications, alterations, additions, extension of time or actions shall in any way affect its obligation on this bond, and it does hereby waive notice of any such changes, modifications, alterations, additions or extension of time to the terms of the contract, or to the work, or the specifications as well notice of any other actions that result in the foregoing.

Whenever Principal shall be, and is declared by the Obligee to be, in default under the Contract, the Surety shall promptly either remedy the default, or shall promptly complete the Contract through its agents or independent contractors, subject to acceptance and approval of such agents or independent contractors by Obligee as hereinafter set forth, in accordance with its terms and conditions and to pay and perform all obligations of Principal under the Contract, including, without limitation, all obligations with respect to warranties, guarantees and the payment of liquidated damages; or, at Obligee’s sole discretion and election, Surety shall obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Obligee of the lowest responsible bidder, arrange for a contract between such bidder and the Obligee and make available as Work progresses (even though there should be a default or succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the “balance of the Contract price” (as hereinafter defined), and to pay and perform all obligations of Principal under the Contract, including, without limitation, all obligations with respect to warranties, guarantees and the payment of liquidated damages. The term “balance of the Contract price,” as used in this paragraph, shall mean the total amount payable to Principal by the Obligee under the Contract and any modifications thereto, less the amount previously paid by the Obligee to the Principal, less any withholdings by the Obligee allowed under the Contract.

Surety expressly agrees that the Obligee may reject any agent or contractor which may be proposed by Surety in fulfillment of its obligations in the event of default by the Principal. Unless otherwise agreed by Obligee, in its sole discretion, Surety shall not utilize Principal in completing the Contract nor shall Surety accept a bid from Principal for completion of the work in the event of default by the Principal.

No final settlement between the Obligee and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

The Contractor and Surety shall remain responsible and liable for all patent and latent defects that arise out of or are related to the Contractor’s failure and/or inability to properly complete the Public Work as required by the Contract and the Contract Documents. The obligation of the Surety hereunder shall continue so long as any obligation of the Contractor remains.

Contractor and Surety agree that if the Obligee is required to engage the services of an attorney in connection with enforcement of the bond, Contractor and Surety shall pay Obligee’s reasonable attorneys’ fees incurred, with or without suit, in addition to the above sum.
In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including reasonable attorneys’ fees to be fixed by the Court.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of ______________________, 20__.

PRINCIPAL/CONTRACTOR:

________________________________________

By: ______________________________________

SURETY:

________________________________________

By: ______________________________________

Attorney-in-Fact

The rate of premium on this bond is ______________________________ per thousand.

The total amount of premium charged: $__________________________ (This must be filled in by a corporate surety).

IMPORTANT: THIS IS A REQUIRED FORM.

Surety companies executing bonds must possess a certificate of authority from the California Insurance Commissioner authorizing them to write surety insurance defined in California Insurance Code Section 105, and if the work or project is financed, in whole or in part, with federal, grant or loan funds, Surety’s name must also appear on the Treasury Department’s most current list (Circular 570 as amended).

Any claims under this bond may be addressed to:

(Name and Address of Surety) (Name and Address of agent or representative for service of process in California)
STATE OF CALIFORNIA  )
COUNTY OF  ) ss.
On ___________________________ before me, ______________________________________
(insert name and title of the officer)

On ____________________________, before me, _________________________, a Notary Public in and for said State, personally appeared _______________________________, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument as the Attorney-in-Fact of the _____________________ (Surety) and acknowledged to me that he/she/they subscribed the name of the ________________ (Surety) thereto and his own name as Attorney-in-Fact on the executed instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

(SEAL)
Notary Public in and for said State

Commission expires:_____________________

NOTE: A copy of the power-of-attorney to local representatives of the bonding company must be attached hereto.
SECTION 00510

NOTICE OF AWARD

DATE: _____________________

TO:  ___________________________________________

ADDRESS:  _______________________________________

PROJECT: ________________________________________

The Contract Sum of your contract is ________________________________ Dollars, ($_________________).

You must comply with the following conditions within ten (10) calendar days of the date of this Notice of Award, that is, by _________________.

1. You must deliver to the District two fully executed counterparts of Section 00600, “Construction Agreement.”

2. You must deliver to the District the “Contract Performance Bond,” and “Payment Bond,” executed by you and your surety, which are included in Section 00500.

3. You must deliver to District the insurance certificates required in Section 00700, for insurance required in Section 00600, Construction Agreement.

Failure to comply with these conditions within the time specified will entitle District to consider your bid abandoned, to annul this Notice of Award, and to declare your Bid Security forfeited. Within ten (10) calendar days after you comply with these conditions, the District will return to you one fully signed counterpart of the Construction Agreement.

Contra Costa Community College District

By: ________________________________

Title: ________________________________

END OF DOCUMENT
This Agreement shall not be enforceable until ratified and approved by the Contra Costa Community College District’s Governing Board. The estimated Board meeting date is ____________________.

§1.1 Parties: (Public Agency) CONTRA COSTA COMMUNITY COLLEGE DISTRICT
500 Court St, Martinez, CA 94553

Contractor
Address: ____________________________________________
______________________________________________________

§1.2 Effective Date: ________________________________

§1.3 The Work: L-527 Mechanical Systems Upgrade at Los Medanos College.

§1.4 Completion Time: 140 Calendar Days from the Notice to Proceed to Substantial Completion, and 30 Calendar Days from Substantial Completion to Final Completion (Remaining Work).

§1.5.1 Liquidated Damages, Substantial Completion: $1000 per Calendar Day beyond the Contract Substantial Completion Date.

§1.5.2 Liquidated Damages, Remaining Work/Final Completion: $500/ per calendar day Remaining Work is delayed beyond the Contract Final Completion Date.

§1.6 Public Agency’s Agent: CONTRA COSTA COMMUNITY COLLEGE DISTRICT (“District”)

§1.7 Contract Sum: __________ THOUSAND, __________ HUNDRED DOLLARS and NO CENTS ($000,000.00)

2. SCOPE OF WORK:

The Scope of Work consists of general construction including, but not limited to: removal and replacement of three (3) rooftop air handling units, abatement and demolition of existing air handling equipment, curbs, screens, piping, ductwork, controls & pumps; and supplying and installing all new air handling units, curbs, screens, associated piping, hydronics, pumps, ductwork, flashings, electrical, controls and equipment required for a fully operational system. Other Work includes removal and replacement of the roof membrane and temporary heating/cooling in the areas affected by the project.
3. **WORK CONTRACT, CHANGES**

(a) By their signatures below, effective on the above date, these parties promise and agree as set forth in this Agreement, incorporating by these references labor and materials contained in Section 2, Scope of Work.

(b) Contractor shall, at Contractor's own cost and expense, and in a workmanlike manner, fully and faithfully perform and complete the work; and will furnish all materials, labor, services, equipment, and transportation necessary, convenient and proper in order fairly to perform the requirements of this contract, all strictly in accordance with the Public Agency’s- drawings and specifications.

(c) The work can be changed only with Public Agency’s prior written order specifying such change and its cost agreed to by the parties; and the Public Agency shall never have to pay more than specified in Section 1.7 without such an order.

4. **TIME: NOTICE TO PROCEED AND ACCEPTANCE**

(a) Contractor shall start this work as directed in the specifications or the Notice to Proceed and shall complete it as specified in Section 1, Completion Time.

(b) Remaining Work after Substantial Completion. If the Architect or District determines that the work required by the Contract is Substantially Complete during any inspection conducted pursuant to this Agreement or Specification Section 00700, General Conditions, the Contractor shall be notified of that determination and the District shall determine if there is Remaining Work. A list of Remaining Work shall be issued only by the District or the Architect and only after the District has certified Substantial Completion. The District or Architect shall give the Contractor the necessary instructions for correction or completion of the Remaining Work, and the Contractor shall immediately comply with and execute such instructions within the Contract Time. Upon completion of the Remaining Work, another inspection shall be made that shall constitute the Final Inspection, provided the Remaining Work has been completed to the satisfaction of the District. If the remaining work has been completed to the satisfaction of the District, the District shall make the final acceptance and notify the Contractor in writing of this acceptance as of the date of Final Inspection.

(c) Final Acceptance – Upon due notice from the Contractor of completion of the entire project, the District shall make an inspection. If all construction provided for and contemplated by the contract is found to be completed to the District’s satisfaction then that inspection shall constitute the Final Inspection and the District shall notify the Contractor in writing of final acceptance effective as of the date of the Final Inspection.

(d) Default for failure to Complete Remaining Work In the event the Contract Time expires before the Remaining Work is completed to the satisfaction of the District, the District may provide notice to the Contractor that the Remaining Work shall be completed by Contractor to the satisfaction of the District within ten consecutive calendar days from the date of such notice. The failure of the Contractor to satisfactorily complete the Remaining Work within the ten days shall entitle to District to declare Contractor in default and thereafter terminate the Contract. The ten-day notice provided under this paragraph shall not be construed as adding any time to the Contract Time and is a time period solely for the purposes of providing notice of default.

(e) Application for Final Payment. After the Contractor has completed all Remaining Work to the satisfaction of the District and delivered all maintenance and operating instructions, schedules, guarantees, warranties, bonds, certificates of inspection, marked-up record documents and other
documents as required by the Contract, and after the District or Architect has indicated that the work is acceptable, Contractor may make application for final payment following the Payments Procedures for progress payments. The final application for payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to the District) of all liens arising out of or filed in connection with the work on the project.

(f) Final Payment and Acceptance. If the Architect determines that the work has been completed and the Contractor’s other obligations under the Contract have been fulfilled, the Architect shall, within ten working days after receipt of the final application for payment, indicate in writing the Architect’s recommendation of payment and present the application to District for payment. Thereupon the Architect shall prepare a Certificate of Final Completion. Otherwise, Architect shall return the application to Contractor indicating in writing the reasons for refusing to recommend final payment. Contractor shall make the corrections identified in the Architect’s refusal to recommend final payment. Thirty days after presentation to District of the application and accompanying documentation, with the Architect’s recommendation and notice of acceptability of the work, the amount recommended by Architect shall be come due and payable by District to Contractor.

5. LIQUIDATED DAMAGES

5.1 LIQUIDATED DAMAGES - SUBSTANTIAL COMPLETION

If the Contractor fails to complete this contract and this Work within the time fixed therefore, allowance being made for contingencies as provided herein, Contractor becomes liable to the Public Agency for all its loss and damage there from; and because, from the nature of the case, it is and will be impracticable and extremely difficult to ascertain and fix the Public Agency's actual damage from any delay in performance hereof, it is agreed that Contractor will pay as liquidated damages to the Public Agency the reasonable sum specified in Section 1, the result of the parties' reasonable endeavor to estimate fair average compensation therefore, for each calendar day's delay in finishing said Work; and if the same be not paid, Public Agency may, in addition to its other remedies, deduct the same from any money due or to become due Contractor under this Contract. If the Public Agency for any cause authorizes or contributes to a delay, suspension of work or extension of time, its duration shall be added to the time allowed for completion, but it shall not be deemed a waiver nor be used to defeat any right of the Agency to damages for non-completion or delay hereunder. Pursuant to Government Code Section 4215, the Contractor shall not be assessed liquidated damages for delay in completion of the work, when such delay was caused by the failure of the Public Agency or the owner of a utility to provide for removal or relocation of existing utility facilities.

5.2 LIQUIDATED DAMAGES-THE REMAINING WORK

The Remaining Work, as such work is determined by the Public Agency or Public Agency's Representative, shall be completed within the Contract Time or any proper extension thereof granted by Public Agency. If the Contractor shall neglect, fail or refuse to complete the Remaining Work within the Contract Time or any proper extension thereof granted by the Public Agency, then the Contractor does hereby agree, as part consideration for the awarding of this Contract, to pay to the Public Agency the amount specified in the Contract, not as a penalty but as liquidated damages for the Remaining Work.
for each such breach of Contract set forth herein for each and every consecutive calendar day that the Contractor shall be in default after expiration of the Contract Time.

6. INTEGRATED DOCUMENTS

The drawings and specifications and special provisions of the Public Agency’s Notice Inviting Bids, and Contractor’s accepted bid for this work are hereby incorporated into this Contract; and they are intended to cooperate, so that anything exhibited in the drawings and not mentioned in the specifications or special provisions, or vice versa, is to be executed as if exhibited, mentioned and set forth in both, to the true intent and meaning thereof when taken all together; and differences of opinion concerning these shall be finally determined by the Public Agency.

7. PAYMENT

(a) For strict and literal fulfillment of these promises and conditions, and full compensation for all this work, the Public Agency shall pay the Contractor the sum specified in Section 1, except that in unit price contracts the payment shall be for finished quantities at unit bid prices.

(b) On or about the first day of each calendar month, the Contractor shall submit to the Public Agency a verified application for payment, supported by a statement showing all materials actually installed during the preceding month, the labor expended thereon, and the cost thereof; whereupon, after checking, the Public Agency shall issue to Contractor a certificate for the amount determined to be due, minus five (5%) percent thereof pursuant to the Public Agency’s General Terms and Conditions, but not until defective work and materials have been removed, replaced and made good.

8. PAYMENTS WITHHELD

(a) The Public Agency or its agent may withhold any payment, or because of later discovered evidence nullify all or any certificate for payment, to such extent and period of time only as may be necessary to protect the Public Agency from loss because of:

(1) Defective work not remedied, or work not completed, or
(2) Claims filed or reasonable evidence indicating probable filing, or
(3) Failure to properly pay subcontractors or for material or labor, or
(4) Reasonable doubt that the work can be completed for the balance then unpaid, or
(5) Damage to another contractor, or
(6) Damage to the Public Agency, other than damage due to delays.

(b) The Public Agency shall use reasonable diligence to discover and report to the Contractor, as the work progresses, the materials and labor which are not satisfactory to it, so as to avoid unnecessary trouble or cost to the Contractor in making good any defective work or parts.

(c) Thirty-five (35) calendar days after Public Agency files its notice of completion of the entire work, it shall issue a certificate to the Contractor and pay the balance of the contract sum after deducting all amounts withheld under this contract, provided the Contractor shows that all claims for labor and materials have been paid, no claims have been presented to the Public Agency based on acts or omissions of the Contractor, and no liens or withhold notices have been filed against the work.
or site, and provided there are not reasonable indications of defective or missing work or of late-
recorded notices of liens or claims against Contractor.

9. **INSURANCE**

**Contractor’s Liability Insurance:** Before the commencement of the Work, the Contractor shall purchase
from and maintain in a company or companies lawfully authorized to do business in California as
admitted carriers with a financial rating of at least A status as rated in the most recent edition of Best’s
Insurance Reports or as amended by the Supplementary General Conditions, if any, such insurance as
will protect the Public Agency from claims set forth below, which may arise out of or result from the
Contractor’s operations under the Contract and for which the Contractor may be legally liable, whether
such operations are by the Contractor, by a Subcontractor, by anyone directly or indirectly employed by
any of them, or by anyone for whose acts any of them may be liable.

(a) Claims for damages because of bodily injury, sickness, disease, or death of any person District
would require indemnification and coverage for employee claim;

(b) Claims for damages insured by usual personal injury liability coverage, which are sustained by a
person as a result of an offense directly or indirectly related to employment of such person by the
Contractor or by another person;

(c) Claims for damages because of injury or destruction of tangible property, including loss of use
resulting therefrom, arising from operations under the Contract Documents;

(d) Claims for damages because of bodily injury, death of a person, or property damage arising out of
the ownership, maintenance, or use of a motor vehicle, all mobile equipment, and vehicles moving
under their own power and engaged in the Work;

(e) Claims involving contractual liability applicable to the Contractor’s obligations under the Contract
Documents, including liability assumed by and the indemnity and defense obligations of the
Contractor and the Subcontractors; and

(f) Claims involving Completed Operations, Independent Contractors’ coverage, and Broad Form
property damage, without any exclusions for collapse, explosion, demolition, underground
coverage, and excavating. (XCU)

(g) Claims involving sudden or accidental discharge of contaminants or pollutants.

**Subcontractor Insurance Requirements:** The Contractor shall require its Subcontractors to take out and
maintain similar public liability insurance and property damage insurance as required under the above
paragraph, titled “Contractor’s Liability Insurance, in amounts commensurate with the value of the
subcontract. A “claims made” or modified “occurrence” policy shall not satisfy the requirements of the
above paragraph, titled “Contractor’s Liability Insurance, without prior written approval of the District.

**Additional Insured Endorsement Requirement:** The Contractor shall name, on any policy of insurance,
the District, Architect, Inspector, the State of California, their officers, employees, agents and
independent contractors as Additional Insured. Subcontractors shall name the Contractor, the District,
Architect, Inspector, the State of California, their officers, employees, agents and independent
contractors as Additional Insured.

The Additional Insured Endorsement included on all such insurance policies shall state that coverage is
afforded the additional insured with respect to claims arising out of operations performed by or on behalf
of the insured. If the Additional Insured have other insurance which is applicable to the loss, such other insurance shall be on an excess or contingent basis. The insurance provided by the Contractor must be designated in the policy as primary to any insurance obtained by the Public Agency. The amount of the insurer’s liability shall not be reduced by the existence of such other insurance.

**Workers’ Compensation Insurance**: During the term of this Contract, the Contractor shall provide workers’ compensation insurance for all of the Contractor’s employees engaged in Work under this Contract on or at the Site of the Project and, in case any of the Contractor’s Work is subcontracted, the Contractor shall require the Subcontractor to provide workers’ compensation insurance for all the Subcontractor’s employees engaged in Work under the subcontract. Any class of employee or employees not covered by a Subcontractor’s insurance shall be covered by the Contractor’s insurance. In case any class of employees engaged in Work under this Contract on or at the Site of the Project is not protected under the Workers’ Compensation laws, the Contractor shall provide or cause a Subcontractor to provide adequate insurance coverage for the protection of those employees not otherwise protected. The Contractor shall file with the District certificates of insurance as required under Section 00700, Article 11.6, and in compliance with Labor Code § 3700.

**Specific Insurance Requirement**: Contractor shall take out and maintain and shall require all subcontractors, if any, whether primary or secondary, to take out and maintain:

(a) **Workers’ Compensation Insurance**: $1,000,000.00; Contractor is aware of and complies with Labor Code Section 3700 and the Worker’s Compensation Law.

(b) **Comprehensive General Liability Insurance** with a combined single limit per occurrence of not less than $1,000,000.00 and $2,000,000.00 project specific aggregate, or Commercial General Liability Insurance (including automobile insurance) which provides limits of not less than:

1. Per occurrence (combined single limit) $1,000,000.00
2. Project Specific Aggregate (for this project only) $2,000,000.00
3. Products and Completed Operations $1,000,000.00

(c) **Insurance Covering Special Hazards**

The following Special hazards shall be covered by riders or riders to above mentioned public liability insurance or property damage insurance policy or policies of insurance, in amounts as follows:

1. Automotive and truck where operated in amounts $1,000,000.00
2. Material Hoist where used in amounts $1,000,000.00
3. Explosion, Collapse and Underground (XCU coverage) $1,000,000.00

(d) In addition, provide **Excess Liability Insurance** coverage in the amount of Two Million Dollars ($2,000,000.00).

**Builder’s Risk/ “All Risk” Insurance/Course-of-Construction Insurance Requirements**: The Contractor, during the progress of the Work and until final acceptance of the Work by District upon completion of the entire Contract, shall maintain Builder’s Risk, Course of Construction or similar first party property coverage issued on a replacement cost value basis consistent with the total replacement cost of all insurable Work and the Project included within the Contract Documents. Coverage is to insure against
all risks of accidental direct physical loss, and must include, by the basic grant of coverage or by endorsement, the perils of vandalism, malicious mischief (both without any limitation regarding vacancy or occupancy), fire, sprinkler leakage, civil authority, sonic boom, earthquake, flood, collapse, wind, lightning, smoke and riot. The coverage must include debris removal, demolition, increased costs due to enforcement of building ordinance and law in the repair and replacement of damage and undamaged portions of the property, and reasonable costs for the Architect’s and engineering services and expenses required as a result of any assured loss upon the Work and Project which is the subject of the Contract Documents, including completed Work and Work in progress, to the full insurable value thereof. Such insurance shall include the District and the Architect as additional named insureds, and any other person with an insurable interest as designated by the District.

The Contractor shall submit to the District for its approval all items deemed to be uninsurable. The risk of the 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.

10. BONDS

Bond Requirements: Prior to commencing any portion of the Work, the Contractor shall furnish separate payment and performance bonds for its portion of the Work which shall cover 100% faithful performance of and payment of all obligations arising under the Contract Documents and/or guaranteeing the payment in full of all claims for labor performed and materials supplied for the Work. All bonds shall be provided by a corporate surety authorized and admitted to transact business in California as sureties.

To the extent, if any, that the Contract Sum is increased in accordance with the Contract Documents, the Contractor shall, upon request of the Public Agency, cause the amount of the bonds to be increased accordingly and shall promptly deliver satisfactory evidence of such increase to the Public Agency. To the extent available, the bonds shall further provide that no change or alteration of the Contract Documents (including, without limitation, an increase in the Contract Sum, as referred to above), extensions of time, or modifications of the time, terms, or conditions of payment to the Contractor will release the surety. If the Contractor fails to furnish the required bonds, the Public Agency may terminate the Contract for cause.

On signing this contract, Contractor shall deliver to Public Agency for approval good and sufficient bonds with sureties, in amount(s), specified in the specifications or special provisions, guaranteeing faithful performance of this contract and payment for all labor and materials hereunder.

Surety Qualifications: Only bonds executed by admitted Surety insurers as defined in Code of Civil Procedure § 995.120 shall be accepted. Surety must be a California-admitted surety and listed by the U.S. Treasury with a bonding capacity in excess of the Project cost.

Alternate Surety Qualifications: If a California-admitted surety insurer issuing bonds does not meet these requirements, the insurer will be considered qualified if it is in conformance with § 995.660 of the California Code of Civil Procedure and proof of such is provided to the District.
11. FAILURE TO PERFORM

If the Contractor at any time refuses or neglects, without fault of the Public Agency or its agent(s), to supply sufficient materials or workers to complete this agreement and work as provided herein, for a period of ten days or more after written notice thereof by the Public Agency, the Public Agency may furnish same and deduct the reasonable expenses thereof from the contract price.

12. LAWS APPLY: General

Both parties recognize the applicability of various federal, state and local laws and regulations, especially Chapter 1 of Part 7 of the California Labor Code (beginning with Section 1720, and including Sections 1735, 1777.5, 1777.6, forbidding discrimination) and intend that this agreement complies therewith. The parties specifically stipulate that the relevant penalties and forfeitures provided in the Labor Code, especially in Sections 1775, 1776, and 1813, concerning prevailing wages and hours, shall apply to this agreement as though fully stipulated herein.

13. SUBCONTRACTORS

Public Contract Code Sections 4100-4113 are incorporated herein.

14. WAGE RATES

(a) Pursuant to Labor Code Section 1773, the Director of the Department of Industrial Relations has ascertained the general prevailing rates of wages per diem, and for holiday and overtime work, in the locality in which this work is to be performed, for each craft, specified in the call for bids for this work and are on file with the Public Agency, and are hereby incorporated herein.

(b) This schedule of wages is based on a working day of eight (8) hours unless otherwise specified; and the daily rate is the hourly rate multiplied by the number of hours constituting the working day. When less than that number of hours are worked, the daily wage rate is proportionately reduced, but the hourly rate remains as stated.

(c) The Contractor, and all subcontractors, must pay at least these rates to all persons on this work, including all travel, subsistence, and fringe benefit payments provided for by applicable collective bargaining agreements. All skilled labor not listed above must be paid at least the wage scale established by collective bargaining agreement for such labor in the locality where such work is being performed. If it becomes necessary for the Contractor or any subcontractor to employ any person in a craft, classification or type of work (except executive, supervisory, administrative, clerical or other non-manual workers as such) for which no minimum wage rate is specified, the contractor shall immediately notify the Public Agency which shall promptly determine the prevailing wage rate therefore and furnish the Contractor with the minimum rate based thereon, which shall apply from the time of the initial employment of the person affected and during the continuance of such employment.

15. HOURS OF LABOR
Eight hours of labor in one calendar day constitutes a legal day's work, and no worker employed at any time on this work by the Contractor or by any subcontractor shall be required or permitted to work longer thereon except as provided in Labor Code Sections 1810-1815.

16. **APPRENTICES**

Properly indentured apprentices may be employed on this work in accordance with Labor Code Sections 1777.5 and 1777.6, forbidding discrimination.

17. **PREFERENCE FOR MATERIALS**

The Public Agency desires to promote the industries and economy of Contra Costa County, and the Contractor therefore promises to use the products, workers, laborers and mechanics of this County in every case where the price, fitness and quality are at least equal.

18. **ASSIGNMENT**

This agreement binds the heirs, successors, assigns, and representatives of the Contractor; but Contractor cannot assign it in whole or in part, nor any monies due or to become due under it, without the prior written consent of the Public Agency and the Contractor's surety or sureties, unless they have waived notice of assignment.

19. **NO WAIVER BY PUBLIC AGENCY**

Inspection of the work and/or materials, or approval of work and/or materials inspected, or statement by any officer, agent or employee of the Public Agency indicating the work or any part thereof complies with the requirements of this contract, or acceptance of the whole or any part of said work and/or materials, or payments therefore, or any combination of these acts, shall not relieve the Contractor of Contractor's obligation to fulfill this contract as prescribed; nor shall the Public Agency be thereby stopped from bringing any action for damages or enforcement arising from the failure to comply with any of the terms and conditions hereof.

20. **HOLD HARMLESS AND INDEMNITY**

(a) Contractor promises to and shall hold harmless and indemnify from the liabilities as defined in this section.

(b) The indemnities benefited and protected by this promise are the Public Agency and its elective and appointive boards, commissions, officers, agents and employees.

(c) The liabilities protected against are any liability or claim for damage of any kind allegedly suffered, incurred or threatened because of actions defined below, including personal injury, death, property damage, inverse condemnation, or any combination of these, regardless of whether or not such liability, claim or damage was unforeseeable at any time before the Public Agency approved the improvement plan or accepted the improvements as completed, and including the defense of any suit(s) or action(s) at law or equity concerning these.
(d) The actions causing liability are any act or omission (negligent or non-negligent) in connection with the matters covered by this contract and attributable to the contractor, subcontractor(s), or any officer(s), agent(s), or employee(s) of one or more of them.

(e) Non-conditions: The promise and agreement in this section is not conditioned or dependent on whether or not any Indemnities has prepared, supplied, or approved any plan(s), drawing(s), specifications(s) or special provision(s) in connection with this work, has insurance or other indemnification covering any of these matters, or that the alleged damage resulted partly from any negligent or willful misconduct of any Indemnities.

21. EXCAVATION

Contractor shall comply with the provisions of Labor Code Section 6705, if applicable, by submitting to Public Agency a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during trench excavation.

22. GOVERNMENT CODE SECTION 10532

Contractor shall be subject to the examination and audit of the Auditor General for a period of three years after final payment under the contract.

23. WARRANTY

(a) In addition to any other warranties or guaranties in the Contract Documents, the Contractor warrants, except as provided in paragraph (i) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.

(b) This warranty shall continue for a period of 1 year from the date of final acceptance of the Work or Phase of Work, unless otherwise provided or extended in the Contract Documents. If the District takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the District takes possession.

(c) The Contractor shall remedy at the Contractor’s expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor’s expense any damage to District-owned or controlled real or personal property, when that damage is the result of—

(1) The Contractor’s failure to conform to contract requirements; or
(2) Any defect of equipment, material, workmanship, or design furnished.

(d) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor’s warranty with respect to work repaired or replaced will run for 1 year or as otherwise provided or extended from the date of repair or replacement.

(e) The District shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.
(f) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the District shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor’s expense.

(g) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall—

(1) Obtain all warranties that would be given in normal commercial practice;
(2) Require all warranties to be executed, in writing, for the benefit of the District, if directed by the District; and
(3) Enforce all warranties for the benefit of the District, if directed by the District.

(h) In the event the Contractor’s warranty under paragraph (b) of this clause has expired, the District may bring suit at its expense to enforce a subcontractor’s, manufacturer’s, or supplier’s warranty.

(i) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material or design furnished by the District nor for the repair of any damage that results from any defect in District-furnished material or design.

(j) This warranty shall not limit the District’s rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.

24. CONSEQUENTIAL DAMAGES

The Contractor and Public Agency waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes:

(a) Damages incurred by the Public Agency for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

(b) Damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party’s termination. Nothing contained in this subparagraph shall be deemed to preclude an award of liquidated direct damages, when applicable, in accordance with the requirements of the Contract Documents.

25. HAZARDOUS MATERIALS

(a) If reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos, lead or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Public Agency in writing.

(b) The Public Agency shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance
is found to be present, to verify that it has been rendered harmless. The Public Agency shall furnish in writing to the Contractor the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written notification from the Public Agency and Contractor. The Contract Time shall be extended appropriately.

26. SAFETY

(a) Safety Programs. In addition to and as required by other Sections of the Contract Documents, 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. Prior to commencement of Work, the Contractor shall meet with the Campus Buildings and Grounds Manager, Project Manager, and Construction Manager to review Contractor's safety precautions and implementation of safety programs during the Work.

(b) Safety Precautions. In addition to and as required by other Sections of the Contract Documents, 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 the Contractor's Subcontractors or Sub-subcontractors; and (iii) other property or items at the site of the Work, or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction. The Contractor shall take adequate precautions and measures to protect existing roads, sidewalks, curbs, pavement, utilities, adjoining property and improvements thereon (including without limitation, protection from settlement or loss of lateral support) and to avoid damage thereto. Without adjustment of the Contract Price or the Contract Time, the Contractor shall repair, replace or restore any damage or destruction of the foregoing items as a result of performance or installation of the Work.

(c) Safety Signs, Barricades. In addition to and as required by other Sections of the Contract Documents, 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, promulgating safety regulations and notifying Districts and users of adjacent sites and utilities.
(d) **Safety Notices.** In addition to and as required by other Sections of the Contract Documents, the Contractor shall give or post all notices required by applicable law and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

27. **SIGNATURES AND ACKNOWLEDGEMENT**

**Public Agency,**

By: ________________________________  
David Wetmore, Director of Purchasing and Contracts

**Note to Contractor:** (1) Execute acknowledgement form below, and (2) if a corporation, affix Corporate Seal.

**Contractor** hereby also acknowledging awareness of and compliance with Labor Code S1861 concerning Worker's Compensation Law.

**Contractor:**

By: ________________________________ (CORPORATE SEAL)  
(Designate Official Capacity – COMPANY NAME)

________________________________________
Print NAME and TITLE

License Number                  Federal ID Number

**NOTARY PUBLIC**

State of California )ss. ACKNOWLEDGEMENT (By Corporation, Partnership or Individual)
County of Contra Costa )

The person(s) signing above for Contractor, known to me in individual and business capacity as stated, personally appeared before me today and acknowledged that he/she/they executed it and that the corporation or partnership named above executed it.
Dated: ________________________________

____________________________________

(NOTARIAL SEAL)

END OF SECTION 00600
SECTION 00650
NOTICE TO PROCEED

Date: ___________________________

TO: _________________________________________________________

ADDRESS: ____________________________________________________

PROJECT: ______________________________________________________

You are notified that the Contract Time under the above contract will commence to run on ____________. By that date, you are to start performing your obligations under the Contract Documents. In accordance with Section 00600, Construction Agreement, the date of Substantial Completion is ______________________, and the date for Final Completion is ________________________.

CONTRA COSTA COMMUNITY COLLEGE DISTRICT

By: __________________________________________________________
    Ray Pyle

Title: Chief Facilities Planner

END OF DOCUMENT
### Section 00700

**GENERAL CONDITIONS**

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ARTICLE 1

GENERAL CONDITIONS

1.1 BASIC DEFINITIONS

1.1.1 Action of the Governing Board is a vote of a majority of the District’s governing board.

1.1.2 Approval for a Contract, Agreement, or Change Order means written authorization through action of the governing board unless specific delegation of approval authority is delegated to a District representative.

1.1.3 Approved. The term “approved,” when used to convey Architect’s action on Contractor’s submittals, applications, and requests, is limited to Architect’s duties and responsibilities as stated in the Conditions of the Contract.

1.1.4 Architect means the architect, engineer, or other design professional engaged by the District to design and perform general observation of the work of construction and interpret the drawings and specifications for the Project.

1.1.5 As shown, as indicated, as detailed refer to drawings accompanying this specification.

1.1.6 Bid/Bidders. The term Bid and Proposal have the same meaning, and the same is true for Bidders and Proposers.

1.1.7 Contract or Agreement. When the terms are used in these General Conditions shall be references to the Contract Documents as defined herein.

1.1.8 Contract Time. Contract Time means the number of consecutive calendar days specified in the contract immediately after the date to commence work issued by Owner in the Notice to Proceed and includes both the time allowed for completion of the work required to achieve Substantial Completion and the time allowed to complete the Remaining Work.

1.1.9 Contractor. Whenever the term “Contractor” is used in the Contract or elsewhere in the Contract Documents, it refers to a person or entity that has an agreement directly with the District to perform any of the work for the Project. The term Contractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Contractor or his authorized representative. The term Contractor does not include any contractors under separate and direct contract with the District. A Subcontractor is a person or entity that has a direct or indirect contract with the Contractor to perform any of the Work at the site.

1.1.10 Contractor’s Construction Schedule. The document prepared by the Contractor, which details the events of construction and establishes completion dates for the various stages of the Work and the entire project.

1.1.11 The Contract Documents. The Contract Documents consist of the Agreement between District and Contractor (hereinafter the Agreement or Contract), Conditions of the Contract
(General, Supplementary and other Conditions), Drawings, Specifications, addenda issued prior to bid, instructions to bidders, notice to bidders, and the requirements contained in the Bid Documents, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is a written amendment to the Contract signed by parties, a Change Order, a Construction Change Directive, or a written order for a minor change in the Work issued by the Architect. The Contract Documents collectively form the Contract. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a written Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind between the Architect and Contractor, between the District and any Subcontractor or Sub-subcontractor, or between any persons or entities other than the District and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect’s duties.

1.1.12 Contractor, District, and Architect are those mentioned as such in the Agreement. They are treated throughout the Contract Documents as if they are of singular number and neuter gender. Any reference to “Owner” shall mean “District.”

1.1.13 Construction Manager. Whenever the term “Construction Manager” or “CM” is used in the contract or elsewhere in the Contract Documents, it refers to the District assigned Construction Manager, or the District Project Manager if no CM is assigned.

1.1.14 Days means calendar days, unless otherwise noted as working days.

1.1.15 Directed. Terms such as “directed,” “requested,” “authorized,” “selected,” “approved,” “required,” and “permitted” mean directed by the Architect or the District, requested by the Architect or District, and similar phrases.

1.1.16 District. Whenever the term “District” is used in the Contract Documents, it refers to the Contra Costa Community College District or those persons designated by the District to act in/on its behalf.

1.1.17 The Drawings are graphic and pictorial portions of the Contract Documents prepared for the Project and approved changes thereto, wherever located and whenever issued, showing the design, location, and scope of the Work, generally including plans, elevations, sections, details, schedules, and diagrams as drawn or approved by the Architect.

1.1.18 Emergency shall be defined as a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services. Emergency includes such occurrences as fire, flood, earthquake, or other soil or geologic movements, as well as such occurrences as riot, accident, or sabotage.

1.1.19 Exposed. Whenever this term is used it shall be understood to mean any item or surface, exterior, or interior, which can be seen by a person outside the building, or seen by a person inside any usable space within the building during normal activity. Mechanical and electrical rooms, utility and service tunnels, air handling rooms, and penthouses or platforms shall be considered to have exposed surfaces, as shall the mechanical and electrical construction within them. The interior of closets and alcoves shall be considered exposed surfaces, and shall be finished to match the finish of the adjoining
room or space, unless another finish is shown. The interiors of cabinets shall be considered exposed, but
a finish different from that of the exterior may be permitted or specified. Spaces which are not normally
occupied or used by occupants or building staff, such as shafts, hoistways, ceiling plenums, attics and
crawl spaces shall be considered “concealed” spaces, unless finishes are shown or specified for their
surfaces.

1.1.20 Final Completion. The date when all Work for the total project has been
completed in accordance with the terms of the Contract Documents and has been inspected following
completion of Work identified in the Punchlist Inspection and accepted by the Architect and the District.

1.1.21 Furnish. Whenever this term is used it shall be understood to mean “purchase
and deliver to the project site” ready for unloading, unpacking, assembly, installation, and similar
operations.

1.1.22 Governing Dictionary. The definitions of words used in these Specifications,
which are not defined, The General Conditions, or in referenced standards, are as given in “The American
Heritage Dictionary of the English Language”.

1.1.23 Indicated. The term “indicated” refers to graphic representations, notes, or
schedules on Drawings or to other paragraphs or schedules in Specifications and similar requirements in
the Contract Documents. Terms such as “shown,” “noted,” “scheduled,” and “specified” are used to help
the user locate the reference.

1.1.24 Inspector of Record is the individual retained by the District in accordance with
titles 21 and 24 of the California Code of Regulations and who will be assigned to the Project. May also
be referred to as the Project Inspector.

1.1.25 Install. Whenever this term is used it shall be understood to mean “receive,
unload, inventory, store and be responsible for at the project site, transport from point of receipt to final
destination, protect, unpack, erect, install in place, anchor, connect, apply, and place in operation or
finish, cleaning, complete for intended use.”

1.1.26 Installer. An installer is the Contractor or another entity engaged by Contractor
as an employee, Subcontractor, or Sub subcontractor, to perform a particular construction operation,
including installation, erection, application, and similar operations. Using a term such as “carpentry” does
not imply that certain construction activities must be performed by accredited or unionized individuals of
a corresponding generic name, such as “carpenter.” It also does not imply that requirements specified
apply exclusively to trades people of the corresponding generic name.

1.1.27 Locality in which the work is performed means the county in which the Project
is located.

1.1.28 Option. Whenever this term is used it shall be understood to mean a choice
from among the specified products or procedures which shall be made by the Contractor. The choice is
not “whether” the work is to be performed, but “which” product or “which” procedure is to be used. The
product or procedure chosen by the Contractor shall be provided at no increase in the cost to the District
with no lessening of the Contractor’s responsibility for its performance. All or any options selected or proposed are still subject to all requirements for submittals and for approval of same.

1.1.29 Or Equal and Or Approved Equal. The terms “or equal” and “or approved equal” shall mean “or equal as approved in writing by the Architect”.

1.1.30 The Project is the complete construction of the Work performed in accordance with the Contract Documents.

1.1.31 The Project Manual. The Project Manual is the volume assembled for the Work which may include, without limitation, the bidding requirements, sample forms, Conditions of the Contract, and Specifications.

1.1.32 The Project Site. Project site is the space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.1.33 Provide shall include “provide complete in place,” that is “furnish and install.” Complete and ready for the intended use.

1.1.34 Punch List Inspection. The inspection performed by the Construction Manager, Architect and the District upon written notification by the Contractor that the Work is substantially complete.

1.1.35 Regulations. The term “regulations” includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.

1.1.36 Remaining Work. Remaining Work means the work required by the Contract, but not required for Substantial Completion, that the District or Architect determines has not been satisfactorily completed at the time of Substantial Completion, deferred commissioning requirements, deferred and seasonal testing, and all maintenance and operating instructions, schedules, reports, guaranties, warranties, bonds, certificates of inspection, marked-up record documents, prevailing wage compliance reports and all other documents as required by the Contract Documents. Remaining Work may also be referred to as Punch List work.

1.1.37 Safety Orders are those issued by any cognizant city, county, state or federal agency.

1.1.38 Site refers to the grounds of the Project as defined in the Contract Documents and such adjacent lands as may be directly affected by the performance of the Work.

1.1.39 The Specifications. The Specifications are that portion of the Contract Documents consisting of the written requirements for material, equipment, construction systems, instructions, quality assurance standards, workmanship, and performance of related services.

1.1.40 Specification Language. These Specifications are written in the imperative mood, as defined in the Construction Specifications Institute’s Manual of Practice. Imperative language is directed to the Contractor. The indicative mood is employed on occasion when such sentence structure
is necessary to convey the intended meaning in a more accurate or understandable form. The text is streamlined, with the colon (:) employed as a symbol for the words “shall be”, “shall have”, “shall conform with”, “shall comply with”, or “shall meet the requirements of”. The colon is also used to separate a paragraph title or heading from the text that follows.

1.1.41 Standards, Rules, and Regulations referred to are recognized printed standards and shall be considered as one and a part of these specifications within limits specified. Federal, state and local regulations are incorporated into the Contract Documents by reference.

1.1.42 Subcontractor, as used herein, includes those having direct or indirect contracts with Contractor and ones who furnished labor, material or services for a special design according to drawings and specifications of this Work, but does not include ones who merely furnish material not so worked.

1.1.43 Substantial Completion. The date on which the Work or designated portion thereof, as certified by the District Project Manager and Architect, is sufficiently complete, in accordance with the Contract Documents, so the District, may occupy or utilize the Work or designated portion thereof for the use for which it is intended.

1.1.44 Surety is the person, firm, or corporation that executes as surety the Contractor’s Performance Bond and Payment Bond.

1.1.45 Work of the Contractor or Subcontractor shall include all labor, materials and equipment necessary for the Contractor to fulfill all of its obligations pursuant to the Contract Documents. It shall include the initial obligation of any Contractor or Subcontractor who performs any portion of the Work, to visit the Site of the proposed Work (a continuing obligation after the commencement of the Work), to fully acquaint and familiarize itself with the conditions as they exist and the character of the operations to be carried out under the Contract Documents, and make such investigation as it may see fit so that it shall fully understand the facilities, physical conditions, and restrictions attending the Work under the Contract Documents. Each such Contractor or Subcontractor shall also thoroughly examine and become familiar with the Drawings, Specifications, and associated bid documents before preparing and submitting any bid.

1.1.46 Workers includes laborers, workers, and mechanics.

1.2 EXECUTION, CORRELATION AND INTENT

1.2.1 Correlation and Intent

1.2.1.1 Documents Complementary and Inclusive. The Contract Documents are complementary; what is required by one shall be as binding as if required by all. The Contract Documents will be construed in accordance with the laws of the State of California and applicable building codes and statutes of the City and/or County where the Project is located. The intent of the Contract Documents is to describe and provide for a functionally complete and operational Project (or part thereof) to be constructed in accordance with the Contract Documents. All Work, materials, and equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as necessary to properly execute and complete the Work to conform to the requirements of the Contract Documents and provide for a functionally complete and
operational Project shall be provided by Contractor with no change in the Contract Sum or Contract Time. A typical or representative detail on the Drawings shall constitute the standard for workmanship and material throughout corresponding parts of the Work. Where necessary, and where reasonably inferable from the Drawings, Contractor shall adapt such representative detail for application to such corresponding parts of the Work with no change in the Contract Sum or Contract Time. The details of such adaptation shall be submitted to the City for approval. Repetitive features shown in outline on the Drawings shall be in exact accordance with corresponding features completely shown. All Contract Documents form the Contractor’s contract with the District. Any item of Work mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Specifications, shall be provided by Contractor as if shown or mentioned in both. Ambiguities or inconsistencies arising as a result of separation of sections or portions of the drawings or specifications by or for subcontractor bidding shall not relieve the Contractor for providing the complete Work at the Contract Price and within the Contract Time.

1.2.1.2 Coverage of the Drawings and Specifications. The Drawings and Specifications generally describe the Work to be performed by Contractor. Generally, the Specifications describe Work which cannot be readily indicated on the Drawings and indicate types, qualities, and methods of installation of the various materials and equipment required for the Work. It is not intended to mention every item of Work in the Specifications, which can be adequately shown on the Drawings, or to show on the Drawings all items of Work described or required by the Specifications even if they are of such nature that they could have been shown. All materials or labor for Work, which is shown on either the Drawings or the Specifications (or is reasonably inferable therefrom as being necessary to complete the Work), shall be provided by the Contractor to provide a complete project. It is intended that the Work be of sound, quality construction, and the Contractor shall be responsible for the inclusion of adequate amounts to cover installation of all items indicated, described, or implied in the portion of the Work to be performed by them.

1.2.1.3 Conflicts. In the event there is a discrepancy between the various Contract Documents, the more stringent, higher quality, and greater quantity of Work shall apply.

1.2.1.4 Conformance with Laws. Each and every provision of law required by law to be inserted in this Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though it were included herein, even if through mistake or otherwise any such provision is not inserted, or is not correctly inserted. Before commencing any portion of the Work, Contractor shall check and review the Drawings and Specifications for such portion for conformance and compliance with all laws, ordinances, codes, rules and regulations of all governmental authorities and public and municipal utilities affecting the construction and operation of the physical plant of the Project, all quasi-governmental and other regulations affecting the construction and operation of the physical plant of the Project, and other special requirements, if any, designated in the Contract Documents. Such checking shall include Title 21 and Title 24 of the California Code of Regulations, California Building Code, local utility, local water connection, local grading and all other applicable agencies. In the event Contractor observes any violation of any law, ordinance, code, rule or regulation, or inconsistency with the Contract Documents, Contractor shall, within five (5) days, notify Architect and
District in writing of same and shall ensure that any such violation or inconsistency shall be corrected in the manner provided hereunder prior to the construction of that portion of the Project. The Contractor shall bear all expenses of correcting Work done contrary to said laws, ordinances, rules, and regulations if the Contractor performed same (1) without first consulting the Architect for further instructions regarding said Work or (2) disregarded the Architect’s instructions regarding said work.

1.2.1.5 Ambiguity and Inconsistency. Before commencing any portion of the Work, Contractor shall carefully examine all Drawings and Specifications and other information given to Contractor as to materials and methods of construction and other Project requirements. Contractor shall, within five (5) days, notify Architect and District in writing of any perceived or alleged error, inconsistency, conflict, ambiguity, or lack of detail or explanation in the Drawings and Specifications in the manner provided herein. If the Contractor or its Subcontractors, material or equipment suppliers, or any of their officers, agents, and employees performs, permits, or causes the performance of any Work under the Contract Documents, which it knows or should have known to be in error, inconsistent, or ambiguous, or not sufficiently detailed or explained, Contractor shall bear any and all costs arising therefrom including, without limitation, the cost of correction thereof without increase or adjustment to the Contract Price or the time for performance. If Contractor performs, permits, or causes the performance of any Work under the Contract Documents prepared by or on behalf of Contractor which is in error, inconsistent or ambiguous, or not sufficiently detailed or explained, Contractor shall bear any and all resulting costs, including, without limitation, the cost of correction, without increase to or adjustment in the Contract Price or the Time for performance. Ambiguities or inconsistencies arising as a result of separation of sections or portions of the drawings or specifications by or for subcontractor bidding shall not relieve the Contractor for providing the complete Work without increase to or adjustment in the Contract Price or the Time for performance.

1.2.2 Addenda and Deferred Approvals

1.2.2.1 Addenda are the changes in specifications, drawings, and contract documents, which have been authorized in writing by the District or Architect prior to receipt of bids, and which alter, explain, or clarify the contract documents. Addenda shall govern over all other Contract Documents. Subsequent addenda issued shall govern over prior addenda unless otherwise specified in the addenda.

1.2.2.2 Deferred Approvals. Contract Documents which require deferred approval items are meant to be for illustration purposes only. Contractor is responsible for all deferred approval requirements set forth in the Contract Documents. Contractor is responsible to comply with all laws, building codes, and regulations necessary to obtain all necessary approvals, including those required from the Division of the State Architect (“DSA”) and the State Fire Marshall. Contractor shall not be granted an extension of time for failure to obtain necessary approvals due to failure to comply with laws, building codes, and other regulations (including Title 24 of the California Code of Regulations). Contractor shall schedule all deferred approval items in its progress schedule pursuant to Article 3. If Contractor fails to include deferred-approval items in its schedule which results in a critical path delay, then Contractor shall be subject to the assessment of liquidated damages.
1.2.2.3 **Deferred Approval Requirements.** Deferred approvals shall be submitted and processed pursuant to the requirements of Division 1 of the Specifications. All deferred approvals shall be prepared by Contractor or Contractor’s agent early enough so as to not delay the Project. Contractor is aware that Title 21 California Code of Regulations Section 17(g) and Title 24 California Code of Regulations Section 4-317 have specific requirements for deferred approval as to governing agencies and as to the Architect and Engineer for the Project. As a result, any delay associated with the time for approval by applicable agencies or by the Architect or Architect’s consultants shall be Contractor’s.

1.2.3 **Specification Interpretation**

1.2.3.1 **Titles.** The Specifications are separated into titled sections for convenience only and not to dictate or determine the trade or craft involved.

1.2.3.2 **As Shown, Etc.** Where “as shown,” “as indicated,” “as detailed,” or words of similar import are used, reference is made to the Drawings accompanying the Specifications unless otherwise stated. Where “as directed,” “as required,” “as permitted,” “as authorized,” “as accepted,” “as selected,” or words of similar import are used, the direction, requirement, permission, authorization, approval, acceptance, or selection by Architect is intended unless otherwise stated.

1.2.3.3 **General Conditions.** The General Conditions and supplementary general conditions are a part of each and every section of the Specifications.

1.2.3.4 **Abbreviations.** In the interest of brevity, the Specifications are written in an abbreviated form and may not include complete sentences. Omission of words or phrases such as “Contractor shall,” “shall be,” etc., are intentional. Nevertheless, the requirements of the Specifications are mandatory. Omitted words or phrases shall be supplied by inference in the same manner as they are when a “note” occurs on the Drawings. In the interest of brevity, the Contract Documents frequently omit modifying words such as “all” and “any” and articles such as “the” and “an,” but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

1.2.3.5 **Plural.** Words in the singular shall include the plural whenever applicable or the context so indicates.

1.2.3.6 **Metric.** The Specifications may indicate metric units of measurement as a supplement to U.S. customary units. When indicated thus: 1” (25 mm), the U. S. customary unit is specific, and the metric unit is nonspecific. When not shown with parentheses, the unit is specific. The metric units correspond to the “International System of Units” (SI) and generally follow ASTM E 380, “Standard for Metric Practice.”

1.2.3.7 **Standard Specifications.** Any reference to standard specifications of any society, institute, association, or governmental authority is a reference to the organization’s standard specifications, which are in effect at the date of the Contractor’s proposal unless directed otherwise. If applicable specifications are revised prior to completion of any part of the Work, the Contractor may, if acceptable to Architect, perform such Work in accordance with the revised specifications. The standard specifications, except as modified in the Specifications for the Project, shall have full force
and effect as though printed in the Specifications. Architect will furnish, upon request, information as to how copies of the standard specifications referred to may be obtained.

1.2.4 **Rules of Document Interpretation**

1.2.4.1 In the event of conflict within the drawings, the following rules shall apply:

(a) General Notes, when identified as such, shall be incorporated into other portions of Drawings.

(b) Schedules, when identified as such, are complementary with other notes and other portions of Drawings including those identified as General Notes.

(c) Larger scale drawings shall take precedence over smaller scale drawings.

(d) At no time shall the Contractor base construction on scaled drawings.

1.2.4.2 Specifications shall govern as to materials, workmanship, and installation procedures.

1.2.4.3 If Contractor observes that drawings and specifications are in conflict, Contractor shall, within five (5) days, notify the Architect in writing for the purposes of obtaining an interpretation of the Contact Documents.

1.2.4.4 In the case of conflict or inconsistencies, the order of precedence shall be as follows:

(a) General Conditions take precedence over Drawings and Specifications.

(b) Special Conditions take precedence over General Conditions.

(c) The Agreement shall take precedent over the Special Conditions.

(d) In the case of disagreement or conflict between or within standards, specifications, and drawings, the more stringent, higher quality, and greater quantity of Work shall apply.

1.3 **OWNERSHIP AND USE OF ARCHITECT’S DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS**

The Drawings, Specifications, and other contract documents for the Project are the property of the District and/or Architect pursuant to Education Code § 17316. The Contractor may retain one contract record set. Neither the Contractor nor any Subcontractor, or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications, and other documents prepared by the Architect. All copies except the Contractor’s record set, shall be returned or properly accounted for upon completion of the Work. The Drawings, Specifications, and other documents prepared by the Architect, and copies thereof furnished to the Contractor are not to be used by the Contractor or any Subcontractor, Sub-subcontractor, or material or equipment supplier on other projects or for additions to this Project outside the scope of the Work. The District and/or Architect hereby grants the Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers a limited license to use applicable portions of the Drawings, Specifications, and other documents prepared for the Project in the execution of their Work under the Contract Documents. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the District’s property interest or other reserved right.
ARTICLE 2

DISTRICT

2.1 INFORMATION AND SERVICES REQUIRED OF THE DISTRICT

2.1.1 Site Survey.

If applicable, the District will furnish, at its expense, a legal description of the Site and a land survey showing the boundaries of the Site. Contractor shall be responsible for all surveys regarding location of construction, grading and site work.

2.1.2 Soils.

When required by the scope of the Project, the District will furnish, at its expense, the services of geotechnical engineers or consultants when reasonably required and deemed necessary by the Architect or as required by local or state codes. Such services, with written reports and appropriate written professional recommendations, may include test boring, test pits, soil bearing values, percolation tests, air and water pollution tests, and ground corrosion and resistivity tests, including necessary operations for determining subsoil, air, and water conditions.

2.1.3 Contractor Reliance.

If appropriate to the Work, a soils investigation report has been obtained from test holes at the Site, and such report is available for the Contractor’s use in preparing its bid and Work under this Contract. The soils report is provided for review. Any information obtained from such report or any other information given on drawings as to subsurface soil condition or to elevations of existing grades or elevations of underlying rock is approximate only. If, during the course of Work under this Contract, Contractor encounters subsurface conditions which differ materially from those indicated in the soils investigation report, then Contractor shall notify the District within five (5) calendar days of discovery of the condition, and changes to the contract price may be made in accordance with Article 7 entitled “Changes in the Work.” Contractor agrees that no claim against District will be made by Contractor for damages and hereby waives any rights to damages in the event the Contractor fails to notify District within the five-day period mentioned above.

WARNING: DISTRICT DOES NOT WARRANT THE SOILS AT THE PROJECT SITE. SOILS INVESTIGATION REPORT IS PROVIDED FOR CONTRACTORS INFORMATION ONLY. CONTRACTOR HAS CONDUCTED AN INDEPENDENT INVESTIGATION OF THE PROJECT SITE AND THE SOILS CONDITIONS OF THE SITE. DISTRICT DOES NOT WARRANT THE SOILS CONDITIONS OF THE SITE AND CONTRACTOR IS FULLY RESPONSIBLE TO ASCERTAIN SITE CONDITIONS FOR THE PURPOSES OF DETERMINING CONSTRUCTION MEANS AND METHODS PRIOR TO COMMENCING CONSTRUCTION. THE SOILS INVESTIGATION REPORT IS NOT A CONTRACT DOCUMENT.

2.1.4 Utilities.

2.1.4.1 Regional Notification Center. Contractor, except in an emergency, shall contact the appropriate regional notification center at least two working days prior to commencing any excavation if the excavation will be conducted in an area or in a private easement which is known, or reasonably should be known, to contain subsurface
installations other than the underground facilities owned or operated by the District, and obtain an inquiry identification number from that notification center. No excavation shall be commenced and carried out by the Contractor unless such an inquiry identification number has been assigned to the Contractor or any subcontractor of the Contractor and the District has been given the identification number by the Contractor. Any damages arising from failure to make appropriate regional notification shall be at the sole risk of Contractor. Any delays caused by failure to make appropriate regional notification shall be at the sole risk of Contractor and shall not be considered for extension of time pursuant to Paragraph 8.4.

2.1.4.2 Utilities – Removal and Restoration. The District has endeavored to determine the existence of utilities at the Site of the Work from the records of the District of known utilities in the vicinity of the Work. The positions of these utilities as derived from such records are shown in the Contract Documents.

No excavations were made to verify the locations shown for underground utilities. The service connections to these utilities may not be shown on the drawings. It shall be the responsibility of the Contractor to determine the exact location of all service connections. The Contractor shall make its own investigations, including exploratory excavations, to determine the locations and type of service connections, prior to commencing work which could result in damage to such utilities. The Contractor shall immediately notify the District’s representative as to any utility discovered by Contractor in a different position than shown in the Contract Documents or which is not shown on the Contract Documents.

Contractor shall coordinate its Work with all utilities, including, but not limited to electricity, water, gas and telephone and meet with said utilities prior to the start of any work.

2.1.4.3 Other Utilities. In case it should be necessary to remove, relocate, or temporarily maintain a utility because of interference with the Work, the work on the utility shall be performed and paid for as follows:

When it is necessary to remove, relocate or temporarily maintain a service connection, the cost of which is not required to be borne by the owner thereof, the Contractor shall bear all expenses incidental to the work on the service connection. The work on the service connection shall be done in a manner satisfactory to the owner thereof; it being understood that the owner of the service connection has the option of doing such work with his own forces or permitting the work to be done by the Contractor.

When it is necessary to remove, relocate, or temporarily maintain a utility which is in the position shown on the drawings, the cost of which is not required to be borne by the owner thereof, the Contractor shall bear all expenses incidental to the work on the utility. The work on the utility shall be done in a manner satisfactory to the owner thereof; it being understood that the owner of the utility has the option of doing such work with his own forces or permitting the work to be done by the Contractor.

When it is necessary to remove, relocate, or temporarily maintain a utility which is not shown on the drawings or is in a position different from that shown on the drawings and were it in the position shown on the drawings would not need to be removed,
relocated, or temporarily maintained, and the cost of which is not required to be borne by the owner thereof, the District will make arrangements with the owner of the utility for such work to be done at no cost to the Contractor, or will require the Contractor to do such work in accordance with Article 7 or will make changes in the alignment and grade of the Work to obviate the necessity to remove, relocate, or temporarily maintain the utility. Changes in alignment and grade will be ordered in accordance with Article 7 herein.

No representations are made that the obligations to move or temporarily maintain any utility and to pay the cost thereof is or is not required to be borne by the owner of such utility, and it shall be the responsibility of the Contractor to investigate to find out whether said cost is required to be borne by the owner of the utility.

The right is reserved to governmental agencies and to owners of utilities to enter at any time upon any street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the Work and for the purpose of maintaining and making repairs to their property.

2.1.5 Existing Utility Lines; Removal, Relocation.

2.1.5.1 Main or Trunkline Facilities. If the Contractor while performing the contract discovers utility facilities not identified by the District in the Contract Documents, Contractor shall, within five (5) days, notify the District and utility in writing.

The District has the responsibility to identify, with reasonable accuracy, main or trunkline facilities on the drawings and specifications. In the event that main or trunkline utility facilities are not identified with reasonable accuracy in the drawings and specifications, District shall assume the responsibility for their timely removal, relocation, or protection.

The owner of 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.

The Contractor shall exercise reasonable care and shall be compensated by the District for the actual verified field costs of locating, and removing, relocating, protecting or temporarily maintaining such main or trunkline utility facilities not indicated with reasonable accuracy in the drawings and specifications, and for equipment in use on the project necessarily idled during such work. This work shall be performed in accordance with Article 7 of these General Conditions.

Alternatively, District may make changes in the alignment and grade of the work to obviate the need to remove, relocate, or temporarily maintain the utility, in accordance with Article 7 or District may make arrangements with the owner of the utility for such work to be done at no cost to the Contractor.

The Contractor shall not be assessed a forfeiture for delay in completion of the Project when such delay is caused by the failure of the District or the owner of the utility
to provide for the removal, relocation, protection or temporary maintenance of all such main or trunkline facilities not indicated with reasonable accuracy.

Nothing herein shall preclude the District from pursuing any appropriate remedy against the utility for delays which are the responsibility of the utility.

Nothing herein shall be construed to relieve the utility from any obligation as required either by law or by contract to pay the cost of removal or relocation of existing utility facilities.

2.1.5.2 Assessment. These subparagraphs shall not be construed to preclude assessment against the Contractor for any other delays in completion of the Work. Nothing in these subparagraphs shall be deemed to require the District to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the Site can be inferred from the presence of other visible facilities, such as buildings, or meter junction boxes on or adjacent to the Site.

2.1.5.3 Notification. If the Contractor, while performing Work under this Contract, discovers utility facilities not identified by the District in the Contract Documents, Contractor shall, within five (5) days, notify the District and the utility in writing. If Contractor fails to notify the District within five (5) days after discovery of any utility facilities not identified by the District in the Contract Documents, Contractor waives all rights to be compensated for any extra Work or damages resulting from such discovered utilities.

2.1.6 Easements.

District shall secure and pay for easements for permanent structures or permanent changes in existing facilities, if any, unless otherwise specified in the Contract Documents.

2.2 DISTRICT’S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, including, but not limited to:

1. Failure to supply adequate workers on the entire Project or any part thereof;
2. Failure to supply a sufficient quantity of materials;
3. Failure to perform any provision of this Contract;
4. Failure to comply with safety requirements, or due to Contractor is creation of an unsafe condition;
5. In the case of bona fide emergency;
6. Failure to order materials in a timely manner;
7. Failure to prepare deferred-approval items or shop drawings in a timely manner;
8. Failure to comply with Contractor’s schedule which would result in a delay to the critical path;

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, and fails (within a five-day period after receipt of written notice or a shorter time period
expressly stated in the written notice from the District in an emergency situation) to commence and continue correction of such default with diligence and promptness, the District may correct such deficiencies without prejudice to other remedies the District may have, including those set forth in Article 14 after providing five-day written notice to Contractor and Surety. If during this five (5) day period, Surety personally delivers notice to District that it intends to perform such work, District shall allow Surety seven (7) days to perform. In an emergency situation, the District may correct such deficiencies without prejudice to other remedies the District may have, including those set forth in Article 14 after providing 48 hours’ notice to the Contractor. In either case, the Contractor will be invoiced the cost of correcting such deficiencies, including compensation for additional services and expenses made necessary by such default, or neglect. The invoice amount shall be deducted from the next payment due the Contractor. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the District.
ARTICLE 3

THE CONTRACTOR

3.1 SUPERVISION AND CONSTRUCTION PROCEDURES

3.1.1 Contractor.

The Contractor shall continually supervise and direct 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, procedures; and shall coordinate all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. The Contractor shall not perform the Work without utilizing the Contract Documents or, where required, approved shop drawings, product data, or samples for any such portion of the work. If any of the Work is performed by contractors retained directly by the District, Contractor shall be responsible for the coordination and sequencing of the work of those other contractors so as to avoid any impact on the project schedule pursuant to the requirements of Article 6 and Article 8. Specific duties of the Contractor shall include those set out in Section 43 of Title 21 of the California Code of Regulations and Section 4-343 of Title 24 of the California Code of Regulations. These duties include, but are not limited to the following:

(a) Responsibilities. It is the duty of the Contractor to complete the Work covered by his or her contract in accordance with the approved drawings and specifications. The Contractor in no way is relieved of any responsibility by the activities of the Architect, Engineer, Inspector or DSA in the performance of their duties.

(b) Performance of the work. The Contractor shall carefully study the approved drawings and specifications and shall plan its schedule of operations well ahead of time. If at any time it is discovered that work is being done which is not in accordance with the approved drawings and specifications, the contractor shall correct the work immediately.

All inconsistencies or times which appear to be in error in the drawings and specifications shall promptly be called to the attention of the Architect or, Engineer, for interpretation or correction. Local conditions which may affect the structure shall be brought to the Architect’s attention at once. In no case, shall the instruction of the Architect be construed to cause work to be done which is not in conformity with the approved drawings, specifications, change orders, construction change directives, and as required by law.

The Contractor shall not carry on Work except with the knowledge of the Inspector of Record.

(c) Verified Reports. The Contractor shall make and submit to the District from time to time, verified reports as required in Section 36 of Title 21 and Section 4-366 of Title 24.

Contractor shall fully comply with any and all reporting requirements of Education Code Sections 81147, et seq., in the manner prescribed by Title 24, as applicable.
3.1.2 Contractor Responsibility.

The Contractor shall be responsible to the District for acts and omissions of the Contractor’s employees, Subcontractors, material and equipment suppliers, and their agents, employees, invitees, and other persons performing portions of the Work under direct or indirect contract with the Contractor or any of its Subcontractors.

3.1.3 Obligations not Changed by Architect’s Actions.

The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect’s administration of the Contract or by tests, inspections, or approvals required or performed by persons other than the Contractor.

3.1.4 Acceptance/Approval of Work.

The Contractor shall be responsible to determine when any completed portions of the Work already performed under this Contract or provided pursuant to Article 6 are suitable to receive subsequent Work thereon.

3.1.5 Performance of Work With Own Force.

Contractor shall perform at least 15% of the Work, exclusive of supervisory and clerical work without the services of any subcontractor. Contractor shall supervise and direct the work competently and efficiently, devoting such attention thereto and applying such skills as may be necessary to perform the Work in accordance with the Contract Documents.

3.2 SUPERVISION

3.2.1 Full Time Supervision.

Unless personally present on the Project site where the Work is being performed, the Contractor shall keep on the Work at all times during its progress a competent construction Superintendent satisfactory to the District. The Superintendent shall be present on a full-time basis, shall be dedicated exclusively to the Project and shall not share superintendence duties with another project or job. The Superintendent shall not be replaced except with written consent of the District. The Superintendent shall represent the Contractor in its absence and shall be fully authorized to receive and fulfill any instruction from the Architect, the Inspector, the District or any other District representative. All Requests for Information shall be originated by the Superintendent and responses thereto shall be given to the Superintendent. No Work shall begin on any day by any Subcontractor or other person on the Project site until the Superintendent has arrived, or shall any Work continue during the day after the Superintendent has departed from the Project site. The Superintendent shall have authority to bind Contractor through the Superintendent’s acts. The Superintendent shall represent the Contractor, and communications given to the Superintendent shall be binding on the Contractor. Before commencing the Work, Contractor shall give written notice to District and Architect of the name and a Statement of Qualifications of such superintendent for District approval. Superintendent shall not be changed except with written consent of District, unless a superintendent proves to be unsatisfactory to Contractor and ceases to be in its employ, in which case, Contractor shall notify District and Architect in writing. Contractor shall provide a replacement superintendent approved by the District prior to performing additional work.
3.2.2 Staff.

Notwithstanding other requirements of the contract documents, the Contractor and each Subcontractor shall: (1) furnish a competent and adequate staff as necessary for the proper administration, coordination, supervision, and superintendence of its portion of the Work; (2) organize the procurement of all materials and equipment so that the materials and equipment will be available at the time they are needed for the Work; and (3) keep an adequate force of skilled and fit workers on the job to complete the Work in accordance with all requirements of the Contract Documents.

3.2.3 Right to Remove.

District shall have the right, but not the obligation, to require the removal from the Project of any superintendent, staff member, agent, or employee of any Contractor, Subcontractor, material or equipment supplier.

3.3 LABOR AND MATERIALS

3.3.1 Contractor to Provide.

Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, material, equipment, tools, construction equipment and machinery, water, heat, air conditioning, utilities, transportation, and other facilities, services and permits necessary for proper execution and completion of the Work whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

3.3.2 Quality.

Unless otherwise specified, all materials and equipment to be permanently installed in the Project shall be new and shall be of the highest quality or as specifically stated in the Contract Documents. The Contractor shall, if requested, furnish satisfactory evidence as to kind and quality of all materials and equipment within ten (10) days of a written request by the District, including furnishing the District with bona fide copies of invoices for materials or services provided on the Project. All labor shall be performed by workers skilled in their respective trades, and shall be of the same or higher quality as with the standards of other school construction.

3.3.3 Replacement.

Any work, materials, or equipment, which do not conform to these requirements or the standards set forth in the Contract Documents, may be disapproved by the District, in which case, they shall be removed and replaced by the Contractor at no additional cost or extension of time to the District.

3.3.4 Discipline.

The Contractor shall enforce strict discipline and good order among the Contractor’s and Subcontractor’s employees, and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. As used in this subsection, “unfit” includes any person who the District concludes is improperly skilled for the task assigned to that person, who fails to comply with the requirements of this article, or who creates safety hazards which jeopardize other persons and/or property.
3.3.5 Noise, Drugs, Tobacco, and Alcohol.

Contractor shall take all steps necessary to insure that employees of Contractor or any of its subcontractors’ employees do not use, consume, or work under the influence of any alcohol, tobacco or illegal drugs while on the project. Contractor shall further prevent any of its employees or its subcontractor employees from playing any recorded music devices or radios or wearing any radio headphone devices for entertainment while working on the project. Likewise, Contractor shall prevent its employees or subcontractor’s employees from bringing any animal onto the project. Contractors shall not violate any written school policies.

3.3.6 Delivery of Material.

Contractor shall place orders for materials or equipment so that the Work may be completed in accordance with the Construction schedule for the Work as set forth in Article 8 of this Agreement. Contractor shall, upon demand from the Architect, furnish to the Architect documentary evidence including, but not limited to purchase orders, invoices, bills of materials, work orders and bills of lading, showing that orders have been placed.

3.3.7 Liens and Other Security Interests of Subcontractors and Material Suppliers.

No material, supplies, or equipment for the Work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by seller or supplier. Contractor warrants good title to all material, supplies, and equipment installed or incorporated in Work and agrees upon completion of all Work to deliver premises, together with all improvements and appurtenances constructed or placed thereon by it, to District free from any claims, security interests, liens, or charges. Contractor further agrees that neither it nor any person, firm, or corporation furnishing any materials or labor for any Work covered by this Contract shall have any right to place a lien upon the premises or any improvement or appurtenance thereof, except that Contractor may install metering devices or other equipment of a utility company or political subdivision, title to which is commonly retained by the utility company or political subdivision. In event of installation of any such metering device or equipment, Contractor shall advise District as to its owner within five (5) days of such installation in writing, prior to making the installation.

3.3.8 Title to Materials.

The title to new materials or equipment for the Work of this Contract, and attendant liability for its protection and safety, shall remain with Contractor until incorporated in the Work of this Contract and accepted by the District and Architect; no part of said materials shall be removed from its place of storage, and Contractor shall keep an accurate inventory of all said materials and equipment in a manner satisfactory to the District or its authorized representative.

3.3.9 Assemblies.

For all material and equipment specified or indicated in the Drawings, the Contractor shall provide all labor, materials, equipment, and services necessary for complete assemblies and complete working systems. Incidental items not indicated on the Drawings, nor mentioned in the Specifications, that can legitimately and reasonably be inferred to belong to the Work described, or be necessary in good practice to provide a complete assembly or system, shall be furnished as though itemized in the Contract.
3.4 WARRANTY

3.4.1 The Contractor warrants to the District that material and equipment furnished under the Contract will be of the highest quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. Contractor’s warranty and guaranty to District includes, but is not limited to the following representations:

3.4.1.1 In addition to any other warranties and guaranties provided elsewhere, Contractor shall, and hereby does, warrant all Work after the date of Notice of Completion of Work by District and shall repair or replace any or all such work, together with any other work, which may be displaced in so doing that may prove defective in workmanship or materials within a one (1) year period from date of completion as defined in Public Contract Code Section 7107(c) without expense whatsoever to District, ordinary wear and tear, unusual abuse or neglect excepted. District will give notice of observed defects with reasonable promptness. Contractor shall notify District upon completion of repairs.

3.4.1.2 In the event of failure of Contractor to comply with above mentioned conditions within one week after being notified in writing, District is hereby authorized to proceed to have defects repaired and made good at expense of Contractor who hereby agrees to pay costs and charges therefore immediately on demand.

3.4.1.3 If, in the opinion of the District, defective Work creates a dangerous condition or requires immediate correction or attention to prevent further loss to the District, the District will attempt to give the notice required by this Article. If the Contractor cannot be contacted or does not comply with the District’s requirements for correction within a reasonable time as determined by the District, the District may, notwithstanding the provisions of this article, proceed to make such correction or attention which shall be charged against Contractor. Such action by the District will not relieve the Contractor of the guarantee provided in this Article or elsewhere in this Contract.

3.4.1.4 This Article does not in any way limit the guarantee on any items for which a longer warranty or guaranty is specified or on any items for which a manufacturer gives a guarantee for a longer period. Contractor shall furnish District all appropriate guaranty or warranty certificates upon completion of the project.

3.4.2 Format - All Warranties/Guaranties and shall include:

3.4.2.1 Contractor, subcontractor, and equipment supplier shall provide Warranties and Guaranties on their original company letterhead with original signature.

3.4.2.2 Contractor shall provide original Warranties and Guaranties. Photo copies, fax and e-mail copies are not acceptable.
3.4.3 Preparation

3.4.3.1 Contractor shall obtain warranties and guaranties, executed in duplicate by each applicable and/or responsible subcontractor(s), supplier(s), and manufacturer(s), within fifteen (15) days after Notice of Substantial Completion of the applicable Work or Phase of Work. Except for items put into use with District’s permission, Contractor shall leave date of beginning of time of warranty or guaranty blank until the date of completion is determined by District.

3.4.3.2 Contractor’s Response to Construction Warranty and Guaranty Service Requirements: Following oral or written notification by the District, respond to construction warranty and guaranty service requirements within 24 hours, or earlier in case of emergency.

3.4.4 Warranty and/or Guaranty Tags.

At the time of installation of mechanical equipment or other major system elements, tag each warranted or guaranteed item with a durable, oil and water resistant tag approved by the District. Attached each tag with a copper wire and spray with a silicone waterproof coating. The date of Substantial Completion and the Contractor Authorized signature must remain blank until the date the District makes a determination of Substantial Completion. Show the following information on the tag:

**WARRANTY/GUARANTY INFORMATION – [insert project number and name on actual tag]**

- a. Type of product/material_____________________________________.
- b. Model number_________________________________________________.
- c. Serial number_________________________________________________.
- d. Contract number______________________________________________.
- e. Warranty/Guaranty period ______ (months) from_________ to__________________.
- f. Inspector's signature________________________________________.
- g. Construction Contractor______________________________________.
  Address______________________________________________________.
  Telephone number_____________________________________________.
- h. Warranty or Guaranty contact_____________________________________________.
  Address______________________________________________________.
  Telephone number_____________________________________________.
- j. WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.

3.5 Taxes

Contractor will pay all applicable Federal, State, and local taxes on all materials, labor, or services furnished by it, and all taxes arising out of its operations under the Contract Documents. District is exempt from Federal Excise Tax, and a Certificate of Exemption shall be provided upon request.
3.6 PERMITS, FEES AND NOTICES

3.6.1 Payment.

The Contractor shall secure and pay for all permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work which are necessary after execution of the Contract and are legally required by any authority having jurisdiction over the Project, except those required by the Division of the State Architect (DSA). District shall be responsible for all testing and inspection as required by the DSA on-site or within the distance limitations set forth in Paragraph 13.5.2, unless a different mileage range is specified in the Special Conditions.

3.6.2 Compliance.

The Contractor shall comply with and give notices required by any law, ordinance, rule, regulation, and lawful order of public authorities bearing on performance of the Work.

3.6.3 Responsibility.

The Contractor shall perform all Work in conformance with every applicable law, statute, ordinance, building code, rule or regulation. The Contractor shall assume full responsibility for such Work and shall bear the attributable cost of correction or project delay.

3.7 NOT USED.

3.8 CONTRACTOR'S CONSTRUCTION SCHEDULES

3.8.1 Requirements.

(a) Within ten (10) calendar days after being awarded the contract, Contractor shall submit a schedule for District’s approval using Microsoft Project 2013, or Oracle Primavera P6 software. Contractor shall provide digital schedule files in the software native format (MS Project or Oracle P6) to District on CD/USB for this schedule, and all subsequent progress schedules required by the District. The schedule shall not exceed time limits set forth in the Contract Documents and shall comply with all of the scheduling requirements as set forth in the Specifications. Failure to submit a schedule or submittal of a schedule which shows completion of the Work beyond the specified completion date shall be deemed a material breach by the Contractor. The schedule must indicate the beginning and completion of all phases of construction and shall use the “critical path method” (commonly called CPM) for the value reporting, planning and scheduling, of all Work required under the Contract Documents. The scheduling is necessary for the District’s adequate monitoring of the progress of the Work and shall be prepared in accordance with the time frame described in Article 8 of the General Conditions. The District may disapprove of any schedule or require modification to it if, in the opinion of the District, adherence to the progress schedule will not cause the Work to be completed in accordance with the Agreement.

(b) Contractor shall not submit a schedule showing early completion without indicating float time through the date set for Project completion by District. Contractor’s schedule shall account for all days past early completion as float which belongs to both District and
Usage of float shall not entitle Contractor to any delay claim or damages due to delay.

(c) Contractor shall not be granted an extension of time for failure to obtain necessary approvals for deferral approvals due to failure to comply with laws, building codes, and other regulations (including Title 24 of the California Code of Regulations). Contractor shall schedule all deferred approval items and shop drawings in its progress schedule. If Contractor fails to include deferred approval items and shop drawings in its schedule which results in a critical path delay, then Contractor shall be subject to the assessment of liquidated damages.

(d) In addition to providing a schedule update every thirty (30) days, the Contractor, if requested by the Architect or District, shall provide revised schedules within ten (10) days if, at any time, the Architect or District, consider the completion date to be in jeopardy because of “activities behind schedule.” The additional schedule shall include a new arrow or precedence diagram and schedule reports conforming to the requirements above, designed to show how the Contractor intends to accomplish the Work to meet the completion date. The form and method employed by the Contractor shall be the same as for the original construction schedule accepted by the District. The Contractor shall modify any portions of the schedule that become infeasible because of “activities behind schedule” or for any other valid reason. An activity that cannot be completed by its original latest completion date shall be deemed to be behind schedule. If Contractor submits a revised schedule showing an earlier completion date for the Project, District’s acceptance of this revised schedule shall not entitle Contractor to any delay claim or damages due to any such revised schedule.

(e) Contractor shall include in the schedule all shop drawings, and deferred submittals. Include activities for the submittal, District/Architect’s review (minimum duration of 14 calendar days), procurement (or fabrication as applicable); and link the finish of the procurement/fabrication activity to the start of the related field activity at the Site.

3.8.2 Failure to Meet Requirements.

Failure of the Contractor to provide proper schedules as required by this Article and Article 9 is a material breach of the contract and grounds for termination pursuant to Article 14. The District, at its sole discretion, may choose, instead, to withhold, in whole or in part, any progress payments or retention amounts otherwise payable to the Contractor.

3.9 NOT USED.

3.10 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the Site for the District one current copy of the International Building Code, Titles 19, 21 and 24 of the California Code of Regulations and one record copy of the Drawings, Specifications, Addenda, Change Orders, and other Modifications, in good order and marked currently to record changes and selections made during construction. In addition, the Contractor shall maintain at the Site approved Shop Drawings, Product Data, Samples, and similar required submittals. These documents shall be available to the District, and shall be delivered to the District upon completion of the Work.
3.11 **SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SUBSTITUTIONS**

3.11.1 Submittals defined.

3.11.1.1 *Shop Drawings.* The term “shop drawings” as used herein means drawings, diagrams, schedules, and other data, which are prepared by Contractor, Subcontractors, manufacturers, suppliers, or distributors illustrating some portion of the Work, and includes: illustrations; fabrication, erection, layout and setting drawings; manufacturer’s standard drawings; schedules; descriptive literature, instructions, catalogs, and brochures; performance and test data including charts; wiring and control diagrams; and all other drawings and descriptive data pertaining to materials, equipment, piping, duct and conduit systems, and methods of construction as may be required to show that the materials, equipment, or systems and their position conform to the requirements of the Contract Documents. The Contractor shall obtain and submit with shop drawings all seismic and other calculations and all product data from equipment manufacturers. “Product data” as used herein are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate a material, product, or system for some portion of the Work. As used herein, the term “manufactured” applies to standard units usually mass-produced, and “fabricated” means items specifically assembled or made out of selected materials to meet individual design requirements. Shop drawings shall: establish the actual detail of all manufactured or fabricated items, indicate proper relation to adjoining work, amplify design details of mechanical and electrical systems and equipment in proper relation to physical spaces in the structure, and incorporate minor changes of design or construction to suit actual conditions.

3.11.1.2 *Samples.* The term “samples” as used herein are physical examples furnished by Contractor to illustrate materials, equipment, or quality and includes natural materials, fabricated items, equipment, devices, appliances, or parts thereof as called for in the Specifications, and any other samples as may be required by the District/Architect to determine whether the kind, quality, construction, finish, color, and other characteristics of the materials, etc., proposed by the Contractor conform to the required characteristics of the various parts of the Work. All Work shall be in accordance with the approved samples.

3.11.1.3 *Contractor’s Responsibilities.* Contractor shall obtain and shall submit all required shop drawings, samples, etc., required by the Specifications with such promptness as to cause no delay in its own Work or in that of any other contractor or subcontractor but in no event later than ten (10) days after the award of the Contract. No extensions of time will be granted to Contractor or any Subcontractor because of its failure to have shop drawings and samples submitted in accordance with the Schedule. Each Subcontractor shall submit all shop drawings, samples, and manufacturer’s descriptive data for the review of the District, the Contractor, and the Architect through the Contractor. By submitting shop drawings, product data, samples, etc., the Contractor represents that it has determined and verified all materials, field measurements, catalog numbers, related field construction criteria, and other relevant data in connection with each such submission, and that it has checked, verified, and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents, including the construction schedule. The submission of the shop drawings, product data, samples, etc., shall not deviate from the requirements of the Contract Documents including detailing and design intent which is specifically outlined in Contract Documents except as specifically authorized by the District/Architect or through an accepted substitution pursuant to Paragraph 3.10.4. All deviations from the Contract Documents shall be narratively described in a transmittal accompanying the shop drawings. However, shop drawings shall not be used as a means of requesting a substitution, the procedure for which is defined in Paragraph 3.10.4, “Substitutions.” Review by District and Architect shall not relieve...
the Contractor or any Subcontractor from its responsibility in preparing and submitting proper shop
drawings in accordance with the Contract Documents. Any submission, which in District/Architect’s
opinion is incomplete, contains errors, or has been checked superficially will be returned un-reviewed by
the District/Architect for resubmission by the Contractor. Contractor shall stamp, sign, and date each
submittal indicating its representation that the submittal meets all of the requirements of the Contract
Documents and evidence Contractor’s review through execution of the following stamp to be placed on
each shop drawings:

“The contractor has reviewed and approved the field dimensions and the construction
criteria, and has also made written notation regarding any information in the shop
drawings that does not conform to the contract documents. This shop drawing has been
coordinated with all other shop drawings received to date by contractor and this duty of
coordination has not been delegated to subcontractors, material suppliers, the Architect,
or the engineers on this project.

___________________________
Signature of Contractor and date”

3.11.2 Drawing Submission Procedure.

3.11.2.1 Transmittal Letter and Other Requirements. All shop drawings must be properly
identified with the name of the Project and dated, and each lot submitted must be accompanied by a
letter of transmittal referring to the name of the Project and to the Specification section number for
identification of each item clearly stating in narrative form, as well as “clouding” on the submissions, all
qualifications, departures, or deviations from the Contract Documents. Shop drawings, for each section
of the Work shall be numbered consecutively and the numbering system shall be retained throughout all
revisions. All Subcontractor submissions shall be made through the Contractor. Each drawing shall have
a clear space for the stamps of Architect and Contractor.

3.11.2.2 Copies Required. Unless otherwise approved by the District, each submittal shall
include six (6) legible prints of each drawing or schedule, table, cut sheet, etc., including fabrication,
errection, layout and setting drawings, and such other drawings as required under the various sections of
the Specifications, until final acceptance thereof is obtained. Subcontractor shall submit copies, in an
amount as requested by the Contractor, of: (1) manufacturers’ descriptive data for materials, equipment,
and fixtures, including catalog sheets showing dimensions, performance, characteristics, and capacities;
(2) wiring diagrams and controls; (3) schedules; (4) all seismic calculations and other calculations; and (5) other pertinent information as required by the District or Architect.

3.11.2.3 **Corrections.** The Contractor shall make all corrections required by District/Architect and shall resubmit, as required by District/Architect, corrected copies of shop drawings or new samples until approved. Contractor shall direct specific attention in writing or on resubmitted shop drawings to revisions other than the corrections required by the District/Architect on previous submissions. Professional services required for more than one (1) re-review of required submittals of shop drawings, product data, or samples are subject to charge to the Contractor pursuant to Paragraph 4.4.

3.11.2.4 **Approval Prior to Commencement of Work.** No portion of the Work requiring a shop drawing or sample submission or other submittal shall be commenced until the submission has been reviewed by Contractor and Architect and approved by Architect unless specifically directed in writing by the District. All such portions of the Work shall be in accordance with approved shop drawings and samples.

3.11.3 **Sample Submissions Procedure.**

3.11.3.1 **Samples Required.** In case a considerable range of color, graining, texture, or other characteristics are anticipated in finished products, a sufficient number of samples of the specified materials shall be furnished by the Contractor to indicate the full range of characteristics which will be present in the finished products; and products delivered or erected without submittal and approval of a full range of samples shall be subject to rejection. Except for range samples, and unless otherwise called for in the various sections of the Specifications, samples shall be submitted in duplicate. All samples shall be marked, tagged, or otherwise properly identified with the name of the submitting party, the name of the Project, the purpose for which the samples are submitted and the date, and shall be accompanied by a letter of transmittal containing similar information, together with the Specification section number. Each tag or sticker shall have clear space for the review stamps of Contractor and Architect.

3.11.3.2 **Labels and Instructions.** All samples of materials shall be supplied with the manufacturer’s descriptive labels and application instructions.

3.11.3.3 **Architect’s Review.** The Architect will review and, if appropriate, approve submissions and will return them to the Contractor with the Architect’s stamp and signature applied thereto, indicating the timing for review and appropriate action in compliance with the Architect’s (or District’s) standard procedures.

3.11.3.4 **NOT USED.**

3.11.3.5 **NOT USED.**

3.11.3.6 **District’s Property.** All shop drawings, computer disks, annotated specifications, samples and other submittals shall become the District’s property upon receipt by the District or Architect.

3.11.4 **Substitutions.**

3.11.4.1 **One Product Specified.** Unless the Specifications state that no substitution is permitted, whenever the Contract Documents indicate any specific material, product, thing or service, or any specific name, make, trade name, or catalog number, with or without the words “or equal,” such specification shall be deemed to be used for the purpose of facilitating description of the material, product, thing or service desired and shall be deemed to be followed by the words “or equal” unless the Contract Documents specify “no substitution allowed”, “no equal”, “no equivalent”, or other language with similar meaning, in which case no substitutions will be allowed. Pursuant to Paragraph 3.11.4.3, the
Contractor may, unless otherwise stated, within three (3) work days after the bid opening, submit a substitution request for any material, product, thing or service, which shall be materially equal or better in every respect to that so indicated or specified ("Specified Item") and will completely accomplish the purpose of the Contract Documents.

(a) Products Specified Which are Commercially Unavailable. If the Contractor fails to make a request for substitutions for products, within three (3) work days after bid opening, and such products subsequently become commercially unavailable, the Contractor may request a substitution for such commercially unavailable item. The decision to grant this request is solely at the District’s discretion. The written approval of the District, consistent with the procedure for Change Orders, shall be required for the use of a proposed substitute material. The District may condition its approval of the substitution upon the delivery to District of an extended warranty or guaranty or other assurances of adequate performance of the substitution as well as an equitable deduction in the contract sum should the substituted item cost less than the Specified Item. All risks of delay due the approval of a requested substitution by the District, DSA, or any other governmental agency having jurisdiction, shall be on the requesting party. All additional costs, all procurement and construction delays, and all costs for review by the Architect or its consultants shall be the responsibility of the Contractor and will be deducted from Contractor’s pay request.

3.11.4.2 Substitution Request Form. Requests for substitutions of materials, products, things or services in place of a Specified Item must be submitted to the District in writing on the District’s Substitution Request Form (“Request Form”) within three (3) work days after bid opening, except as provided for in Paragraph 3.11.4.1.

The Request Form must be accompanied by evidence as to whether the proposed substitution:

1. Is equal in quality/service/ability to the Specified Item;
2. Will entail no changes in detail, construction, and scheduling of related work;
3. Will be acceptable in consideration of the required design and artistic effect;
4. Will provide no cost disadvantage to the District;
5. Will require no excessive or more expensive maintenance, including adequacy and availability of replacement parts; and
6. Will required no change of the construction schedule.

3.11.4.3 In completing the Request Form, the bidder shall state, with respect to each requested substitution, that the bidder will agree to provide the Specified Item in the event that the District denies the bidder’s request for such requested substitution. In the event the District denies the bidder’s requested substitution for a Specified Item, the bidder shall provide the Specified Item without any additional cost or charge to the District, and waives all rights to submit a claim.

3.11.4.4 After bids are opened, the apparent lowest bidder shall provide, within three (3) days of opening such bids, any and all Drawing, Specifications, samples, performance data, calculations, and other information, as may be required to assist the Architect and the District in determining whether the proposed substitution is acceptable. The burden of establishing these facts shall be upon the bidder.

3.11.4.5 After the District’s receipt of such evidence by the bidder, the District will make its final decision as to whether the bidder’s request for substitution for any Specified Items will be granted. The decision as to whether a proposed request for substitution is equal to a Specified Item shall be at the sole discretion of the District. Any request for substitution that is granted by the District shall be
documented and processed through a Change Order. The District may condition its approval of any substitution upon delivery to the District of an extended warranty or guaranty or other assurances of adequate performance of the substitution. Any and all risks of delay due to approval by the District, DSA or any other governmental agency having jurisdiction shall be on the bidder.

3.11.4.6 If the Architect and District accept a proposed substitution, the Contractor agrees to pay for all District expenses, including but not limited to Division of the State Architect fees, engineering and design services, compensation to the Architect and affected engineers for their required time to process such substitution through the Division of the State Architect, if required, and to make all changes and adjustments in materials or the work of all trades directly or indirectly affected by the substituted item or items at no cost to the District.

3.12 INTEGRATION OF WORK

3.12.1 Scope.

The Contractor shall be responsible for cutting, fitting, or patching to complete the Work and to make all parts fit together properly. Contractor shall be responsible for ensuring that all trades are coordinated and scheduled so as to ensure the timely and proper execution of the work. When modifying existing work or installing new Work adjacent to existing work, Contractor shall match, as closely as conditions of Site and materials will allow, the finishes, textures, and colors of the original work, refinishing existing work at no additional cost to District. All cost caused by defective or ill-timed work shall be borne by Contractor. Contractor shall be solely responsible for protecting existing work on adjacent properties and shall obtain all required permits for shoring and excavations near property lines.

3.12.2 Structural Members.

New or existing structural members and elements, including reinforcing bars and seismic bracing, shall not be cut, bored, or drilled except by written authority of the Architect. Work done contrary to such authority is at the Contractor’s risk and subject to replacement at its own expense without reimbursement under the Contract. Schedule delays resulting from Agency approvals for unauthorized work shall be the Contractor’s responsibility.

3.12.3 Subsequent Removal.

Permission to patch any areas or items of the Work shall not constitute a waiver of the District’s or the Architect’s right to require complete removal and replacement of the areas of items of the Work if, in the opinion of the Architect or the District, the patching does not satisfactorily restore quality and appearance of the Work or does not otherwise conform to the Contract Documents.

3.13 CLEANING UP

3.13.1 Contractor’s Responsibility.

Contractor at all times shall keep premises free from debris such as waste, dust, excess water, storm water runoffs, rubbish, and excess materials and equipment. Contractor shall not leave debris under, in, or about the premises, but shall promptly remove same from the premises and dispose of it in a lawful manner. Disposal receipts or dump tickets shall be furnished to the Architect within five (5) days of request. Upon completion of Work, Contractor shall clean interior and exterior of buildings, including fixtures, equipment, walls, floors, ceilings, roofs, window sills and ledges, horizontal projections, and any
areas where debris has collected, so surfaces are free from foreign material or discoloration; Contractor shall clean and polish all glass, plumbing fixtures, equipment, finish hardware and similar finish surfaces. Upon completion of the Work, Contractor shall also remove temporary utilities, fencing, barricades, planking, sanitary facilities and similar temporary facilities from Site.

Contractor shall remove rubbish and debris resulting from the Work on a daily basis. Contractor shall maintain the structures and Site in a clean and orderly condition at all times until acceptance of the project by the District. Contractor shall keep its access driveways and adjacent streets, sidewalks, gutters and drains free of rubbish, debris and excess water by cleaning and removal each day.

3.13.1.1 In addition to the general cleaning, the following special cleaning shall be done at the completion of the work in accordance with the specifications including, but not limited to:

(a) Remove putty stains from glazing, then wash and polish glazing.
(b) Remove marks, stains, fingerprints and other soil or dirt from painted, stained or decorated work.
(c) Remove temporary protection and clean and polish floors and waxed surfaces.
(d) Clean and polish hardware and plumbing trim; remove stains, dust, dirt, plaster and paint.
(e) Remove spots, soil, plaster and paint from tile work, and wash tile.
(f) Clean all fixtures and equipment, remove excess lubrication, clean light fixtures and lamps, polish metal surfaces.
(g) Vacuum-clean carpeted surfaces.
(h) Remove debris from roofs, down spout and drainage system.

3.13.2 Failure to Cleanup.

If the Contractor fails to clean up as provided in the Contract Documents, the District may do so, and the cost thereof shall be the responsibility of the Contractor and deducted from the next progress payment.

3.14 ACCESS TO WORK

The Contractor shall provide the District, the Architect, Engineers and the Inspector of Record, access to the Work in preparation and progress wherever located. Contractor shall provide safe and proper facilities for such access so that District’s representatives may perform their functions.

CONTRACTOR IS AWARE THAT THIS CONTRACT MAY BE SPLIT INTO SEVERAL PHASES AS ADDRESSED IN ARTICLE 6.

3.15 ROYALTIES AND PATENTS

3.15.1 Payment and indemnity for Infringement.

Contractor shall hold and save the District and its officers, agents, and employees, the Architect, and the Architect’s consultants harmless from liability of any nature or kind, including cost and expense, for or on account of any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the contract, including its use by the District, unless otherwise specifically
provided in the contract documents, and unless such liability arises from the sole negligence, or active negligence, or willful misconduct of the District, the Architect, or the Architect’s consultants.

3.15.2 Review.

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

3.16 **INDEMNIFICATION**

3.16.1 Contractor.

Contractor shall defend, indemnify and hold harmless District, Architect, Inspector, the State of California and their officers, employees, agents and independent contractors from all liabilities, claims, actions, liens, judgments, demands, damages, losses, costs or expenses of any kind arising from death, personal injury, property damage or other cause based or asserted upon any act, omission, or breach connected with or arising from the progress of Work or performance of service under this Agreement or the Contract Documents. As part of this indemnity, Contractor shall protect and defend, at its own expense, District, Architect, Inspector, the State of California and their officers, employees, agents and independent contractors from any legal action including attorney’s fees or other proceeding based upon such act, omission, or breach.

Furthermore, Contractor agrees to and does hereby defend, indemnify and hold harmless District, Architect, Inspector, the State of California and their officers, employees, agents and independent contractors from every claim or demand made, and every liability, loss, damage, expense or attorney’s fees of any nature whatsoever, which may be incurred by reason of:

(a) Liability for (1) death or bodily injury to persons; (2) damage or injury to, loss (including theft), or loss of use of, any property; (3) any failure or alleged failure to comply with any provision of law or the Contract Documents; or (4) any other loss, damage or expense, sustained by any person, firm or corporation or in connection with the Work called for in this Agreement or the Contract Documents, except for liability resulting from the sole or active negligence, or the willful misconduct of the District.

(b) Any bodily injury to or death of persons or damage to property caused by any act, omission or breach of Contractor or any person, firm or corporation employed by Contractor, either directly or by independent contract, including all damages or injury to, loss (including theft), or loss of use of, any property, sustained by any person, firm or corporation, including District, arising out of or in any way connected with Work covered by this Agreement or the Contract Documents, whether said injury or damage occurs either on or off District property, but not for any loss, injury, death or damages caused by the sole or active negligence or willful misconduct of the District.

(c) Any dispute between Contractor and Contractor’s subcontractors/supplies/sureties, including, but not limited to, any failure or alleged failure of the Contractor (or any person hired or employed directly or indirectly by the Contractor) to pay any Subcontractor or Materialman of any tier or any other person employed in connection with the Work and/or filing of any stop notice or mechanic’s lien claims.
Contractor, at Contractor’s own expense, cost, and risk, shall defend any and all claims, actions, suits, or other proceedings that may be brought or instituted against the District, its officers, agents or employees, on or founded upon any cause, damage, or injury identified herein Section 3.16.1 and shall pay or satisfy any judgment that may be rendered against the District, its officers, agents or employees in any action, suit or other proceedings as a result thereof.

Contractor shall ensure that its contract with each of its subcontractors contains provisions requiring the subcontractors to defend, indemnify and hold harmless the District, Architect, Inspector, the State of California to a minimum level as set forth in this Article and consistent with the language of 3.16.1.

The Contractor’s and Subcontractors’ obligation to defend, indemnify and hold harmless the District, Architect, Inspector, the State of California and their officers, employees, agents and independent contractors hereunder shall include, without limitation, any and all claims, damages, and costs for the following: (1) any damages or injury to or death of any person, and damage or injury to, loss (including theft), or loss of use of, any property; (2) breach of any warranty or guaranty, express or implied; (3) failure of the Contractor or Subcontractors to comply with any applicable governmental law, rule, regulation, or other requirement; and (4) products installed in or used in connection with the Work.

3.17 SUBMISSION OF DAILY REPORTS

3.17.1 General.

At the close of each working day, the Contractor shall submit a daily report to the District and the Inspector, on forms approved by the District, together with applicable delivery tickets, listing all labor, materials, and equipment involved for that day. An attempt shall be made to reconcile the report daily, and it shall be signed by a District representative and the Contractor. In the event of disagreement, pertinent notes shall be entered by each party to explain points which cannot be resolved that day. Each party shall retain a signed copy of the report. Reports by subcontractors or others shall be submitted through the Contractor.

3.17.2 Labor.

The report required by Paragraph 3.17.1 shall show names of workers, classifications, hours worked.

3.17.3 Materials.

The report required by Paragraph 3.17.1 shall describe materials used.

3.17.4 Equipment.

The report required by Paragraph 3.17.1 shall show type of equipment, size, and hours of operation, including loading and transportation, if applicable.
3.18 **EXECUTION OF THE WORK**

3.18.1 Examination.

3.18.1.1 Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record all observations in writing.

3.18.1.2 Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.

3.18.1.3 Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.

3.18.1.4 Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.18.2 Existing Site and/or Building Conditions.

The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning Work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

Before construction, verify the location and points of connection of all utility services for the entire Project.

3.18.3 Existing Utilities.

The existence and location of underground and other utilities and construction indicated in the Contract Documents as existing are not guaranteed. Prior to beginning the Work investigate and verify the existence and location of all underground utilities and/or other improvements affecting the Work.

3.18.3.1 Before construction, verify the location and invert all elevations at points of connection of sanitary sewer, storm sewer, and water-service piping; and all underground electrical services.

3.18.3.2 Furnish location data for work related to Project that must be performed by public utilities serving Project site.

3.18.4 Preparation.

Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a written request for information (RFI) to the District.

Existing Utility Information: Furnish information to the District and Architect that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Contractor shall coordinate with authorities having jurisdiction.

Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, Contractor shall investigate and verify all dimensions of other construction by field
measurements before fabrication. Contractor shall coordinate fabrication schedule with construction progress to avoid delaying the Work.

Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Contract Documents. Contractor shall be responsible for all coordination and measurements including means and methods of Construction.

3.18.5 Construction Layout.

Verification: Before proceeding to lay out the Work, Contractor shall verify layout information and Field condition in relation to the Contract documents. Notify District and Architect immediately of any discrepancies.

3.18.6 Installation.

General Contractor shall locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

3.18.6.1 Make vertical work plumb and make horizontal work level.

3.18.6.2 Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

3.18.6.3 Conceal pipes, ducts, and wiring in furnished areas, unless otherwise indicated.

3.18.6.4 Maintain minimum headroom clearance of eight feet in spaces without a suspended ceiling.

3.18.7 Contractor shall comply with manufacturer’s written instructions and recommendations for installing products in applications indicated.

3.18.8 Contractor shall install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for performance until accepted by District.

3.18.9 Contractor shall conduct construction operations so no part of the Work is subjected to damage or loading in excess of that expected during normal conditions of occupancy.

3.18.10 Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

3.18.11 Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.

3.18.12 Allow for building movement, including thermal expansion and contraction.

3.18.13 Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts,
anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

3.18.14 Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

3.18.15 Hazardous Materials: Use only products, cleaners, and installation materials that are not classified as or considered hazardous.

3.18.16 District-Installed Products

3.18.16.1 Site Access: Provide access to Project site for District’s construction forces.

3.18.16.2 Coordination: Coordinate construction and operations of the Work with work performed by District construction forces.

3.18.16.3 Construction Schedule: Inform District of Contractor’s preferred construction schedule for District’s portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify District and Architect if changes to schedule are required due to differences in actual construction progress.

3.18.16.4 Pre-installation Conferences: Include District’s construction forces at pre-installation conferences covering portions of the Work that are to receive District’s work. Attend pre-installation conferences conducted by District’s construction forces if portions of the Work depend on District’s construction forces.

3.19 DSA VERIFIED REPORTS AND CERTIFICATE OF COMPLIANCE

3.19.1 Contractor Actions.

The Contractor acknowledges and agrees that a material obligation of the Contractor under the Contract Documents is the completion by the Contractor of all actions and activities which by the Contract Documents or by operation of applicable law, code, rule or regulation 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 Project construction. 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 Project Final Completion. The Contractor shall provide the Project Inspector, Architect, Construction Manager retained by the District for the Project and the District with copies of all Verified Reports completed by the Contractor and submitted to DSA; such copies shall be provided to the Project Inspector, Architect, the Construction Manager and the District concurrently with the Contractor’s submission thereof to DSA.


Notwithstanding any provision of the Contract Documents to the contrary, 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 Twelve Thousand Dollars ($12,000) of the Contract Sum due the Contractor under this Agreement (“the Final Verified Report Value”). The Final Verified Report Value is in addition to, and not in lieu of, retention withheld and retained by the District from Progress Payments disbursed to the Contractor during Project construction. The District’s disbursement of the Final Verified Report Value to the Contractor shall be made by the District within thirty (30) days of the presentation by the Contractor to the Project Inspector, Architect, Construction Manager and District of reasonably satisfactory written evidence that the Contractor has filed the Contractor’s Final Verified Report with DSA in accordance with the preceding and the submission of a billing statement by the Contractor to the District for payment of the Final Verified Report Value. If the Contractor fails to file the Final Verified Report with DSA within ten (10) days of the determination of Project Final Completion, notwithstanding the preparation or filing of such Final Verified Report by the Contractor thereafter, the District may in the sole and exclusive discretion of the District retain and withhold from disbursement to the Contractor all or any part of the Final Verified Report Value as damages for the failure of the Contractor to have timely discharged its obligations hereunder.

3.20 **NOISE CONTROL**

The Contractor shall be responsible for the installation and maintenance of noise reducing devices on construction equipment. Contractor shall comply with the requirements of the city and county having jurisdiction with regard to noise ordinances governing construction sites and activities. Construction equipment noise is subject to the control of the Environmental Protection Agency’s Noise Control Program (Part 204 of Title 40, Code of Federal Regulations). If classes are in session at any point during the progress of the Project, and, in the District’s reasonable discretion, the noise from such Work disrupts or disturbs the students or faculty or the normal operation of the college, at the District’s request, the Contractor shall schedule the performance of all such Work around normal campus hours or make other arrangements so that the Work does not cause such disruption or disturbance. In no event shall Contractor have a right to receive additional compensation or an extension to the contract time as a result of any such rescheduling or the making of such arrangements. These controls shall be implemented during site preparation and construction.
ARTICLE 4
ADMINISTRATION OF THE CONTRACT

4.1 ARCHITECT

4.1.1 Replacement of Architect.

In the case of the termination of the Architect, the District may appoint an architect or another construction professional or may perform such functions with its own licensed professional personnel. The status of the replacement Architect under the Contract Documents shall be the same as that of the former architect.

4.2 ARCHITECT’S ADMINISTRATION OF THE CONTRACT

4.2.1 Status.

Pursuant to Titles 24 and 21 of the California Code of Regulations and as required pursuant to the Field Act, Education Code 81130 et. seq. the Architect will provide administration of the Contract Documents and the Work, and will be a District representative during construction, as well as during the one (1) year period following the commencement of any warranties or guaranties. The Architect will have authority to act on behalf of the District only to the extent provided in the Contract Documents.

4.2.2 Site Visits.

The Architect will visit the Site at intervals necessary in the judgment of the Architect to become generally familiar with the progress and quality of the Work and to determine in general if the Work is being performed in accordance with the Contract Documents.

4.2.3 Limitations of Construction Responsibility.

The Architect shall not have control over, charge of, or be responsible for construction means, methods, techniques, schedules, sequences or procedures, fabrication, procurement, shipment, delivery, receipt, installation, or for safety precautions and programs in connection with the Work, since these are solely the Contractor’s responsibility under the Contract Documents. The Architect shall not be responsible for the Contractor’s, Subcontractors’, material or equipment suppliers’, or any other person’s schedules or failure to carry out the Work in accordance with the Contract Documents. The Architect shall not have control over or charge of acts or omissions of the Contractor, Subcontractors, their agents or employees, or any other persons or entities performing or supplying portions of the Work. The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect’s administration of the Contract Documents, or by tests, inspections, or approvals required or performed by persons other than the Contractor.

4.2.4 Communications Facilitating Contract Administration.

Except as otherwise provided in the Contract Documents the Contractor shall communicate through the District representative. The District representative shall be promptly informed, and shall receive copies of all written communications. Contractor shall not rely upon any communications from the District that is not from the District’s representative. Communications by and with the Architect’s
consultants shall be through the Architect. Communications by and with Subcontractors and material or equipment suppliers shall be through the Contractor.

4.2.5 Payment Applications.

The Architect will review and make recommendations to the District regarding the amounts due the Contractor on the Certificates for Payment pursuant to Article 9 and subject to the Inspector’s approval and Architect’s observation.

4.2.6 Rejection of Work.

In addition to the rights, duties, and obligations of the Inspector under this Article, the Architect may recommend to the District that the District reject Work which does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable to achieve the intent of the Contract Documents, the Architect may recommend to the District that the District require additional inspection or testing of the Work in accordance with Paragraph 13.5, whether or not such Work is fabricated, installed, or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work.

4.2.7 Warranties and Guaranties Upon Completion.

The Architect, in conjunction with the District and Inspector will conduct field reviews of the Work to determine the date of completion, shall receive and forward to the District for the District’s review and records written warranties, guaranties, and related documents required by the Contract and assembled by the Contractor, and will issue a final Certificate for Payment when the Architect believes the Work has been completed in compliance with the requirements of the Contract Documents. The handling by the Architect of such warranties, guaranties, maintenance manuals, or similar documents shall not diminish or transfer to the Architect any responsibilities or liabilities required by the Contract Documents of the Contractor or other entities, parties, or persons performing or supplying the Work.

The Architect will conduct a field review of the Contractor’s comprehensive list of items to be completed or corrected (final punch list) and one (1) follow-up field review if required. The cost incurred by the District for further field reviews or the preparation of further punch lists by the Architect shall be invoiced to the Contractor and deducted from the final payment.

4.2.8 Interpretation.

The Architect will interpret and decide matters concerning performance and requirements of the Contract Documents.

4.2.9 Additional Instructions.

4.2.9.1 Typical Parts and Sections. Whenever typical parts or sections of the Work are completely detailed on the Drawings, and other parts or sections which are essentially of the same construction are shown in outline only, the complete details shall apply to the Work which is shown in outline.
4.2.9.2 **Dimensions.** Dimensions of Work shall not be determined by scale or rule. Figured dimensions shall be followed at all times. If figured dimensions are lacking on Drawings, Architect shall supply them on request. The Architect’s decisions on matters relating to aesthetic effect will be final.

4.3 **INSPECTOR OF RECORD**

4.3.1 General.

One or more project inspectors employed by the District and approved by the Division of the State Architect will be assigned to the Work in accordance with the requirements of Title 24 of the California Code of Regulations. The Inspector(s) duties are as specifically defined in Title 24.

4.3.2 Inspector’s Duties.

All Work shall be under the observation of the Inspector. The Inspector shall have free access to any or all parts of the Work at any time. The Contractor shall furnish the Inspector such information as may be necessary to keep the Inspector fully informed regarding progress and manner of Work and character of materials. Such observations shall not, in any way, relieve the Contractor from responsibility for full compliance with all terms and conditions of the Contract, or be construed to lessen to any degree the Contractor’s responsibility for providing efficient and capable superintendence. The Inspector is not authorized to make changes in the drawings or specifications nor shall the Inspector’s approval of the Work and methods relieve the Contractor of responsibility for the correction of subsequently discovered defects, or from its obligation to comply with the Contract Documents.

4.3.3 Inspector’s Authority to Reject or Stop Work.

The Inspector shall have the authority to reject Work whenever provisions of the Contract Documents are not being complied with, and Contractor shall instruct its Subcontractors and employees accordingly. In addition, the Inspector may stop any Work that poses a probable risk of harm to persons or property. The Contractor shall instruct its employees, Subcontractors, material and equipment suppliers, etc., accordingly. The absence of any Stop Work order or rejection of any portion of the Work shall not relieve the Contractor from any of its obligations pursuant to the Contract Documents.

4.3.4 Inspector’s Facilities.

Within seven (7) days after notice to proceed, the Contractor shall provide the Inspector with the temporary facilities as required under Division 1 of the Specifications.

4.3.5 Testing Times.

The District will provide inspection and testing at its cost during the normal eight (8) hour day Monday through Friday (except holidays). Work by the Contractor outside of the normal eight (8) hour day shall constitute an authorization from the Contractor to the District to provide inspection and testing as required outside of the normal eight (8) hour day. Contractor shall reimburse District for any additional costs associated with inspection and testing (including re-inspection and re-testing) outside the normal eight-hour day and for any retests caused by the Contractor.
4.4 **RESPONSIBILITY FOR ADDITIONAL CHARGES INCURRED BY THE DISTRICT FOR PROFESSIONAL SERVICES**

If at any time prior to the completion of the requirements under the Contract Documents, the District is required to provide or secure additional professional services for any reason by any act of the Contractor, the Contractor shall be invoiced by the District for any costs incurred for any such additional services, which costs shall be deducted from the next progress payment. Such invoicing shall be independent from any other District remedies and shall not be considered a waiver of any District rights or remedies. If payments then or thereafter due to the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the District. Additional services shall include, but shall not be limited to, the following:

(a) Services made necessary by the default of the Contractor.
(b) Services made necessary due to the defects or deficiencies in the Work of the Contractor.
(c) Services required by failure of the Contractor to perform according to any provision of the Contract Documents.
(d) Services in connection with evaluating substitutions of products, materials, equipment, Subcontractors’ proposed by the Contractor, and making subsequent revisions to drawings, specifications, and providing other documentation required (except for the situation where the specified item is no longer manufactured or available).
(e) Services for evaluating and processing claims submitted by the Contractor in connection with the Work outside the established Change Order process.
(f) Services required by the failure of the Contractor to prosecute the Work in a timely manner in compliance within the specified time of completion.
(g) Services in conjunction with the testing, adjusting, balancing and start-up of equipment other than the normal amount customarily associated for the type of Work involved.
(h) Services in conjunction with more than one (1) re-review of submittals of shop drawings, product data, samples, etc.

4.5 **DISPUTES**

4.5.1 Decision of Architect.

Disputes between District and Contractor involving money or time, including those alleging an error or omission by the Architect, shall be referred initially to the Architect for action as provided in Paragraph 4.5.2. A decision by the Architect, as provided in Paragraph 4.5.5, shall be required as a condition precedent to proceeding with remedies set forth in Paragraph 4.5.6 as to all such matters arising prior to the date final payment is due, regardless of whether such matters relate to execution and progress of the Work, or the extent to which the Work has been completed. The decision by the Architect in response to a Claim shall not be a condition precedent to the remedies under Paragraph 4.5.2 through 4.5.5 in the event: (1) the position of Architect is vacant; (2) the Architect has not received evidence or has failed to render a decision within agreed time limit; (3) the Architect has failed to take action required under Paragraph 4.6.4 within thirty (30) days after the Claim is made, forty-five (45) days have passed after the Claim has been referred to the Architect; or (4) the Claim relates to a Stop Notice Claim not arising from any extra change order or Construction Change Directive for which approval has not been provided.
4.5.2 Architect’s Review.

The Architect will review Claims and take one or more of the following preliminary actions within ten (10) days of receipt of a Claim: (1) request additional supporting data from the Claimant; (2) submit a schedule to the parties indicating when the Architect expects to take action; (3) reject the Claim in whole or in part, stating reasons for rejection; (4) recommend approval of the Claim; or (5) suggest a compromise. The Architect may also, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim.

4.5.3 Documentation if Resolved.

If a Claim has been resolved, the Architect will prepare or obtain appropriate documentation.

4.5.4 Actions if Not Resolved.

If a Claim has not been resolved and all documentation requested pursuant to Paragraph 4.5.2 has been provided, the party making the Claim shall, within ten (10) days after the Architect’s preliminary response, take one or more of the following actions: (1) modify the initial Claim; (2) notify the Architect that the initial Claim stands; or (3) supplement with additional supporting data.

4.5.5 Architect’s Written Decision.

If a Claim has not been resolved after consideration of the foregoing and of other evidence presented by the parties or requested by the Architect, the Architect will notify the parties in writing that the Architect’s decision will be made within twenty (20) days. Upon expiration of such time period, the Architect will render to the parties its written decision relative to the Claim, including any change in the Contract Sum or Contract Time or both. The Architect may, but is not obligated to, notify the surety and request the surety’s assistance in resolving the controversy.

4.5.6 Continuing Contract Performance.

Pending final resolution of a Claim, including, negotiation, mediation, arbitration, or litigation, the Contractor shall proceed diligently with performance of the Contract, and the District shall continue to make any undisputed payments in accordance with the Contract. If the dispute is not resolved, Contractor agrees it will neither rescind the contract nor stop the progress of the work, but Contractor’s sole remedy shall be to submit such controversy to determination by a court of competent jurisdiction in the county where the project is located, after the project has been completed, and not before. At the District’s sole option, the District may submit individual disputes for binding arbitration and Contractor agrees to the resolution determined for each individual dispute by Arbitrator, including resolution of time and delays. If binding arbitration is utilized for individual disputes, such resolution is full and final as to that particular Claim.

4.5.7 Claims for Concealed Trenches or Excavations Greater Than Four Feet Below the Surface.

When any excavation or trenching extends greater than four feet below the surface or if any condition involving hazardous substances are encountered:
(a) Immediately upon discovery, The Contractor shall promptly, and before the following conditions are disturbed, notify the District, by telephone and in writing, of the condition except:

1. If such condition is a hazardous waste condition, and Contractor’s bid includes removal or disposal of hazardous substances. Material that the Contractor believes may be a material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with the provisions of existing law. In such case, the notice bulletin procedures of Article 7 apply.

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

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

(b) The District shall investigate the conditions, and if District finds that the conditions do materially so differ, do involve hazardous waste, and cause a decrease or increase in the Contractor’s cost of, or the time required for, performance of any part of the Work shall issue a change order or construction change directive under the procedures described in the Contract.

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

4.5.8 Claims for Extension of Time.

If Contractor and District cannot agree upon an extension of time, whether compensable or not, then Contractor must have first completed the procedures set forth in Paragraph 8.4. Upon completion of the procedures set forth under Paragraph 8.4, Contractor must then comply with the requirements in this Article including those set forth under Paragraph 4.5.9.

4.5.9 Claims Procedures.

4.5.9.1 Procedure applicable to all Claims:

(a) Definition of Claim: A “Claim” means a separate demand by the Contractor for (1) time extension, (2) payment of money or damages arising from Work done by or on behalf of the Contractor pursuant to the Contract and payment of which is not otherwise expressly provided for or the Claimant is not otherwise entitled to, or (3) and amount the payment of which is disputed by the District.

(b) Filing Claim is Not Basis To Discontinue Work: The Contractor shall promptly comply with Work under the Contract or Work requested by the District even though a written Claim has been filed. The Contractor and the District shall make good faith efforts to resolve
any and all Claims that may arise during the performance of the Work covered by this contract.

(c) Claim Notification: The Contractor shall within seven (7) calendar days after the Claim arises, submit a notification, in writing, with the District stating clearly the basis for the Claim. If the notification is not submitted within seven (7) days after the Claim arises, the Contractor shall be deemed to have waived all right to assert the Claim, and the Claim shall be denied. Claims submitted after the final payment date shall also be considered null and void by the District. All Claims shall be reviewed pursuant to Paragraph 4.5.1, 4.5.2, and 4.5.5. In order to qualify as a Claim, the written notice must state that it is a Claim submitted under this paragraph of these General Conditions.

(d) Formal Claim Appeal Submission: If the Contractor does not concur with the District’s decision regarding the Claim Notification, the Contractor will issue a formal Claim Appeal within fourteen (14) days of receipt of the District’s decision and all detailed information in support of the Claim Appeal within thirty (30) days. All appeals shall be submitted before final payment. If the Claim Appeal is not submitted within fourteen (14) calendar days and detailed information within thirty (30) days, the Contractor shall be deemed to have waived its right to assert the Claim and the Claim shall be denied. Contractor’s failure to submit any detailed information which is in the possession of Contractor shall render such information inadmissible by Contractor at trial or arbitration.

(e) Appeal Claim Format: The Contractor shall provide all written detailed documentation which supports the Claim, including but not limited to: arguments, justifications, cost, estimates, schedule analysis and detailed documentation. The format of the Claim Appeal shall be as follows:

1. Cover letter.
2. Summary of factual basis of Claim and amount of Claim.
3. Summary of the basis of the Claim, including the specific clause and section under the Contract under which the Claim is made.
4. Documents relating to the Claim, including:
   a. Specifications
   b. Drawings
   c. Clarifications (RFI’s)
   d. Other relevant information
   e. Analysis of claim merit.
   f. Analysis of claim cost.
   g. For Claims relating to time extensions, an analysis and supporting documentation evidencing any effect upon the critical path.
   h. Certification.
   i. Chronology of events and related correspondence.
   j. Daily reports and logs.

(f) Certification: The Contractor (and subcontractors, if applicable) shall submit with the Claim a certification under penalty of perjury:
(1) That the Contractor has reviewed the Claim and that such Claim is made in good faith;

(2) Supporting data are accurate and complete to the best of the Contractor’s knowledge and belief;

(3) The amount requested accurately reflects the amount of compensation for which the Contractor believes the District is liable.

(4) That the Contractor is familiar with Government Code Sections 12650 et seq. and Penal Code Section 72 and that false Claims can lead to substantial fines and/or imprisonment.

(g) Signature of Certification: If the Contractor is not an individual, the certification shall be executed by an officer or general partner of the Contractor having overall responsibility for the conduct of the Contractor’s affairs.

(h) Mandatory Claim Appeal Procedure: The Contractor’s Claim Appeal shall be denied if it fails to provide the written basis of the Claim and certification as set forth herein.

(i) District May Request Additional Information: Within thirty (30) days of receipt of the Claim Appeal and the information under this Article, the District may request in writing any additional documentation supporting the Claim or documentation relating to defenses to the Claim which the District may assert.

4.5.9.2 Binding Arbitration of Individual Claim Issues. At the District’s sole option, the District may submit individual disputes, or Claims, to binding arbitration and Contractor agrees to the resolution determined for each individual dispute by Arbitrator, including resolution of time and delays. If binding arbitration is utilized, such resolution is a full and final resolution of the particular Claim or dispute. Under no circumstances may the Contractor stop work, rescind its contract or otherwise slow the progress of Work during resolution of individual Claims in binding Arbitration.

4.5.9.3 Resolution of Disputes in Court of Competent Jurisdiction. If Claims are not resolved under the procedure set forth and pursuant to Article 4.5.9.2, such Claim or controversy shall be submitted to a court in the county of competent jurisdiction after the Project has been completed, and not before.

4.5.9.4 Warranties, Guaranties and Obligations. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guaranties and obligations imposed upon Contractor by the General Conditions and amendments thereto; and all of the rights and remedies available to District and Architect thereunder, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by laws or regulations by special warranty or guaranty or by other provisions of the Contract Documents, and the provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply.
ARTICLE 5

SUBCONTRACTORS

5.1 DEFINITIONS

5.1.1 Subcontractual Relations

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the same obligations and responsibilities, assumed by Contractor pursuant to the Contract Documents. Each subcontract agreement shall preserve and protect the rights of the District and the Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound. Upon written request of the Subcontractor, the Contractor shall identify to the Subcontractor the terms and conditions of the proposed subcontract agreement, which may be at variance with the Contract Documents. Subcontractors shall similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

5.1.2 Subcontractor Licenses.

All subcontractors shall be properly licensed by the California State Licensing Board.

5.1.3 Substitution of Subcontractor

Substitution of Subcontractors shall be permitted only as authorized under Public Contract Code §§ 4107 et. Seq. Any substitutions of Subcontractors shall not result in any increase in the Contract Price or result in the granting of any extension of time for the completion of the Project.

5.1.4 Contingent Assignment of Subcontracts and Other Contracts

Each subcontract and other contract or agreement for any portion of the Work is hereby assigned by the Contractor to the District provided that:

(a) Such assignment is effective only after termination of this contract with the Contractor by the District as provided herein and only for those subcontracts and other contracts and agreements that the District accepts by notifying the Subcontractor or Materialman (as may be applicable) in writing; and

(b) Such assignment is subject to the prior rights of the Surety(ies) obligated under the Payment Bond and Performance Bond.

The Contractor shall include adequate provisions for this contingent assignment of subcontracts and other contracts and agreements in each such document.
ARTICLE 6

CONSTRUCTION BY DISTRICT OR BY SEPARATE CONTRACTORS

6.1 DISTRICT’S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 Separate Contracts.

(a) District reserves the right to let other contracts in connection with this Work. Contractor shall afford other contractors reasonable opportunity for (1) introduction and storage of their materials; (2) access to the Work; and (3) execution of their work. Contractor shall properly connect and coordinate its work with that of other Contractors.

(b) If any part of Contractor’s Work depends on proper execution or results of any other contractor, the Contractor shall inspect and within seven (7) days or less, report to Architect, in writing, any defects in such work that render it unsuitable for proper execution of Contractor’s work. Contractor will be held accountable for damages to District for that work which it failed to inspect or should have inspected. Contractor’s failure to inspect and report shall constitute its acceptance of other contractors’ work as fit and proper for reception of its work, except as to defects which may develop in other contractors’ work after execution of Contractor’s work.

(c) To ensure proper execution of its subsequent Work, Contractor shall measure and inspect Work already in place and shall at once report to the Architect in writing any discrepancy between executed Work as built and the Contract Documents.

(d) Contractor shall ascertain to its own satisfaction the scope of the Project and nature of any other contracts that have been or may be awarded by District in prosecution of the Project and the potential impact of such work on Contractor’s schedule.

(e) Nothing herein contained shall be interpreted as granting to Contractor the exclusive occupancy at the site of Project. Contractor shall not cause any unnecessary hindrance or delay to any other contractor working on the Project Site. If execution of any contract by the District is likely to cause interference with Contractor’s performance of its contract, District shall decide which contractor shall cease work temporarily and which contractor shall continue, or whether work can be coordinated so that contractors may proceed simultaneously.

(f) District shall not be responsible for any damages suffered or extra costs incurred by Contractor resulting directly or indirectly from award or performance or attempted performance of any other contract or contracts at the Project, or caused by any decision or omission of District respecting the order of precedence in performance of contracts.

CONTRACTOR IS AWARE THAT THIS CONTRACT MAY BE SPLIT INTO SEVERAL PHASES. IF THE CONTRACT IS SPLIT INTO PHASES THEN CONTRACTOR HAS MADE ALLOWANCE FOR ANY DELAYS OR DAMAGES WHICH MAY ARISE FROM COORDINATION WITH CONTRACTORS FOR OTHER PHASES. IF ANY DELAYS SHOULD ARISE FROM ANOTHER CONTRACTOR WORKING ON A DIFFERENT PHASE, CONTRACTOR’S SOLE REMEDY FOR DAMAGES, INCLUDING DELAY DAMAGES, SHALL BE AGAINST THE CONTRACTOR WHO CAUSED SUCH DAMAGE AND NOT THE DISTRICT. CONTRACTOR SHALL PROVIDE ACCESS TO OTHER CONTRACTORS FOR OTHER PHASES AS NECESSARY TO PREVENT DELAYS AND DAMAGES TO OTHER CONTRACTORS WORKING ON OTHER PHASES OF CONSTRUCTION.
6.1.2 District’s Right to Carry Out the Work.

See Paragraph 2.2.

6.1.3 Designation as Contractor.

When separate contracts are awarded to contractors on the Project Site, the term “Contractor” in the Contract Documents in each case shall mean the Contractor who executes each separate District/Contractor Agreement.

6.1.4 Contractor Duties.

The Contractor shall have overall responsibility to reasonably coordinate and schedule Contractor’s activities with 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 construction schedules when directed to do so. The Contractor shall make any revisions to the construction schedule and Contract Sum deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors, and the District until subsequently revised. Additionally, Contractor shall coordinate with Architect and District inspector to ensure timely and proper progress of work.

6.2 CONSTRUCTIVE OWNERSHIP OF PROJECT SITE AND MATERIAL

Upon commencement of Work, the Contractor becomes the constructive owner of the entire site, improvements, material and equipment on Project site. Contractor must ensure proper safety and storage of all materials and assumes responsibility as if Contractor was the owner of the Project site. All risk of loss or damage shall be borne by Contractor during the Work until the date of Completion. As construction owner, Contractor must carry adequate insurance in case of calamity and is not entitled to rely on the insurance requirements as set forth in this agreement as being adequate coverage in case of calamity.

6.3 DISTRICT’S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors, and the District as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish as described in Paragraph 3.12, the District may clean up and allocate the cost among those it deems responsible.

ARTICLE 7

CHANGES IN THE WORK

7.1 CHANGES

7.1.1 No Changes Without Authorization.

There shall be no change whatsoever in the drawings, specifications, or in the Work without an executed Change Order, Construction Change Directive, or order by the Architect for a minor change in
the Work as herein provided. District shall not be liable for the cost of any extra work or any substitutions, changes, additions, omissions, or deviations from the Drawings and Specifications unless the District’s Governing Board has authorized the same and the cost thereof approved in writing by Change Order or executed Construction Change Directive. No extension of time for performance of the Work shall be allowed hereunder unless claim for such extension is made at the time changes in the Work are ordered, and such time duly adjusted in writing in the Change Order. The provisions of the Contract Documents shall apply to all such changes, additions, and omissions with the same effect as if originally embodied in the Drawings and Specifications. Notwithstanding anything to the contrary in this Article 7, all Change Orders shall be prepared and issued by the District and shall become effective when executed by the District’s Governing Board, the Architect, and the Contractor.

Should any Change Order result in an increase in the Contract Sum, the cost of such Change Order shall be agreed to, in writing, in advance by Contractor and District and be subject to the monetary limitations set forth in Public Contract Code Section 20659. In the event that Contractor proceeds with any change in Work without first notifying District and obtaining the Architect’s and District’s consent to a Change Order, Contractor waives any claim of additional compensation for such additional work.

CONTRACTOR UNDERSTANDS, ACKNOWLEDGES, AND AGREES THAT THE REASON FOR THIS NOTICE REQUIREMENT IS SO THAT DISTRICT MAY HAVE AN OPPORTUNITY TO ANALYZE THE WORK AND DECIDE WHETHER THE DISTRICT SHALL PROCEED WITH THE CHANGE ORDER OR ALTER THE PROJECT SO THAT SUCH CHANGE IN WORK BECOMES UNNECESSARY.

7.1.2 Architect Authority.

The Architect will have authority to order minor changes in the Work not involving any adjustment in the Contract Sum, or an extension of the Contract Time, or when a change which is inconsistent with the intent of the Contract Documents. Such changes shall be effected by written Change Order and shall be binding on the District and the Contractor. The Contractor shall carry out such written orders promptly.

7.2 CHANGE ORDERS (“CO”)

A CO is a written instrument prepared by the Architect and signed by the District (as authorized by the District’s Governing Board), the Contractor, the Architect, stating their agreement upon all of the following:

(a) A description of a change in the Work;
(b) The amount of the adjustment in the Contract Sum, if any; and
(c) The extent of the adjustment in the Contract Time, if any.

7.3 CONSTRUCTION CHANGE DIRECTIVE

7.3.1 Definition.

A Construction Change Directive is a written order prepared by the Architect and signed by the District and the Architect, directing a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum or Contract Time, or both. The District may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions within. If applicable, the Contract Sum and Contract

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Time will be adjusted accordingly. In the case of a Construction Change Directive being issued, Contractor must commence Work immediately or delays from failure to perform Construction Change Directive shall be the responsibility of Contractor. Any dispute as to the sum of Construction Change Directive or timing of payment, shall be resolved pursuant to Paragraph 4.5.

7.3.2 Use to Direct Change

A Construction Change Directive shall be used in the absence of agreement on the terms of a CO. A copy of a proposed form is provided at the end of this Article.

7.4 REQUEST FOR INFORMATION (“RFI”)

7.4.1 Definition.

An RFI is a written request prepared by the Contractor requesting the District to provide additional information necessary to clarify or amplify an item which the Contractor believes is not clearly shown or called for in the drawings or specifications, or to address problems which have arisen under field conditions.

7.4.2 Scope.

The RFI shall reference all the applicable Contract Documents including specification section, detail, page numbers, drawing numbers, and sheet numbers, etc. The Contractor shall make suggestions and interpretations of the issue raised by the RFI. An RFI cannot modify the Contract Sum, Contract Time, or the Contract Documents.

7.4.3 Response Time.

The Architect must respond to a RFI within a reasonable time after receiving such request. If the Architect’s response results in a change in the Work, then such change shall be effected by a written CO or Construction Change Directive, if appropriate. If the Architect cannot respond to the RFI within a reasonable time, the Architect shall notify the Contractor, with a copy to the Inspector and the District, of the amount of time that will be required to respond.

7.4.4 Costs Incurred.

The Contractor shall be responsible for any costs incurred for professional services, which shall be deducted from the next progress payment, if an RFI requests an interpretation or decision of a matter where the information sought is equally available to the party making such request. District, at its sole discretion, shall invoice Contractor for all such professional services arising from this Article.

7.5 REQUEST FOR PROPOSAL (“RFP”)

7.5.1 Definition.

An RFP is a written request prepared by the Architect requesting the Contractor to submit to the District and the Architect an estimate of the effect of a proposed change on the Contract Sum and the Contract Time.
7.5.2 Scope.

An RFP shall contain adequate information, including any necessary drawings and specifications, to enable Contractor to provide the cost breakdowns required by Paragraph 7.7. The Contractor shall not be entitled to any Additional Compensation for preparing a response to an RFP, whether ultimately accepted or not.

7.6 CHANGE ORDER REQUEST (“COR”)

7.6.1 Definition.

A COR is a written request prepared by the Contractor requesting that the District and the Architect issue a CO based upon a proposed change called for in an RFP or a claim pursuant to Paragraph 4.5.

7.6.2 Changes in Sum.

A COR shall include breakdowns per Paragraph 7.7 to validate any change in Contract Sum due to proposed change or claim.

7.6.3 Changes in Time.

A COR shall also include any additional time required to complete the Project. Any additional time requested shall not be the number of days to make the proposed change, but must be based upon the impact to the Project Schedule as defined in Paragraph 3.8 of the General Contract. If contractor fails to request a time extension in a COR, then the Contractor is thereafter precluded from requesting or claiming a delay.

7.7 COST OF CHANGE ORDERS

7.7.1 Scope.

Within ten (10) days after a request is made for a change that impacts the Contract Sum as defined in Paragraph 9.1, the critical path, or the Contract Time as defined in Paragraph 8.4.2, the Contractor shall provide the District and the Architect, with a written estimate of the effect of the proposed CO upon the Contract Sum and the actual cost of construction, which shall include a complete itemized cost breakdown of all labor and material showing actual quantities, hours, unit prices, and wage rates required for the change, and the effect upon the Contract Time of such CO. Changes may be made by District by an appropriate written CO, or, at the District’s option, such changes shall be implemented immediately upon the Contractor’s receipt of an appropriate written Construction Change Directive.

District may, as provided by law and without affecting the validity of this Agreement, order changes, modifications, deletions and extra work by issuance of written Construction Change Directives from time to time during the progress of the Project, contract sum being adjusted accordingly. All such work shall be executed under conditions of the original Agreement except that any extension of time caused thereby shall be adjusted at time of ordering such change. District has discretion to order changes on a “time and material” basis with adjustments to time made after Contractor has justified through documentation the impact on the critical path of the Project.
7.7.2 Determination of Cost.

The amount of the increase or decrease in the Contract Price from a CO, if any, shall be determined in one or more of the following ways as applicable to a specific situation:

(a) Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation. If an agreement cannot be reached within fifteen (15) days after submission and negotiation of Contractor’s proposal, Contractor may submit pursuant to Paragraph 7.7.3. Submission of sums which have no basis in fact are at the sole risk of Contractor and may be a violation of the False Claims Act set forth under Government Code Section 12650 et. seq.);

(b) By unit prices contained in Contractor’s original bid and incorporated in the Project documents or fixed by subsequent agreement between District and Contractor;

(c) Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee. However, in the case of disagreement, Contractor must utilize the procedure under section 7.7.3; or

(d) By cost of material and labor and percentage of overhead and profit. If the value is determined by this method the following requirements shall apply:

1. Basis for Establishing Costs.

   a. Labor will be the actual cost for wages prevailing locally for each craft or type of workers at the time the extra Work is done, plus employer payments of payroll taxes and insurance, health and welfare, pension, vacation, apprenticeship funds, and other direct costs resulting from Federal, State, or local laws, as well as assessments or benefits required by lawful collective bargaining agreements. The use of a labor classification which would increase the extra Work cost will not be permitted unless the Contractor establishes the necessity for such additional costs. Labor costs for equipment operators and helpers shall be reported only when such costs are not included in the invoice for equipment rental.

   b. Materials shall be at invoice or lowest current price at which such materials are locally available and delivered to the Site in the quantities involved, plus sales tax, freight, and delivery.

      The District reserves the right to approve materials and sources of supply or to supply materials to the Contractor if necessary for the progress of the Work. No markup shall be applied to any material provided by the District.

   c. Tool and Equipment Rental. No payment will be made for the use of tools which have a replacement value of $250 or less.

      Regardless of ownership, the rates to be used in determining equipment rental costs shall not exceed listed rates prevailing locally at equipment rental agencies or distributors at the time the Work is performed.
The rental rates paid shall include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals.

Necessary loading and transportation costs for equipment used on the extra Work shall be included. If equipment is used intermittently and, when not in use, could be returned to its rental source at less expense to the District than holding it at the Work Site, it shall be returned unless the Contractor elects to keep it at the Work Site at no expense to the District.

All equipment shall be acceptable to the Inspector, in good working condition, and suitable for the purpose for which it is to be used. Manufacturer’s ratings and modifications shall be used to classify equipment, and equipment shall be powered by a unit of at least the minimum rating recommended by the manufacturer.

d. Other Items. The District may authorize other items which may be required on the extra work. Such items include labor, services, material, and equipment which are different in their nature from those required by the Work, and which are of a type not ordinarily available from the Contractor or any of the Subcontractors. Invoices covering all such items in detail shall be submitted with the request for payment.

e. Invoices. Vendors’ invoices for material, equipment rental, and other expenditures shall be submitted with the COR. If the request for payment is not substantiated by invoices or other documentation, the District may establish the cost of the item involved at the lowest price which was current at the time of the Daily Report.

f. Overhead. Overhead, including direct and indirect costs, shall be submitted with the COR and include: home office overhead, off-site supervision, CO preparation/negotiation/research, time delays, project interference and disruption, additional guaranty and warranty durations, on-site supervision, additional temporary protection, additional temporary utilities, additional material handling costs, and additional safety equipment costs.

7.7.3 Format for Proposed Cost Change.

The following format shall be used as applicable by the District and the Contractor to communicate proposed additions and deductions to the Contract. A copy of a proposed Construction Change Directive form is provided at the end of this Article.

<table>
<thead>
<tr>
<th>EXTRA</th>
<th>CREDIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Material (attach itemized quantity and unit cost plus sales tax)</td>
<td>_______</td>
</tr>
<tr>
<td>(b) Labor (attach itemized hours and rates)</td>
<td>_______</td>
</tr>
<tr>
<td>(c) Equipment (attach invoices)</td>
<td>_______</td>
</tr>
<tr>
<td>(d) Subtotal</td>
<td>_______</td>
</tr>
<tr>
<td></td>
<td>EXTRA</td>
</tr>
<tr>
<td>---</td>
<td>-------</td>
</tr>
<tr>
<td>(e)</td>
<td>If Subcontractor performed Work, add Subcontractor’s overhead and profit to portions performed by Sub-contractor, not to exceed fifteen percent (15%) of item (d).</td>
</tr>
<tr>
<td>(f)</td>
<td>Liability and Property Damage Insurance, Worker’s, Compensation Insurance, Social Security, and Unemployment Taxes, not to exceed as follows: FICA @ 6.2% - with a wage ceiling of $84,900; Medicare @ 1.45% - no wage ceiling; FUTA @ .8% - with a wage ceiling of $7,000; ETT and SUI @ 2.3% - with a wage ceiling of $7,000; Workers’ Compensation @ 5.94%; Liability and Property Damage @ 2.5%. <strong>Total not-to-exceed is 19.19%.</strong> <em>(Note: Modifications to these percentages will be evaluated and possibly modified only on a case-by-case basis and only after proper proof of alternate percentages are documented and approved in advance. In addition, as wage ceilings are met, those corresponding percentages must drop from the “burden” calculations).</em></td>
</tr>
<tr>
<td>(g)</td>
<td>Subtotal</td>
</tr>
<tr>
<td>(h)</td>
<td>General Contractor’s Overhead and Profit: Not to exceed fifteen percent (15%) of Item (g) if Contractor performed the work. No more than five percent (5%) of Item (g) if Subcontractor performed the work. If work was performed by Contractor and Subcontractors, portions performed by Contractor shall not exceed fifteen percent (15%) if Item (g), and portions performed by Subcontractor shall not exceed five percent (5%) of Item (g)</td>
</tr>
<tr>
<td>(i)</td>
<td>Subtotal</td>
</tr>
<tr>
<td>(j)</td>
<td>Bond not to exceed one percent (1%) of Item (g)</td>
</tr>
<tr>
<td>(k)</td>
<td>TOTAL</td>
</tr>
<tr>
<td>(l)</td>
<td>Time</td>
</tr>
</tbody>
</table>
The undersigned Contractor approves the foregoing Construction Change Directive as to the changes, if any, and the contract price specified for each item and as to the extension of time allowed, if any, for completion of the entire work on account of said Construction Change Directive, and agrees to furnish all labor, materials and service and perform all work necessary to complete any additional work specified therein, for the consideration stated herein. It is understood that said Construction Change Directive shall be effective when approved by the Governing Board of the District.

It is expressly understood that the value of such extra Work or changes, as determined by any of the aforementioned methods, expressly includes any and all of the Contractor’s costs and expenses, both direct and indirect, resulting from additional time required on the Project or resulting from delay to the Project. Any costs, expenses, damages or time extensions not included are deemed waived.

The Contractor expressly acknowledges and agrees that any change in the Work performed shall not be deemed to constitute a delay or other basis for claiming additional compensation based on theories including, but not limited to, acceleration, suspension or disruption to the Project.

7.7.4 Net Deductive Change Orders

All net deductive Change Order(s) must be prepared pursuant to Paragraph 7.7.3. Contractor will be allowed a maximum of 5% total profit and overhead. If subcontractor work is involved, subcontractors shall be entitled to a maximum of 5% profit and overhead on the deducted work. Any deviation from this Article shall not be allowed.

7.7.5 Discounts, Rebates, and Refunds.

For purposes of determining the cost, if any, of any change, addition, or omission to the Work hereunder, all trade discounts, rebates, refunds, and all returns from the sale of surplus materials and equipment shall accrue and be credited to the Contractor, and the Contractor shall make provisions so that such discounts, rebates, refunds, and returns may be secured, and the amount thereof shall be allowed as a reduction of the Contractor’s cost in determining the actual cost of construction for purposes of any change, addition, or omissions in the Work as provided herein.

7.7.6 Accounting Records.

With respect to portions of the Work performed by COs and Construction Change Directives on a time-and-materials, unit-cost, or similar basis, the Contractor shall keep and maintain cost-accounting records satisfactory to the District, which shall be available to the District on the same terms as any other books and records the Contractor is required to maintain under the Contract Documents.

7.7.7 Notice Required.

If the Contractor desires to make a claim for an increase in the Contract Price, or any extension in the Contract Time for completion, it shall notify the District pursuant to Paragraph 4.5 and this Article. No claim shall be considered unless made in accordance with this subparagraph. Contractor shall proceed to execute the Work even though the adjustment may not have been agreed upon. Any change in the Contract Price or extension of the Contract Time resulting from such claim shall be authorized by a CO.
7.7.8 Applicability to Subcontractors.

Any requirements under this Article 7 shall be equally applicable to COs or Construction Change Directives issued to Subcontractors by the Contractor to the same extent required by the Contractor.

7.7.9 Alteration to Change Order Language.

Contractor shall not alter Change Orders or reserve time in Construction Change Directives. Contractor shall execute finalized Change Orders and proceed under Paragraph 7.7.7 and Paragraph 4.5 with proper notice. If Contractor intends to reserve time, without an approved CPM schedule prepared pursuant to Paragraph 3.8 then Contractor may be prosecuted pursuant to the False Claim Act.
ARTICLE 8

TIME

8.1 DEFINITIONS

8.1.1 Contract Time.

Unless otherwise provided, Contract Time is the period of time, in calendar days, including authorized adjustments, allotted in the Contract Documents for Completion of the Work.

8.1.2 Notice to Proceed.

District may give a notice to proceed within three (3) months of the award of the bid by District. Once Contractor has received the notice to proceed, Contractor shall complete the Work in the period of time referenced in the Contract Documents.

In the event that District desires to postpone the giving of the notice to proceed beyond this two-month period, it is expressly understood that with reasonable notice to the Contractor, the giving of the date to proceed may be postponed by District. It is further expressly understood by Contractor, that Contractor shall not be entitled to any Claim of additional compensation as a result of the postponement of the giving of the notice to proceed.

If the Contractor believes that a postponement will cause a hardship to Contractor, Contractor may terminate the contract with written notice to District within 10 days after receipt by Contractor of District’s notice of postponement. It is further understood by Contractor that in the event that Contractor terminates the Contract as a result of postponement by the District, the District shall only be obligated to pay Contractor for the Work that Contractor had performed at the time of notification of postponement. Should Contractor terminate the contract as a result of a notice of postponement, District shall have the authority to award the contract to the next lowest responsible bidder.

8.1.3 Computation of Time.

The term “day” as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

The Contractor will only be allowed a time extension for unusually severe weather if it results in precipitation or other conditions which in the amount, frequency, or duration is in excess of the norm at the location and time of year in question as established by National Oceanic and Atmospheric Administration (NOAA) weather data. No less than three work days allocated equally across the Contract Time will be identified as non-working weather days in the contractor’s schedule for the entire contract period of performance. The weather days shall be shown on the schedule and if not used will become float for the Project’s use. A day-for-day extension will only be allowed for those days in excess of the norm. The Contractor is expected to work seven (7) days per week (if necessary, irrespective of inclement weather), to maintain access, and to protect the Work under construction from the effects of inclement weather.

If the weather is unusually severe and is in excess of the NOAA data norm and prevents the Contractor from beginning work at the usual daily starting time, or prevents the Contractor from
proceeding with seventy-five (75%) of the normal labor and equipment force towards completion of the
day’s current controlling item on the accepted construction schedule for a period of at least five hours,
and the crew is dismissed as a result thereof, the Architect will designate such time as unavoidable delay
and grant one (1) work-day extension.

8.2 **HOURS OF WORK.**

8.2.1 **Sufficient Forces.**

Contractors and Subcontractors shall continuously furnish sufficient forces to ensure the
prosecution of the Work in accordance with the Construction Schedule.

8.2.2 **Performance During Working Hours.**

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

8.2.3 **Costs for After Hours Inspections.**

If the Contract Documents require Work to be done outside the Inspector’s regular working hours,
the costs of any after hour inspections, shall be borne by the District.

If the District allows the Contractor to do Work outside regular working hours for the Contractor’s
convenience, or if required to maintain schedule, the costs of any inspections required outside regular
working hours shall be invoiced to the Contractor by the District and deducted from the next Progress
Payment.

If the Contractor elects to perform Work outside the Inspector’s regular working hours, costs of
any inspections required outside regular working hours shall be invoiced to the Contractor by the District
and deducted from the next Progress Payment.

8.3 **PROGRESS AND COMPLETION.**

8.3.1 **Time of the Essence.**

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

8.4 **EXTENSIONS OF TIME – LIQUIDATED DAMAGES**

8.4.1 **Liquidated Damages.**

Contractor and District hereby agree that the exact amount of damages for failure to complete
the Work within the time specified is extremely difficult or impossible to determine. If the Work is not
completed within the time specified in the Contract Documents, it is understood that the District will
suffer damage. It being impractical and unfeasible to determine the amount of actual damage, it is agreed
the Contractor shall pay to District as fixed and liquidated damages, and not as a penalty, the amount specified in the Construction Agreement for each calendar day of delay in completion. Any liquidated damages recovered by the District shall not, however, limit the District’s right to separately recover any actual out-of-pocket damages it suffers due to Contractor’s delay. Contractor and his surety shall be liable for the amount thereof pursuant to Government Code section 53069.85.

8.4.2 Excusable Delay.

Contractor shall not be charged for liquidated damages because of any delays in completion of Work which are not the fault or negligence of Contractor or its subcontractors, including acts of God, as defined in Public Contract Code Section 7107, acts of enemy, epidemics and quarantine restrictions. Contractor shall within five (5) calendar days of beginning of any such delay notify District in writing of causes of delay; thereupon District shall ascertain the facts and extent of delay and grant extension of time for completing Work when, in its judgment, the findings of fact justify such an extension. Extensions of time shall apply only to that portion of Work affected by delay, and shall not apply to other portions of Work not so affected. An extension of time may only be granted after proper compliance with Paragraph 3.8 requiring preparation and submission of a properly prepared CPM schedule.

No extended overhead, general conditions costs, impact costs, out-of-sequence costs or any other type of compensation, by any name or characterization, shall be paid to the Contractor for any delay to any activity not designated as a critical path item on the latest approved Project schedule.

The Contractor shall notify the District and Architect in writing of any anticipated delay and its cause, in order that the District and Architect may take immediate steps to prevent, if possible, the occurrence or continuance of delay, and may determine whether the delay is to be considered avoidable or unavoidable, how long it continues, and to what extent the prosecution and completion of the Work might be delayed thereby.

In the event the Contractor requests an extension of Contract time for unavoidable delay, such request shall be submitted in accordance with the provisions in the Contract Documents governing changes in work. When requesting time, i.e., extensions, for proposed Change Orders, they must be submitted with the proposed Change Order with full justification and documentation. If the Contractor fails to submit justification with the proposed Change Order it waives its right to a time extension at a later date. Such justification must be based on the District accepted construction schedule as updated at the time of occurrence of the delay or execution of Work related to any changes to the scope of work. The justification must include, but is not limited to, the following information:

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

(b) Logical ties to the District accepted construction schedule for the proposed changes and/or delay showing the activity/activities in the schedule whose start or completion dates are affected by the change and/or delay. (A fragment of any delay of over ten (10) days must be provided.)

The Contractor and District understand and expressly agree that insofar as Public Contract Code Section 7102 may apply to changes in the Work or delays under this contract, the actual delays and damages, if any, and time extensions are intended to, and shall provide, the exclusive and full method of compensation for changes in the Work and construction delays.
8.4.3  Notice by Contractor Required.

The Contractor shall within five (5) calendar days of beginning of any such delay notify the District in writing of causes of delay with justification and supporting documentation. District will then ascertain the facts and extent of the delay and grant an extension of time for completing the Work when, in its judgment, the findings of fact justify such an extension. Extensions of time shall apply only to that portion of the Work affected by the delay and shall not apply to other portions of the Work not so affected. The sole remedy of Contractor for extensions of time under Paragraph 8.4.2 shall be an extension of the Contract Time at no cost to the District.

Claims relating to time extensions shall be made in accordance with applicable provisions of Article 7.

8.4.4  No Additional Compensation for Delays within Contractor’s Control

CONTRACTOR IS AWARE THAT GOVERNMENTAL AGENCIES, SUCH AS THE DEPARTMENT OF GENERAL SERVICES, GAS COMPANIES, ELECTRICAL UTILITY COMPANIES, WATER DISTRICTS AND OTHER AGENCIES MAY HAVE TO APPROVE CONTRACTOR PREPARED DRAWINGS OR APPROVE A PROPOSED INSTALLATION. CONTRACTOR HAS INCLUDED DELAYS AND DAMAGES WHICH MAY BE CAUSED BY SUCH AGENCIES IN CONTRACTOR’S BID. THUS, CONTRACTOR IS NOT ENTITLED TO MAKE CLAIM UPON THE DISTRICT FOR DAMAGES OR DELAYS ARISING FROM THE DELAYS CAUSED BY SUCH AGENCIES. FURTHERMORE, THE CONTRACTOR HAS SCHEDULED FOR SUCH DELAYS AND IS NOT ENTITLED TO AN EXTENSION OF TIME FOR DELAYS CAUSED BY GOVERNMENTAL AGENCIES WHICH CONTRACTOR MUST OBTAIN APPROVALS FROM AND, THUS, CONTRACTOR IS NOT ENTITLED TO AN EXTENSION OF TIME.

CONTRACTOR SHALL ONLY BE ENTITLED TO COMPENSATION FOR DELAY WHEN THE FOLLOWING CONDITIONS ARE MET: (1) THE DISTRICT IS RESPONSIBLE FOR THE DELAY; (2) THE DELAY IS UNREASONABLE UNDER THE CIRCUMSTANCES INVOLVED; AND (3) THE DELAY WAS NOT WITHIN THE CONTEMPLATION OF DISTRICT AND CONTRACTOR.
ARTICLE 9

PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the District to the Contractor for performance of the Work under the Contract Documents.

9.2 COST BREAKDOWN

9.2.1 Required Information.

On forms or software programs (e.g., Microsoft Project, Primavera or Excel) approved by the District, the Contractor shall furnish the following:

(a) Within ten (10) days of the award of the Contract, a detailed breakdown of the Contract Sum (hereinafter “Schedule of Values” or “SOV”) for each Project or Site;

(b) Within ten (10) days of the award of the Contract, a schedule of estimated monthly payment requests due the Contractor showing the values and construction time of the various portions of the Work to be performed by it and by its Subcontractors or material and equipment suppliers containing such supporting evidence as to its correctness as the District may require;

(c) Within ten (10) days of the award of the Contract, the name, address, telephone number, teletypewriter number, California State Contractors License number, classification and monetary value of all Subcontracts for parties furnishing labor, material, or equipment for completion of the Project.

9.2.2 District Approval Required.

The District shall review all submissions received pursuant to Paragraph 9.2.1 in a timely manner. All submissions must be approved by the District before becoming the basis of any payment. Contractor may request to District representation, prior to submission, to submit information required by paragraph 9.2.1 in a spreadsheet (Microsoft Excel) format. Approval of an alternate format is entirely at District’s discretion.

9.3 PROGRESS PAYMENTS

9.3.1 Payments to Contractor.

Within thirty (30) days after approval of the Request for Payment, Contractor shall be paid a sum equal to ninety-five percent (95%) of the value of the Work performed (as certified by Architect and Inspector and verified by Contractor) up to the last day of the previous month, less the aggregate of previous payments. The value of the Work completed shall be Contractor’s best estimate. No inaccuracy or error in said estimate shall operate to release the Contractor, or any surety upon any bond, from damages arising from such Work, or from the District’s enforcement of each and every provision of this
Contract, and the District shall have the right subsequently to correct any error made in any estimate for payment.

The Contractor shall not be entitled to have any payment requests processed, or be entitled to have any payment made for work performed, so long as any lawful or proper direction given by the District concerning the Work, or any portion thereof, remains incomplete.

The SOV items of Work shall include a prorated portion of Contractor’s home office and field office overhead, profit, insurance, (except to the extent expressly identified in a Proposal Item) and/or other financing, as well as General Conditions costs, (e.g., routine time related Site cleanup and maintenance, temporary power and lighting, security, temporary trailer rental, temporary fence rentals, and the like). The SOV shall also not include separate line items to prepare submittals, or other Work items not at the Project Site, unless expressly identified in these Contract Documents as specific exceptions.

Costs for each item of Work at the Project site shall be indicated on a single line that breaks out labor, materials, and equipment for that item of Work, with all items noted in the paragraph above prorated into each line. Unless otherwise allowed, the SOV shall reflect that the District shall only pay for installed items of Work at the Project site. All other costs shall be prorated through all activities and all Phases of the Project so that the sum of all Schedule of Values line items equals the total Contract Sum.

Notwithstanding anything to the contrary stated above, the Contractor may include in its Request for Payment the value of any fabricated structural steel, mail order materials, G.F.R.C. panels and other such custom-made materials prepared specifically for the Project and unique to the Project so long as all of the following requirements are satisfied:

(a) No payment shall be made for materials stored off-site without the written approval of the District to be given or withheld in the District’s sole discretion;
(b) Title to such materials shall be vested in the District as evidenced by documentation satisfactory in form and substance to the District, including, without limitation, recorded financing statements, UCC filings and UCC searches;
(c) With each Contractor Request for Payment, the Contractor shall submit to the District a written list identifying each location where materials are stored off-site (which must be a bonded warehouse) and the value of the materials at each location. The Contractor shall procure insurance satisfactory to the District (in its reasonable discretion) for materials stored off-site in an amount not less than the total value thereof;
(d) The consent of any Surety shall be obtained to the extent required prior to payment for any materials stored off-site;
(e) Representatives of the District shall have the right to make inspections of the storage areas at any time; and
(f) Such materials shall be (1) protected from diversion, destruction, theft and damage to the reasonable satisfaction of the District; (2) specifically marked for use on the Project; and (3) segregated from other materials at the storage facility.
9.3.2 Purchase of Materials and Equipment.

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

9.3.3 No Waiver.

No payment by District hereunder shall be interpreted so as to imply that District has inspected, approved, or accepted any part of the Work. Notwithstanding any payment, the District may enforce each and every provision of this Contract. The District may correct any error subsequent to any payment.

9.3.4 Issuance of Certificate of Payment.

The Architect shall, within seven (7) days after receipt of the Contractor’s Application for Payment, either approve such payment or notify the Contractor in writing of the Architect’s reasons for withholding approval in whole or in part as provided in Paragraph 9.6. The review of the Contractor’s Application for Payment by the Architect is based on the Architect’s observations at the Site and the data comprising the Application for Payment that the Work has progressed to the point indicated and that, to the best of the Architect’s knowledge, information, and belief, the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to (1) an evaluation of the Work for conformance with the Contract Documents, (2) results of subsequent tests and inspections, (3) minor deviations from the Contract Documents correctable prior to completion, and (4) specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified.

9.4 APPLICATIONS FOR PROGRESS PAYMENTS

9.4.1 Procedure.

9.4.1.1 Application for Progress. On or before the fifth (5th) day of each calendar month during the progress of the Work, Contractor shall submit to the Architect an itemized Application for Progress Payment for operations completed in accordance with the Schedule of Values. Such application shall be notarized, if required, and supported by the following or such portion thereof as Architect requires:

(a) The amount paid to the date of the Application to the Contractor, to all its Subcontractors, and all others furnishing labor, material, or equipment for its Contract;
(b) The amount being requested under the Application for Payment by the Contractor on its own behalf and separately stating the amount requested on behalf of each of the Subcontractors and all others furnishing labor, material, and equipment under the Contract;
(c) The balance that will be due to each of such entities after said payment is made;
(d) A certification that the Record Drawings and Annotated Specifications are current;
(e) Itemized breakdown of work done for the purpose of requesting partial payment;
(f) An updated construction schedule in conformance with Paragraph 3.8;
(g) The additions to and subtractions from the Contract Sum and Contract Time;
(h) A summary of the retentions held;
(i) Material invoices, evidence of equipment purchases, rentals, and other support and details of cost as the District may require from time to time;
(j) The percentage of completion of the Contractor’s Work by line item; and
(k) An updated Schedule of Values from the preceding Application for Payment.

9.4.2 Prerequisites for Progress Payments.

9.4.2.1 First Payment Request. The following items, if applicable, must be completed before the first payment request will be accepted for processing:

(a) Installation of the Project sign;
(b) Receipt by Architect of submittals;
(c) Installation of field office;
(d) Installation of temporary facilities and fencing;
(e) Submission of documents listed in the Paragraph 9.2 relating to Cost Breakdown;
(f) Contractor’s Construction Schedule (Schedule to be CPM based in conformance with Paragraph 3.8);
(g) Schedule of unit prices;
(h) Submittal Schedule;
(i) Copies of necessary permits;
(j) Copies of authorizations and licenses from governing authorities;
(k) Initial progress report;
(l) Surveyor qualifications;
(m) Written acceptance of District’s survey of rough grading;
(n) List of all subcontractors, with names, license numbers, telephone numbers, and scope of work;
(o) All bonds and insurance endorsements; and
(p) Resumes of General Contractor’s Project Manager and superintendent.

9.4.2.2 All Payment Requests. No payment requests will be processed unless Contractor has submitted copies of the Certified Payroll records for the Work which correlates to the payment request and a proper CPM schedule pursuant to Paragraph 3.8 is submitted.

9.4.2.3 Any payments made to Contractor where criteria set forth in Paragraph 9.4.2.1 or 9.4.2.2 have not been met shall not constitute a waiver of said criteria by District. Instead, such payment shall be construed as a good faith effort by District to resolve differences so Contractor may pay its Subcontractors and suppliers and that Contractor agrees that failure to submit such items may constitute a breach of contract by Contractor and may subject Contractor to termination.
9.5 WARRANTY OF TITLE

The Contractor warrants title to all work. The Contractor further warrants that all work is free and clear of liens, claims, security interests, or encumbrances in favor of the Contractor, Subcontractors, material and equipment suppliers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment relating to the Work. Failure to keep work free of liens, claims, security interests or encumbrances is grounds to make a claim against Contractor’s payment and performance bond to immediately remedy and defend.

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

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

9.6 DECISIONS TO WITHHOLD PAYMENT

9.6.1 Reasons to Withhold Payment.

The District may withhold payment in whole, or in part, to the extent reasonably necessary to protect the District if, in the District’s opinion, the representations to the District required by Paragraph 9.4 cannot be made. The District may withhold payment, in whole, or in part, to such extent as may be necessary to protect the District from loss because of, but not limited to:

(a) Defective Work not remedied;
(b) Stop Notices served upon the District;
(c) Liquidated damages assessed against the Contractor;
(d) The cost of completion of the Contract if there exists reasonable doubt that the Work can be completed for the unpaid balance of any Contract Sum or by the completion date;
(e) Damage to the District or other contractor;
(f) Unsatisfactory prosecution of the Work by the Contractor;
(g) Failure to store and properly secure materials;
(h) Failure of the Contractor to submit on a timely basis, proper and sufficient documentation required by the Contract Documents, including, without limitation, acceptable monthly progress schedules, shop drawings, submittal schedules, schedule of values, product data and samples, proposed product lists, executed Construction Change Directives, and verified reports;
(i) Failure of the Contractor to maintain record drawings;
(j) Erroneous estimates by the Contractor of the value of the Work performed, or other false statements in an Application for Payment;

(k) Unauthorized deviations from the Contract Documents;

(l) Failure of the Contractor to prosecute the Work in a timely manner in compliance with established progress schedules and completion dates.

(m) Failure to properly pay prevailing wages as defined in Labor Code section 1720, et seq.;

(n) Failure to properly maintain or clean up the Site;

(o) Payments to indemnify, defend, or hold harmless the District;

(p) Any payments due to the District including but not limited to payments for failed tests, or utilities changes or permits;

(q) Failure to submit an acceptable schedule in accordance with Paragraph 3.8; or

(r) Failure to pay Subcontractor or suppliers as required by Paragraph 9.8.1.

9.6.2 Reallocation of Withheld Amounts.

District may, in its discretion, apply any withheld amount to payment of outstanding claims or obligations as defined in Paragraphs 9.6.1 and 9.5. In so doing, District shall make such payments on behalf of Contractor. If any payment is so made by District, then such amount shall be considered as a payment made under Contract by District to Contractor and District shall not be liable to Contractor for such payments made in good faith. Such payments may be made without prior judicial determination of claim or obligation. District will render Contractor an accounting of such funds disbursed on behalf of Contractor.

If Contractor defaults or neglects to carry out the Work in accordance with the contract documents or fails to perform any provision thereof, District may, after ten (10) calendar days written notice to the Contractor and without prejudice to any other remedy make good such deficiencies. The District shall adjust the total Contract price by reducing the amount thereof by the cost of making good such deficiencies. If District deems it inexpedient to correct Work which is damaged, defective, or not done in accordance with Contract provisions, an equitable reduction in the Contract price (of at least 150% of the estimated reasonable value of the nonconforming work) shall be made therefor.

9.6.3 Payment After Cure.

When the grounds for declining approval are removed, payment shall be made for amounts withheld because of them. No interest shall be paid on any retainage or amounts withheld due to the failure of the Contractor to perform in accordance with the terms and conditions of the Contract Documents.

9.7 NONCONFORMING WORK

Contractor shall promptly remove from premises all Work identified by District as failing to conform to the Contract whether incorporated or not. Contractor shall promptly replace and re-execute its own Work to comply with the Contract without additional expense to District and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement.
If Contractor does not remove such Work which has been identified by District as failing to conform to the Contract Documents within a reasonable time, fixed by written notice, District may remove it and may store the material at Contractor’s expense. If Contractor does not pay expenses of such removal within ten (10) calendar days’ time thereafter, District may, upon ten (10) calendar days’ written notice, sell such materials at auction or at private sale and shall account for net proceeds thereof, after deducting all costs and expenses that should have been borne by Contractor.

9.8 **SUBCONTRACTOR PAYMENTS**

9.8.1 Payments to Subcontractors.

No later than ten (10) days after receipt, or pursuant to Business and Professions Code Section 7108.5 and Public Contract Code section 7107, the Contractor shall pay to each Subcontractor, out of the amount paid to the Contractor on account of such Subcontractor’s portion of the Work, the amount to which said Subcontractor is entitled. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

9.8.2 No Obligation of District for Subcontractor Payment.

The District shall have no obligation to pay, or to see to the payment of, money to a Subcontractor except as may otherwise be required by law.

9.8.3 Payment Not Constituting Approval or Acceptance.

An approved Request for Payment, a progress payment, or partial or entire use or occupancy of the Project by the District shall not constitute acceptance of Work not in accordance with the Contract Documents.

9.8.4 Joint Checks.

The District shall have the right, if necessary for the protection of the District, to issue joint checks made payable to the Contractor and Subcontractors and material or equipment suppliers. The joint check payees shall be responsible for the allocation and disbursement of funds included as part of any such joint payment. In no event shall any joint check payment be construed to create any contract between the District and a Subcontractor of any tier, any obligation from the District to such Subcontractor, or rights in such Subcontractor against the District.

9.9 **PROJECT RECORD DOCUMENTS**

This section includes administrative and procedural requirements for Project Record Documents, including but not limited to the following where applicable:

9.9.1 Record Drawings
9.9.2 Record Specifications
9.9.3 Record Product Data
9.9.4 Record MEP & Structural coordination documents
9.9.5  Project Record Documents include, but are not limited to, the following:

9.9.5.1  Marked-up copies of Drawings
9.9.5.2  Marked up copy of the Project Specifications
9.9.5.3  Marked-up copies of Shop Drawings
9.9.5.4  Newly prepared Drawings and Specifications
9.9.5.5  Marked-up Product Data submittals
9.9.5.6  Field records, such as photographs, for variable and concealed conditions
9.9.5.7  Record information for Work that is only schematically shown
9.9.5.8  Maintenance forms for equipment

Contractor shall dedicate one complete full size set of the Contract Drawings and one complete Project Manual for use in recording as-built conditions.

Contractor shall submit to District in hard copy one original and two copies of all Project Record Documents. In addition, one electronic copy in electronic media format shall be submitted to District. District reserves the right to require resubmittal in accordance with these General Conditions if the documents are inaccurate or incomplete, or otherwise fail to meet the requirements of these Contract Documents.

9.9.6  Project Record Drawings

Mark-up Procedure: During the construction period, maintain a complete, current set of full size blackline prints of Contract Drawings and Shop Drawings for Project Record Documents purposes. Label each document (on first sheet or format page) "Project Record" in 2-inch high printed letters. Keep all record documents current.

A reference by number to a Change Order, CCD, RFI, RFQ, RFP, Field Order or other such document is not acceptable as sufficient record information on any record document. Do not conceal any Work until required record information has been recorded.

Contractor shall mark Record Drawings to indicate the actual installation where the installation varies appreciably from the installation shown originally. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later. Items required to be marked include, but are not limited to:

9.9.6.1  Dimensional changes to the Contract Drawings (horizontal and/or vertical)
9.9.6.2  Revisions or any modification to details shown on the Contract Drawings
9.9.6.3  Depths of various elements of foundations in relation to main floor level or survey datum.
9.9.6.4  Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
9.9.6.5  Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
9.9.6.6 Locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stub outs, invert elevations and similar items

9.9.6.7 Final, actual numbering of each electrical circuit

9.9.6.8 Revisions to routing of piping and conduits

9.9.6.9 Revisions to electrical circuitry

9.9.6.10 Actual equipment locations

9.9.6.11 Duct size and routing

9.9.6.12 Changes made by Change Order, CCD, ASI, or any other directive

9.9.6.13 Details not on original Contract Drawings

Contractor shall mark completely and accurately Project Record Drawing prints of Contract Drawings or Shop Drawings, whichever is the most capable of showing actual physical conditions. Where Shop Drawings are marked, show cross-reference on Contract Drawings location.

Contractor shall mark Project Record Drawing sets with red, erasable colored pencil; use other colors to distinguish between changes for different categories of the Work at the same location.

Contractor shall be responsible for Mark-up: Where feasible, the individual or entity who obtained Project Record Drawing data, whether the individual or entity is the installer, Subcontractor or similar entity, is required to prepare the mark-up on Project Record Drawings.

Contractor shall prepare Record Drawings: Immediately prior to inspection for Certification of Substantial Completion of the Work, review completed marked-up Project Record Drawings with District, Project Inspector, Construction Manager, and Architect to ensure accuracy of information. Once accuracy of information is confirmed, prepare and submit a full set of as-built Contract Drawings and Shop Drawings.

Incorporate changes and additional information previously marked on print sets. Delete, redraw, and/or add details and notations where applicable. Identify and date each Drawing; include the printed designation "PROJECT RECORD DRAWING" and the date prepared in a prominent location on each Drawing.

Distribution: Whether or not changes and additional information were recorded, organize and bind original marked-up set of prints that were maintained during the construction period into manageable sets. Bind the set with durable paper cover sheets, with appropriate identification, including titles, dates and other information on cover sheets and submit to District.

9.9.7 Project Record Specification

Contractor shall, during the construction period, maintain one copy of the Project Specifications, including all addenda and all other modifications issued for Project Record Documents purposes.

Contractor shall mark the Project Record specifications to indicate the actual installation where the installation varies substantially from that indicated in Specifications and/or modifications issued. Note related Project Record Drawing information, where applicable. Give particular attention to
substitutions, selection of product options, Change Order and Construction Change Directive Work, and information on concealed installation that would be difficult to identify, measure, and record later.

9.9.8 Project Record Product Data

Contractor shall, during the construction period, maintain one copy of each Project Record Product Data submittal for "Project Record Document" purposes.

Contractor shall arrange Project Record Product Data by Specification Section number, and provide names, addresses, fax numbers, emails addresses, and telephone number of Subcontractors and suppliers. Information to be provided includes:

9.9.8.1 Trade Names
9.9.8.2 Model or type numbers
9.9.8.3 Assembly diagrams
9.9.8.4 Operating instructions
9.9.8.5 Cleaning instructions
9.9.8.6 Maintenance instructions
9.9.8.7 Recommended spare parts
9.9.8.8 Product data

9.9.9 Miscellaneous Project Record Submittals

Refer to other Specification Sections for miscellaneous record keeping requirements and submittals. Immediately prior to Substantial Completion of the Work complete miscellaneous records and place in good order, properly identified, ready for use and reference. Submit to the District for District's records, in Adobe PDF format.

9.10 Electronic Media Format

Electronic Media Format: Electronic media format for all Project Record Documents shall be Adobe PDF, with chapter markers and/or bookmarks inserted in place of the equivalent hard copy section tabs. Electronic copy shall include all tables, charts, drawings, codes and all other matters reflected in hard copies. Electronic media files shall be delivered on a unique CD-ROM or flash drive.

9.10 COMPLETION OF THE WORK

9.10.1 Contract Closeout Submittals include, but are not limited to:

9.10.1.1 Electronic Media of All Project Record Documents described in Article 9.9.10 above.
9.10.1.2 Record Samples
9.10.1.3 Field records for variable and concealed conditions
9.10.1.4 Operating and maintenance manuals and data
9.10.1.5 Warranties, guaranties, and bonds
9.10.1.6 Warranty Tags
9.10.1.7 Spare Parts Data
9.10.1.8 Service and maintenance contracts
9.10.1.9 Certified and approved fire inspection documents, when required

9.10.2 Initial Punch List and Inspection

When Contractor considers Work to be Substantially Complete, submit written notice to District’s Representative requesting an Initial Inspection and listing items remaining to be completed or corrected listed by room number and item number (hereinafter “Initial Punch List”). The Contractor and/or its Subcontractors shall proceed promptly to complete and correct items on the list without waiting for District review of the Initial Punch List and inspection of the Work. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

The Contractor shall not submit a notice requesting an Initial Inspection unless the Work is Substantially Complete.

9.10.2.1 Before calling for final inspection, Contractor shall determine that the following Work has been performed:

(a) The Work has been completed.
(b) All life safety items are completed and in working order.
(c) Mechanical and electrical Work complete, fixtures in place, connected and ready for tryout and test.
(d) Electrical circuits scheduled in panels and disconnect switches labeled.
(e) Painting and special finishes complete.
(f) Doors complete with hardware, cleaned of protective film relieved of sticking or binding and in working order.
(g) Tops and bottoms of doors sealed.
(h) Floors waxed and polished as specified.
(i) Broken glass replaced and glass cleaned.
(j) Grounds cleared of Contractor’s equipment, raked clean of debris, and trash removed from Site.
(k) Work cleaned, free of stains, scratches, and other foreign matter, replacement of damaged and broken material.
(l) Finished and decorative work shall have marks, dirt and superfluous labels removed.
(m) Final cleanup.

9.10.2.2 Furnish a letter to District stating that a responsible representative of District [give name and position] has been instructed in working characteristics of mechanical and electrical equipment.
Should District’s Representatives determine that Work is not Substantially Complete, the Architect or Construction Manager will promptly notify Contractor in writing, listing Work that must be completed prior to Substantial Completion. Any inspection list that is submitted to the District that does not result in a District determination of Substantial Completion will not be considered an accepted Initial Punch List. If the Work or Phase of Work is determined to not be Substantially Complete, Contractor shall complete all Work as directed prior to requesting an additional Initial Inspection by the District to determine Substantial Completion per this Specification Section.

Upon receipt of the Contractor’s Initial Punch List, and not before, the Architect, Construction Manager, and Inspector will make an Initial Inspection to determine whether the Work, or Phase of Work, is Substantially Complete.

9.10.2.3 All fire and life safety items, manufactured units, equipment and systems that require startup must have been started, run, tested, and operational for periods prescribed by the Contract Documents before a request for Initial Inspection is accepted by the District.

9.10.2.4 If additional Initial Inspections are required to review Initial Punch List items due to incompleteness of the Work by Contractor, Contractor will reimburse District for all costs associated with these inspections if additional services fees by District consultants are required. The costs of such District additional service fees will be deducted from the Contract Sum by Change Order.

9.10.3 Substantial Completion

When District determines that the Work is Substantially Complete, District will issue a Certificate of Substantial Completion, accompanied by Final Punch List of items to be completed or corrected as verified and/or appended by Architect and District.

When the Work is Substantially Complete, the District will file a Notice of Completion.

9.10.3.1 Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work unless otherwise provided in the Notice of Completion.

9.10.3.2 The Notice of Completion shall be submitted to the Contractor for their written acceptance of responsibilities assigned to them in such Notice prior to District filing the Notice of Completion for purposes of initiating the release of Retention for the Work or Phase of Work.

9.10.3.3 The District shall withhold from Contractor payment the value of remaining Work, Work to be corrected, incomplete Work, and an amount identified for Punch List Work, and as otherwise identified in Public Contract Code.

The Contractor shall complete the items listed in the Final Punch List within ten (10) working days of the Certificate of Substantial Completion. The Contractor shall execute the Work such that the District can occupy the Work within seven (7) calendar days of the date of the Certificate of Substantial Completion.
9.10.4 Final Inspection

When Contractor considers the items listed in the Final Punch List to be complete the Contractor shall submit written notice to District’s Representative requesting a Final Inspection.

Operations and Maintenance Manuals and Warranty and Guaranty documents. At least ten (10) days prior to final inspection, three (3) copies of complete operations and maintenance manuals, repair parts lists, service instructions for all electrical and mechanical equipment, and equipment warranties shall be submitted. All installation, operating, and maintenance information and drawings shall be bound in 8½” x 11” binders. Provide a table of contents in front and all items shall be indexed with tabs. Each manual shall also contain a list of subcontractors, with their addresses and the names of persons to contact in cases of emergency. Identifying labels shall provide names of manufactures, their addresses, ratings, and capacities of equipment and machinery. Additional requirements for Operations and Maintenance manuals may be found in other Specifications and Sections of the Contract Documents.

Upon receipt of the Contractor’s request for Final Inspection, and not before, the Contractor, Architect, and Construction Manager, shall meet to go over the Contract Documents to identify the administrative requirements for contract close-out.

9.10.4.1 The Construction Manager will prepare a list of requirements remaining for administrative close-out and shall provide the list to the Contractor. This list may be general in nature, and shall not serve to relieve the Contractor from any of the administrative requirements of the Contract.

9.10.4.2 The Contractor shall complete all items on the administrative close-out list within twenty-one (21) days.

Subsequent to the meeting to identify administrative close-out requirements, Architect, Construction Manager, Campus Representatives, and Inspector will inspect the Work to determine whether the Work identified on the Final Punch List is complete.

If additional Final Inspections are required to review the Final Punch List items due to incompleteness of the Work by Contractor, Contractor will reimburse District for all costs associated with these inspections if additional services fees by District consultants are required. The costs of such District additional service fees will be deducted from the Contract Sum by Change Order.

When the Architect determines that all final punch list items have been completed, a final Project Inspection Report will be issued. Any outstanding administrative close-out requirements will be identified and a value for withholding from Progress Payment or Final Payment will be assigned.

The Project Inspector (IOR), the Construction Manager, and the Contractor shall, at all times, be together during all inspections. The Contractor shall give 24-hour notice to the District for such inspections.

9.10.5 Final Completion

Final Completion occurs when all Work meets all requirements of the Contract Documents. When Contractor considers all Work complete and all close-out requirements have been performed, submitted, and accepted, submit written certification to District that:
9.10.5.1 Contractor has inspected Work for compliance with Contract Documents, and all requirements for Final Acceptance have been met.

9.10.5.2 Except for Contractor maintenance and Deferred or Seasonal Testing, after Final Acceptance, all Work has been completed in accordance with Contract Documents and deficiencies listed with any Certificate of Substantial Completion have been corrected. Equipment and systems have been tested in the presence of Architect, Project Inspector (IOR), Construction Manager, and District Representatives and are operative.

Should District determine that the Work is incomplete or defective or that administrative requirements have not been completed:

9.10.5.3 District’s Representative promptly will so notify Contractor, in writing, listing the incomplete or defective items.

9.10.5.4 Contractor shall promptly remedy all incomplete and/or defective Work and notify the District when it is ready for re-inspection. District’s Representatives will then re-inspect the Work. If deficiencies previously noted are found not to be corrected, Contractor shall pay all District costs for the re-inspection.

9.10.5.5 When District determines that all Work and requirements are complete under the Contract Documents, District or Construction Manager will request Contractor to make a request for Final Payment.

9.11 PARTIAL OCCUPANCY OR USE

9.11.1 District’s Rights.

The District may occupy or use any completed or partially completed portion of the Work at any stage. The District and the Contractor shall agree in writing to the responsibilities assigned to each of them for payments, security, maintenance, heat, utilities, damage to the Work, insurance, the period for correction of the Work, and the commencement of warranties required by the Contract Documents. If District and Contractor cannot agree as to responsibilities such disagreement shall be resolved pursuant to Paragraph 4.5.1. When the Contractor considers a portion complete, the Contractor shall prepare and submit a Punch List to the District as provided under Paragraph 9.9.1.

9.11.2 Inspection Prior to Occupancy or Use.

Immediately prior to such partial occupancy or use, the District, the Contractor, and the Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

9.11.3 No Waiver.

Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of the Work not complying with the requirements of the Contract Documents.
9.12 COMPLETION AND FINAL PAYMENT

9.12.1 Final Inspection.

Contractor shall comply with all Punch List and Inspection procedures under Paragraph 9.10.

Upon receipt and approval of such final Application for Payment as required in Article 9.10.5.5 and elsewhere, the Architect shall issue a final Certificate of Payment stating that to the best of its knowledge, information, and belief, and on the basis of its observations, inspections, and all other data accumulated or received by the Architect in connection with the Work, such Work has been completed in accordance with the Contract Documents. The District shall thereupon inspect such Work and either accept the Work as complete or notify the Architect and the Contractor in writing of reasons why the Work is not complete. Upon acceptance of the Work of the Contractor as fully complete (which, absent unusual circumstances, will occur when the Punch List items have been satisfactorily completed), the District shall record a Notice of Completion with the County Recorder, and the Contractor shall, upon receipt of payment from the District, pay the amounts due Subcontractors.

9.12.2 Retainage.

The retainage, less any amounts disputed by the District or which the District has the right to withhold Pursuant to Paragraph 9.6, shall be paid after approval of the District by the Architect’s Certificate of Payment, after the satisfaction of the conditions set forth in Article 9, and after thirty-five (35) days after the acceptance of the Work and recording of the Notice of Completion by District. No interest shall be paid on any retainage, or on any amounts withheld due to a failure of the Contractor to perform, in accordance with the terms and conditions of the Contract Documents, except as provided to the contrary in any Escrow Agreement between the District and the Contractor pursuant to Public Contract Code § 22300.

9.12.3 Procedures for Application for Final Payment.

9.12.3.1 Prerequisites for Final Payment. The following conditions must be fulfilled prior to Final Payment:

(a) A full and final waiver or release of all Stop Notices in connection with the Work shall be submitted by Contractor, including a release of Stop Notice in recordable form, together with (to the extent permitted by law) a copy of the full and final release of all Stop Notice rights.

(b) The Contractor shall have made all corrections to the Work which are required to remedy any defects therein, to obtain compliance with the Contract Documents or any requirements of applicable codes and ordinances, or to fulfill any of the orders or directions of District required under the Contract Documents.

(c) Each Subcontractor shall have delivered to the Contractor all written guarantees, warranties, applications, and bonds required by the Contract Documents for its portion of the Work.

(d) Contractor must have completed all requirements set forth in Paragraph 9.9.1.2.

(e) Architect shall have issued a Final Certificate of Payment.
(f) The Contractor shall have delivered to the District all manuals and materials required by the Contract Documents.

(g) The Contractor shall have completed final clean up as required by Paragraph 3.12.

9.13 SUBSTITUTION OF SECURITIES

The District will permit the substitution of securities in accordance with the provisions of Public Contract Code section 22300.
ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 Contractor Responsibility.

The Contractor is constructive owner of Project site. The Contractor shall be responsible for all damages to persons or property that occur as a result of its fault or negligence in connection with the prosecution of this Contract and shall take all necessary measures and be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance by the District. All work shall be solely at the Contractor’s risk, with the exception of damage to the work caused by “acts of God” as defined in Public Contract Code Section 7105(b)(2).

Contractor shall take, and require subcontractor to take, all necessary precautions for safety of workers on the Work and shall comply with all applicable federal, state, local and other safety laws, standards, orders, rules, regulations, and building codes to prevent accidents or injury to persons on, about, or adjacent to premises where Work is being performed and to provide a safe and healthful place of employment. In addition to meeting all requirements of OSHA, Cal-OSHA, state, and local codes, Contractor shall furnish, erect and properly maintain at all times, as directed by District or Architect or required by conditions and progress of work, all necessary safety devices, safeguards, construction canopies, signs, audible devices for protection of the blind, safety rails, belts and nets, barriers, lights, and watchmen for protection of workers and the public, and shall post danger signs warning against hazards created by such features in the course of construction. Contractor shall designate a responsible member of its organization on the Work, whose duty shall be to post information regarding protection and obligations of workers and other notices required under occupational safety and health laws, to comply with reporting and other occupational safety requirements, and to protect the life, safety and health of workers. The name and position of person so designated shall be reported to District by Contractor. Contractor shall correct any violations of safety laws, rules, orders, standards, or regulations. Upon the issuance of a citation or notice of violation by the Division of Occupational Safety and Health, such violation shall be corrected promptly.

The Contractor and Subcontractors shall continuously protect the Work, the District’s property, and the property of others, from damage, injury, or loss arising in connection with operations under the Contract Documents. The Contractor and Subcontractors, at their own expense, shall make good any such damage, injury, or loss, except such as may be solely due to, or caused by, agents or employees of the District.

10.1.2 Subcontractor Responsibility.

Contractor shall require that Subcontractors participate in, and enforce, the safety and loss prevention programs established by the Contractor for the Project, which will cover all Work performed by the Contractor and its Subcontractors. Each Subcontractor shall designate a responsible member of its organization whose duties shall include loss and accident prevention, and who shall have the responsibility and full authority to enforce the program. This person shall attend meetings with the representatives of the various Subcontractors employed to ensure that all employees understand and comply with the programs.
10.1.3 Cooperation.

All Subcontractors and material or equipment suppliers, shall cooperate fully with Contractor, the District, and all insurance carriers and loss prevention engineers.

10.1.4 Accident Reports.

Subcontractors shall immediately, within two (2) days, report in writing to the Contractor all accidents whatsoever arising out of, or in connection with, the performance of the Work, whether on or off the Site, which caused death, personal injury, or property damage, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damages are caused, the accident shall be reported within four (4) days by telephone or messenger. Contractor shall thereafter immediately, within two (2) days, report the facts in writing to the District and the Architect giving full details of the accident.

10.1.5 First-Aid Supplies at Site.

The Contractor will provide and maintain at the Site first-aid supplies which complies with the current Occupational Safety and Health Regulations.

10.1.6 Material Safety Data Sheets and Compliance with Proposition 65.

(a) Contractor is required to have material safety data sheets available in a readily accessible place at the job site for any material requiring a material safety data sheet per the Federal “hazard communication” standard, or employees’ “right-to-know law.” The Contractor is also required to properly label any substance brought into the job site, and require that any person working with the material, or within the general area of the material, is informed of the hazards of the substance and follows proper handling and protection procedures.

Contractor is required to comply with the provisions of California Health and Safety Code section 25249, et seq., which requires the posting and giving of notice to persons who may be exposed to any chemical known to the State of California to cause cancer. The Contractor agrees to familiarize itself with the provisions of this section, and to comply fully with its requirements.

10.1.7 Non-Utilization of Asbestos Material.

NO ASBESTOS OR ASBESTOS-CONTAINING PRODUCTS SHALL BE USED IN THIS CONSTRUCTION OR IN ANY TOOLS, DEVICES, CLOTHING, OR EQUIPMENT USED TO EFFECT THIS CONSTRUCTION.

Asbestos and/or asbestos-containing products shall be defined as all items containing, but not limited to, chrysotile, amosite, anthophyllite, tremolite, and antinolite.

Any or all material containing greater than one-tenth of one percent (> .1%) asbestos shall be defined as asbestos-containing material.

All Work or materials found to contain asbestos or Work or material installed with asbestos-containing equipment will be immediately rejected and this Work will be removed at no additional cost to the District.
Decontamination and removal of Work found to contain asbestos or Work installed with asbestos-containing equipment shall be done only under supervision of a qualified consultant, knowledgeable in the field of asbestos abatement and accredited by the Environmental Protection Agency.

The asbestos removal contractor shall be an EPA accredited contractor qualified in the removal of asbestos and shall be chosen and approved by the asbestos consultant, who shall have sole discretion and final determination in this matter.

The asbestos consultant shall be chosen and approved by the District, who shall have sole discretion and final determination in this matter.

The Work will not be accepted until asbestos contamination is reduced to levels deemed acceptable by the asbestos consultant.

Interface of Work under this Contract with work containing asbestos shall be executed by the Contractor at his risk and at his discretion, with full knowledge of the currently accepted standards, hazards, risks, and liabilities associated with asbestos work and asbestos-containing products. By execution of this Contract, the Contractor acknowledges the above and agrees to hold harmless District and its assigns for all asbestos liability which may be associated with this work and agrees to instruct his employees with respect to the above-mentioned standards, hazards, risks, and liabilities.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 The Contractor.

The Contractor shall take reasonable precautions for the safety of, and shall provide reasonable protection to prevent damage, injury, or loss to:

(a) Employees on the Work and other persons who may be affected thereby;

(b) The Work, material, and equipment to be incorporated therein, whether in storage on or off the Site, under the care, custody, or control of the Contractor or the Contractor’s Subcontractors or Sub-subcontractors; and

(c) Other property at the Site or adjacent thereto such as trees, shrubs, lawns, walks, pavement, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

Contractor is constructive owner of Project site as more fully discussed in Paragraph 6.2.

10.2.2 Contractor Notices.

The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on the safety of persons or property or their protection from damage, injury, or loss.

10.2.3 Safety Barriers and Safeguards.

The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other
warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities.

10.2.4 Use or Storage of Hazardous Material.

When use or storage of explosives, other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel. The Contractor shall notify the District any time that explosives or hazardous materials are expected to be stored on Site. Location of storage shall be coordinated with the District and local fire authorities.

10.2.5 Protection of Work.

The Contractor and Subcontractors shall continuously protect the Work, the District’s property, and the property of others, from damage, injury, or loss arising in connection with operations under the Contract Documents. The Contractor and Subcontractors, at their own expense, shall make good any such damage, injury, or loss, except such as may be solely due to, or caused by, agents or employees of the District.

The Contractor, at Contractor’s expense, will remove all mud, water, or other elements as may be required for the proper protection and prosecution of its Work.

Contractor shall take adequate precautions to protect existing roads, sidewalks, curbs, pavements, utilities, adjoining property and structures (including, without limitation, protection from settlement or loss of lateral support), and to avoid damage thereto, and repair any damage thereto caused by construction operations. All permits, licenses, or inspection fees required for such repair Work shall be obtained and paid for by Contractor.

10.2.6 Requirements for Existing Sites.

Contractor shall (unless waived by the District in writing):

(a) When performing construction on existing sites, become informed and take into specific account the maturity of the students on the Site; and perform Work which may interfere with campus routine before or after campus hours, enclose working area with a substantial barricade, and arrange Work to cause a minimum amount of inconvenience and danger to students and faculty in their regular campus activities. The Contractor shall comply with specifications and directives of the District regarding the timing of certain construction activities in order to avoid unnecessary interference with the campus’ functions.

(b) Provide substantial barricades around any shrubs or trees indicated to be preserved.

(c) Deliver materials to building area over route designated by Architect.

(d) Take preventive measures to eliminate objectionable dust, noise, or other disturbances.

(e) Confine apparatus, the storage of materials, and the operations of workers to limits indicated by law, ordinances, permits or directions of Architect; and not interfere with the Work or unreasonably encumber premises or overload any structure with materials;
and enforce all instructions of District and Architect regarding signs, advertising, fires, and smoking and require that all workers comply with all regulations while on the Project site.

(f) Take care to prevent disturbing or covering any survey markers, monuments, or other devices marking property boundaries or corners. If such markers are disturbed by accident, they shall be replaced by an approved land surveyor or civil engineer and all maps and records required therefrom shall be filed with county and local authorities, at no cost to the District. All filing and plan check fees shall be paid by Contractor.

(g) Provide District on request with Contractor’s written safety program and safety plan for each site.

10.2.7 Shoring and Structural Loading.

The Contractor shall not impose structural loading upon any part of the Work under construction or upon existing construction on or adjacent to the Site in excess of safe limits, or loading such as to result in damage to the structural, architectural, mechanical, electrical, or other components of the Work. The design of all temporary construction equipment and appliances used in construction of the Work and not a permanent part thereof, including, without limitation, hoisting equipment, cribbing, shoring, and temporary bracing of structural steel, is the sole responsibility of the Contractor. All such items shall conform with the requirements of governing codes and all laws, ordinances, rules, regulations, and orders of all authorities having jurisdiction. The Contractor shall take special precautions, such as shoring of masonry walls and temporary tie bracing of structural steel work, to prevent possible wind damage during construction of the Work. The installation of such bracing or shoring shall not damage the Work in place or the Work installed by others. Any damage which does occur shall be promptly repaired by the Contractor at no cost to the District.

10.2.8 Conformance Within Established Limits.

The Contractor and Subcontractors shall confine their construction equipment, the storage of materials, and the operations of workers to the limits indicated by laws, ordinances, permits, and the limits established by the District or the Contractor, and shall not unreasonably encumber the premises with construction equipment or materials.

10.2.9 Subcontractor Enforcement of Rules.

Subcontractors shall enforce the District’s and the Contractor’s instructions, laws, and regulations regarding signs, advertisements, fires, smoking, the presence of liquor, and the presence of firearms by any person at the Site.

10.2.10 Site Access.

The Contractor and the Subcontractors shall use only those ingress and egress routes designated by the District, observe the boundaries of the Site designated by the District, park only in those areas designated by the District, which areas may be on or off the Site, and comply with any parking control program established by the District, such as furnishing license plate information and placing identifying stickers on vehicles.
10.3 **EMERGENCIES**

10.3.1 **Emergency Action.**

In an emergency affecting the safety of persons or property, the Contractor shall take any action necessary, at the Contractor’s discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 7.

10.3.2 **Accident Reports.**

The Contractor shall promptly report in writing to the District all accidents arising out of or in connection with the Work, which caused death, personal injury, or property damage, giving full details and statements of any witnesses in conformance with Article 10.1.4. In addition, if death, serious personal injuries, or serious property damages are caused, the accident shall be reported in accordance with Paragraph 10.1.4, immediately by telephone or messenger to the District.

10.4 **HAZARDOUS MATERIALS**

10.4.1 **Discovery of Hazardous Materials.**

In the event the Contractor encounters or suspects the presence on the job site of material reasonably believed to be asbestos, polychlorinated biphenyl (PCB), or any other material defined as being hazardous by § 25249.5 of the California Health and Safety Code, which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the District and the Architect in writing, whether or not such material was generated by the Contractor or the District. The Work in the affected area shall not thereafter be resumed, except by written agreement of the District and the Contractor, if in fact the material is asbestos, polychlorinated biphenyl (PCB), or other hazardous material, and has not been rendered harmless. The Work in the affected area shall be resumed only in the absence of asbestos, polychlorinated biphenyl (PCB), or other hazardous material, or when it has been rendered harmless by written agreement of the District and the Contractor.

If hazardous materials are encountered, they shall be handled in accordance with applicable local, state and federal regulation which may include: (1) CCR Title 8, Division 4, Chapter 4, Sections 5163 through 5167 and 5192 (Hazardous Waste Operations and Emergency Response); (2) CCR Title 22, Division 4.5, Chapters 10 through 13 and 18 (Environmental Health Standards for Management of Hazardous Waste); and (3) CCR Title 23, Division 3, Chapter 15 (Discharges of Hazardous Waste to Land).

Should the discovery of contaminants cause delay to Contractor’s operation, extension of Contract Time will be granted by District in accordance with these General Conditions. Contractor may not be entitled to damages or additional payment due to such delays. District may, if it believes appropriate in its sole discretion, grant an extension of Contract Time.

The Contractor shall take all measures to avoid and/or mitigate delays due to Hazardous Materials/Waste finds such as; avoiding the area of the find and proceeding with other work on the project; developing “work around” plans; and documenting his best efforts to avoid and/or mitigate delays.
10.4.2 Hazardous Material Work Limitations.

In the event that the presence of hazardous materials is suspected or discovered on the Site (except in cases where asbestos and other hazardous material work in the Contractor’s responsibility), the District shall retain an independent testing laboratory to determine the nature of the material encountered and whether corrective measures or remedial action is required. The Contractor shall not be required pursuant to Article 7 to perform without consent any Work in the affected area of the Site relating to asbestos, polychlorinated biphenyl (PCB), or other hazardous material, until any known or suspected hazardous material has been removed, or rendered harmless, or determined to be harmless by District, as certified by an independent testing laboratory and approved by the appropriate government agency.

10.4.3 Indemnification by Contractor for Hazardous Material Caused by Contractor.

In the event the hazardous materials on the Project Site is caused by the Contractor, the Contractor shall pay for all costs of testing and remediation, if any, and shall compensate the District for any additional costs incurred as a result of Contractor’s generation of hazardous material on the Project Site. In addition, the Contractor shall defend, indemnify and hold harmless District and its agents, officers, and employees from and against any and all claims, damages, losses, costs and expenses incurred in connection with, arising out of, or relating to, the presence of hazardous material on the Project Site.

10.4.4 Terms of Hazardous Material Provision.

The terms of this Hazardous Material provision shall survive the completion of the Work and/or any termination of this Contract.
ARTICLE 11

INSURANCE AND BONDS

11.1 NOT USED

11.2 NOT USED

11.3 NOT USED

11.4 NOT USED

11.5 OTHER INSURANCE

The Contractor shall provide all other insurance required to be maintained under applicable laws, ordinances, rules, and regulations.

11.6 PROOF OF INSURANCE

The Contractor shall not commence Work nor shall it allow any Subcontractor to commence Work under this Contract until all required insurance and certificates have been obtained and delivered in duplicate to the District for approval subject to the following requirements:

(a) Certificates and insurance policies shall include the following clause:
   “This policy shall not be non-renewed, canceled, or reduced in required limits of liability or amounts of insurance until notice has been mailed to the District. Date of cancellation or reduction may not be less than thirty (30) days after the date of mailing notice.”

(b) Certificates of insurance shall state in particular those insured, the extent of insurance, location and operation to which the insurance applies, the expiration date, and cancellation and reduction notices.

(c) Certificates of insurance shall clearly state that the District and the Architect are named as additional insureds under the policy described and that such insurance policy shall be primary to any insurance or self-insurance maintained by District.

(d) The Contractor and its Subcontractors shall produce a certified copy of any insurance policy required under this Section upon written request of the District.

11.7 COMPLIANCE

In the event of the failure of any contractor to furnish and maintain any insurance required by this Article 11, or in Section 00600, Construction Agreement, the Contractor shall be in default under the Contract. Compliance by Contractor with the requirement to carry insurance and furnish certificates or policies evidencing the same shall not relieve the Contractor from liability assumed under any provision of the Contract Documents, including, without limitation, the obligation to defend and indemnify the District and the Architect.
11.8 **WAIVER OF SUBROGATION**

Contractor waives (to the extent permitted by law) any right to recover against the District for damages to the Work, any part thereof, or any and all claims arising by reason of any of the foregoing, but only to the extent that such damages and/or claims are covered by property insurance and only to the extent of such coverage (which shall exclude deductible amounts) by insurance actually carried by the District.

The provisions of this section are intended to restrict each party to recovery against insurance carriers only to the extent of such coverage and waive fully and for the benefit of each, any rights and/or claims which might give rise to a right of subrogation in any insurance carrier. The District and the Contractor shall each obtain in all policies of insurance carried by either of them, a waiver by the insurance companies thereunder of all rights of recovery by way of subrogation for any damages or claims covered by the insurance.
ARTICLE 12

UNCOVERING AND CORRECTION OF WORK

12.1 UNCOVERING OF WORK

12.1.1 Uncovering Work for Required Inspections.

If a portion of the Work is covered without Inspector or Architect approval or not in compliance with the Contract Documents, it must, if required in writing by the Inspector or the Architect, be uncovered for the Inspector’s or the Architect’s observation and be replaced at the Contractor’s expense without change in the Contract Sum or Time.

12.1.2 Costs for Inspections not Required.

If a portion of the Work has been covered which the Inspector or the Architect has not specifically requested to observe prior to its being covered, the Inspector or the Architect may request to see such Work, and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncover and replacement shall, by appropriate Change Order, be charged to the District. If such Work is not in accordance with Contract Documents, the Contractor shall pay such costs unless the condition was caused by the District or a separate contractor, in which event the District shall be responsible for payment of such costs to the Contractor.

12.2 CORRECTION OF WORK

12.2.1 Correction of Rejected Work.

The Contractor shall promptly correct the Work rejected by the Inspector or the District upon recommendation of the Architect as failing to conform to the requirements of the Contract Documents, whether observed before or after Completion and whether or not fabricated, installed, or completed. The Contractor shall bear costs of correcting the rejected Work, including additional testing, inspections, and compensation for the Inspector’s or the Architect’s services and expenses made necessary thereby.

12.2.2 One-Year Warranty or Guaranty Corrections.

If, within one (1) years after the date of Completion of the Work or a designated portion thereof, or after the date for commencement of warranties and guaranties established under this Contract, or by the terms of an applicable special warranty or guaranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the District to do so unless the District has previously given the Contractor a written acceptance of such condition. This period of one (1) years shall be extended with respect to portions of the Work first performed after Completion by the period of time between Completion and the actual performance of the Work. This obligation under this Paragraph 12.2.2 shall survive acceptance of the Work under the Contract and termination of the Contract. The District shall give such notice promptly after discovery of the condition.
12.2.3 District’s Rights if Contractor Fails to Correct.

If the Contractor fails to correct nonconforming Work within a reasonable time, the District may correct it, pursuant to Article 9.
ARTICLE 13

MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW AND REGULATIONS

The Contract shall be governed by the law of the place where the Project is located.

13.1.1 Specific reference in the Specifications to codes and regulations or requirements of regulatory agencies shall mean the latest printed edition of each adopted by the regulatory agency in effect at the time of the opening of Proposals, except as may be otherwise specifically stated in the Contract Documents.

13.1.2 No change order shall be considered for any change in any applicable federal, state or local code or regulation if similar language existed in an alternate applicable regulation in force at the time of opening of Bids.

13.1.3 Contractor shall not allow design or construction of any conditions wherein the finished Work will not comply with current applicable codes. No change order shall be considered by District for the Work correction of any Work not complying with code.

13.1.4 This section shall cover the general requirements for regulatory requirements pertaining to the Work and is supplementary to all other regulatory requirements mentioned or referenced elsewhere in the Contract Documents.

13.1.5 Code, laws, ordinances, rules and regulations referred to shall have full force and effect as though printed in full in these Specifications. Code, laws, ordinances, rules and regulations are not furnished to Contractor because Contractor is assumed to be and shall be familiar with these requirements, including readily available access to these requirements. The listing of applicable codes, laws, and regulations for hazardous waste abatement Work in the Contract Documents is supplied to Contractor as a courtesy and shall not limit Contractor’s responsibility for complying with all applicable laws, regulations or ordinances having application to the Work. Where conflict among the requirements or with these Specifications occurs, the most stringent requirements shall be used with no change in Contract Sum or Contract Time.

13.1.6 Contractor shall conform to all applicable federal, state, and local codes, laws, ordinances, rules and regulations, whether or not referenced in the Contract Documents.

13.1.7 Precedence:

13.1.7.1 Where specified requirements differ from the requirements of applicable codes, ordinances and standards, the more stringent requirements shall take precedence.

13.1.7.2 Where Contract Documents require or describe products or execution of better quality, higher standard or greater size than required by applicable codes, ordinances and standards, Contract Documents shall take precedence so long as such increase is legal.

13.1.7.3 Where no requirements are identified on Contract Documents, comply with all requirements of applicable codes, ordinances and standards of governing authorities have jurisdiction.
13.1.7.4 If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to District for a decision before proceeding.

13.2 SUCCESSORS AND ASSIGNS

The District and the Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party hereto and to partners, successors, assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

13.3 WRITTEN NOTICE

In the absence of specific notice requirements in the Contract Documents, written notice shall be deemed to have been duly served if delivered in person to the individual, member of the firm or entity, or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified mail to the last business address known to the party giving notice.

13.4 RIGHTS AND REMEDIES

13.4.1 Duties and Obligations Cumulative.

Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

13.4.2 No Waiver.

No action or failure to act by the Inspector, the District, or the Architect shall constitute a waiver of a right or duty afforded them under the Contract Documents, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

13.5 TESTS AND INSPECTIONS

13.5.1 Compliance.

Tests, inspections, and approvals of portions of the Work required by the Contract Documents will comply with Title 24, and with all other laws, ordinances, rules, regulations, or orders of public authorities having jurisdiction.

13.5.2 Independent Testing Laboratory.

The District will select and pay an independent testing laboratory to conduct all tests and inspections required by regulatory agencies. Selection of the materials required to be tested shall be made by the laboratory or the District’s representative and not by the Contractor. All costs for all other tests shall be included in the Bid Price and shall be paid for by the Contractor. Any costs or expenses of...
inspection or testing required by regulatory agencies, incurred outside of a fifty (50) mile radius from the
Project Site or not located in a contiguous county to the Site, whichever distance is greater, shall be paid
for by the District, invoiced by the District to the Contractor, and deducted from the next Progress
Payment.

13.5.3 Contractor Responsibilities

13.5.3.1 All sampling shall be done by the laboratory exclusively. Samples shall be selected
by laboratory personnel. Allow proper time for selecting samples, and making tests or considerations.

13.5.3.2 Cooperate with laboratory personnel, and provide access to work and to
manufacturer’s facilities.

13.5.3.3 Provide incidental labor and facilities to provide access to work to be tested, as
selected by laboratory personnel at the site or at source of products to be tested, to facilitate tests and
inspections, and for storage and curing of test samples.

13.5.3.4 Schedule all tests and inspections with the testing and inspections firm and to
notify Construction Manager and Project Inspector a minimum of 3 working days prior to expected time
for operations requiring inspection and testing services. Do not allow work to be covered prior to
inspection and testing.

13.5.3.5 Cooperate fully with the testing laboratory’s personnel and with special
inspectors in inspection any part of the construction and in taking any samples of materials required to
be tested. Provide access to the work.

13.5.3.6 Alert the testing laboratory 3 working days in advance as to the times and location
of the required sampling, tests and inspections so as to not delay the work of the project, and make sure
that the required sampling, tests inspections are promptly completed.

13.5.4 Contractor-Paid Non-DSA-Related Test/Inspection Reports:

13.5.4.1 Reports will comply with Section 4-335(d), Part 1, Title 24, CCR.

13.5.4.2 Include every test and inspection made regardless of whether such tests and
inspections indicate that the material and procedures are satisfactory or unsatisfactory.

13.5.4.3 Include records of special sampling operations as required.

13.5.4.4 Indicate that materials were sampled and tested in accordance with
requirements of CCR regulations and Construction Documents.

13.5.4.5 Indicate specified design strength of materials such as masonry, concrete and
steel.

13.5.4.6 State whether or not materials and procedures comply with requirements of the
Construction Documents.

13.5.4.7 Submit copies of reports to DSA, Construction Manager, District, Architect,
Project Inspector, Structural Engineer, Civil Engineer, Soils Engineer and Contractor within 14 days of tests.
Submit copies of reports of non-complying materials and procedures immediately.

13.5.5 Advance Notice to Inspector.

The Contractor shall notify the Inspector a sufficient time in advance of its readiness for required
observation or inspection so that the Inspector may arrange for same, but no less than 2 work days
Contractor shall notify the Inspector a sufficient time in advance, but no less than 2 work days, of the manufacture of material to be supplied under the Contract Documents which must, by terms of the Contract Documents, be tested in order that the Inspector may arrange for the testing of the material at the source of supply.

13.5.6 Testing Off-Site.

Any material shipped by the Contractor from the source of supply, prior to having satisfactorily passed such testing and inspection or prior to the receipt of notice from said Inspector that such testing and inspection will not be required, shall not be incorporated in the Work.

13.5.7 Additional Testing or Inspection.

If the Inspector, the Architect, the District, or public authority having jurisdiction determines that portions of the Work require additional testing, inspection, or approval not included under Paragraph 13.5.1, the Inspector will, upon written authorization from the District, make arrangements for such additional testing, inspection, or approval. The District shall bear such costs except as provided in Paragraph 13.5.7.

13.5.8 Costs for Retesting.

If such procedures for testing, inspection, or approval under Paragraphs 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, the Contractor shall bear all costs arising from such failure, including those of re-testing, re-inspection, or re-approval, including, but not limited to, compensation for the Architect’s services and expenses. Any such costs shall be paid by the District, invoiced to the Contractor, and deducted from the next Progress Payment.

13.5.9 Retesting Covered Work.

Re-examination of previously tested and inspected work may be ordered by the District, Architect, or by the Project Inspector. The Contractor shall uncover such work if retesting is ordered. If work is found in accordance with Contract Documents, the District will pay costs of uncovering, removing, retesting and replacing. If work is found not in accordance with Contract Documents, the District will deduct the cost of retesting from the Contract Sum by Change Order and the Contractor will bear the costs of uncovering, removing and replacing work.

13.5.10 Costs for Premature Test.

In the event the Contractor requests any test or inspection for the Project and is not completely ready for the inspection, the Contractor shall be invoiced by the District for all costs and expenses resulting from that testing or inspection, including, but not limited to, the Inspector’s and Architect’s fees and expenses, and the amount of the invoice of shall be deducted from the next Progress Payment.
13.6 TRENCH EXCAVATION

13.6.1 Trenches Greater Than Five Feet.

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

13.6.2 Excavation Safety.

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

13.6.3 No Tort Liability of District.

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

13.6.4 No Excavation Without Permits.

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

13.7 WAGE RATES, TRAVEL, AND SUBSISTENCE

13.7.1 Wage Rates.

Pursuant to the provisions of Article 2 (commencing at § 1720), Chapter 1, Part 7, Division 2, of the Labor Code, the District has obtained the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which this public works project is to be performed for each craft, classification, or type of worker needed for this Project from the Director of the Department of Industrial Relations (“Director”). These rates are on file at the administrative office of the DISTRICT and are also available from the Director of the Department of Industrial Relations. Copies will be made available to any interested party on request. The Contractor shall post a copy of such wage rates at appropriate, conspicuous, weatherproof points at the Site.

Any worker employed to perform work on the Project, but such work is not covered by any classification listed in the published general prevailing wage rate determinations or per diem wages determined by the Director of the Department of Industrial Relations, shall be paid not less than the minimum rate of wages specified therein for the classification which most nearly corresponds to the employment of such person in such classification.
13.7.2 Holiday and Overtime Pay.

Holiday and overtime work, when permitted by law, shall be paid for at the rate set forth in the prevailing wage rate determinations issued by the Director of the Department of Industrial Relations or at least one and one-half (1½) times the specified basic rate of per diem wages, plus employer payments, unless otherwise specified in the contract documents or authorized by law.

13.7.3 Wage Rates Not Affected by Subcontracts.

The Contractor shall pay and shall cause to be paid each worker engaged in the execution of the Work on the Project not less than the general prevailing rate of per diem wages determined by the Director, regardless of any contractual relationship which may be alleged to exist between the Contractor or any Subcontractor and such workers.

13.7.4 Per Diem Wages.

The Contractor shall pay and shall cause to be paid to each worker needed to execute the Work on the Project per diem wages including, but not limited to, employer payments for health and welfare, pensions, vacation, travel time and subsistence pay as provided for in Labor Code §1773.1.

13.7.5 Forfeiture and Payments.

Pursuant to Labor Code §1775 and the District’s Labor Compliance Program, the Contractor shall forfeit to the District, not more than Fifty Dollars ($50.00) for each calendar day, or portion thereof, for each worker paid less than the prevailing wages rates as determined by the Director of the Department of Industrial Relations, for the work or craft in which the worker is employed for any Work done under the Agreement by the Contractor or by any Subcontractor under it. The amount of the penalty shall be determined by the Labor Commissioner and shall be based on consideration of: (1) whether the Contractor or Subcontractor’s failure to pay the correct rate of per diem wages was a good faith mistake and, if so, the error was promptly and voluntarily correct upon being brought to the attention of the Contractor or Subcontractor; and (2) whether the Contractor or Subcontractor has a prior record of failing to meet its prevailing wage obligations. Further details regarding the enforcement of paying prevailing wage rates, reporting violations, withholding contract payments, forfeitures and hearing to review withholding of contract payments are set forth in the District’s Labor Compliance Program.

13.8 RECORDS OF WAGES PAID

13.8.1 Payroll Records.

(a) Pursuant to §1776 of the Labor Code, each Contractor and Subcontractor shall keep an accurate payroll record showing the name, address, social security number, work classification and straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker or other employee employed in connection with the Project.

(b) All payroll records shall be certified and submitted to the District with each application for payment, but shall not be submitted less than once per month. All payroll records shall be available for inspection at all reasonable hours at the principal office of the Contractor on the following basis:
(1) A certified copy of an employee’s payroll record shall be made available for inspection or furnished to the employee or their authorized representative on request.

(2) A certified copy of all payroll records shall be made available for inspection or furnished upon request to a representative of District, the Division of Labor Standards Enforcement or the Division of Apprenticeship Standards of the Department of Industrial Relations.

(3) A certified copy of all payroll records shall be made available upon request by the public for inspection or for copies thereof. However, a request by the public shall be made through the District, the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to Paragraph (2) above, the requesting party shall, prior to being provided the records, reimburse the costs, according to law for the preparation by the Contractor, Subcontractor(s), 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.

(c) The certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the Division of Labor Standards Enforcement.

(d) The Contractor or Subcontractor(s) shall file a certified copy of all payroll records with the entity that requested such records within 10 calendar days after receipt of a written request.

(e) 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 to prevent disclosure of an individual’s name, address and social security number. The name and address of the Contractor awarded the Contract or the Subcontractor(s) performing the Contract shall not be marked or obliterated. Any copy of records made available for inspection by, or furnished to, a joint labor-management committee established pursuant to the federal Labor Management Cooperation Act of 1978 (Section 175a of Title 29 of the United States Code) shall be marked or obliterated only to prevent disclosure of an individual’s name and social security number.

(f) The Contractor shall inform the District of the location of all payroll records, including the street address, city and county, and shall, within five working days, provide a notice of a change of location and address.

(g) The Contractor or Subcontractor(s) shall have 10 calendar days in which to comply subsequent to receipt of a written notice requesting payroll records. In the event that the Contractor or Subcontractor(s) fails to comply within the 10-day period, the Contractor or Subcontractor(s) shall, as a penalty to the District, forfeit Twenty-Five Dollars ($25.00) 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, these penalties shall be withheld from progress payments then due.
Responsibility for compliance with this Article and the District’s Labor Compliance Program shall rest upon the Contractor.

13.8.2 Withholding of Contract Payments & Penalties.

The District may withhold or delay contract payments to the Contractor and/or any Subcontractor if:

(a) The required prevailing rate of per diem wages determined by the Director of the Department of Industrial Relations is not paid to all workers employed on the Project; or

(b) The Contractor or Subcontractor(s) fail to submit all required certified payroll records with each application for payment, but not less than once per month; or

(c) The Contractor or Subcontractor(s) submit incomplete or inadequate payroll records; or

(d) The Contractor or Subcontractor(s) fail to comply with the Labor Code requirements concerning apprentices; or

(e) The Contractor or Subcontractor(s) fail to comply with the District’s Labor Compliance Program; or

(f) The Contractor or Subcontractor(s) fail to comply with any applicable state laws governing labor on public works projects.

Any withholding of contract payments and penalties are set forth in the District’s Labor Compliance Program.

13.9 APPRENTICES

13.9.1 Apprentice Wages and Definitions.

All apprentices employed by the Contractor to perform services under the Contract shall be paid the standard wage paid to apprentices under the regulations of the craft or trade for which he or she is employed, and as determined by the Director of the Department of Industrial Relations, and shall be employed only at the Work of the craft or trade to which he or she is registered. Only apprentices, as defined in §3077 of the Labor Code, who are in training under apprenticeship standards that have been approved by the Chief of the Division of Apprenticeship Standards and who are parties to written apprenticeship agreements under Chapter 4 (commencing with §3070) of Division 3, are eligible to be employed under this Contract. The employment and training of each apprentice shall be in accordance with the apprenticeship standards and apprentice agreements under which he or she is training, or in accordance with the rules and regulations of the California Apprenticeship Council.

13.9.2 Employment of Apprentices.

Contractor agrees to comply with the requirements of Labor Code §1777.5. The Contractor awarded the Project, or any Subcontractor under him or her, when performing any of the Work under the Contract or subcontract, employs workers in any apprenticeable craft or trade, the Contractor and Subcontractor shall employ apprentices in the ratio set forth in Labor Code §1777.5. The Contractor or any Subcontractor must apply to any apprenticeship program in the craft or trade that can provide apprentices to the Project site for a certificate approving the Contractor or Subcontractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected. However, the decision of the apprenticeship program to approve or deny a certificate shall be subject to...
review by the Administrator of Apprenticeship. The apprenticeship program or programs, upon approving
the Contractor or Subcontractor, shall arrange for the dispatch of apprentices to the Contractor or
Subcontractor. The Contractor or Subcontractor covered by an apprenticeship program’s standards shall
not be required to submit any additional application in order to include additional public works contracts
under that program. “Apprenticeable craft or trade” as used in this Article means a craft or trade
determined as an apprenticeable occupation in accordance with the rules and regulations prescribed by
the California Apprenticeship Council. The ratio of work performed by apprentices to journeyman
employed in a particular craft or trade on the Project shall be in accordance with Labor Code §1777.5.

13.9.3 Submission of Contract Information.

Prior to commencing work on the Project, the Contractor and Subcontractors shall submit
contract award information to the applicable apprenticeship program(s) that can supply apprentices to
the Project and make the request for the dispatch of apprentices in accordance with the Labor Code. The
information submitted shall include an estimate of journeyman hours to be performed under the Contact,
the number of apprentices proposed to be employed, and the approximate dates the apprentices would
be employed. A copy of this information shall also be submitted to the District. Within 60 days after
concluding work on the Project, the Contractor and Subcontractors shall submit to the District, if
requested, and to the apprenticeship program a verified statement of the journeyman and apprentice
hours performed on the Project.

13.9.4 Apprentice Fund.

The Contractor or any Subcontractor under him or her, who, in performing any of the Work under
the Contract, employs journeymen or apprentices in any apprenticeable craft or trade shall contribute to
the California Apprenticeship Council the same amount that the Director determines is the prevailing
amount of apprenticeship training contributions in the area of the Project. The Contractor and
Subcontractors may take as a credit for payments to the California Apprenticeship Council any amounts
paid by the Contractor or Subcontractor to an approved apprenticeship program that can supply
apprentices to the Project. The Contractor and Subcontractors may add the amount of the contributions
in computing his or her bid for the Contract.

13.9.5 Prime Contractor Compliance.

The responsibility of compliance with Article 13 and §1777.5 of the Labor Code for all
apprenticeable occupations is with the Prime Contractor. Any Contractor or Subcontractor that knowingly
violates the provisions of this Article or Labor Code §1777.5 shall be subject to the penalties set forth in
Labor Code §1777.7 and the District’s Labor Compliance Program.

13.10 ASSIGNMENT OF ANTITRUST CLAIMS

13.10.1 Application.

Pursuant to Government Code § 4551, in entering into a public works contract or a subcontract
to supply goods, services, or materials pursuant to a public works contract, the Contractor or
Subcontractor offers and agrees to assign to the District all rights, title, and interest in and to all causes of
action it may have under Section 4 of the Clayton Act, (15 U.S.C. § 15) or under the Cartwright Act (Chapter
2 [commencing with § 16700] of Part 2 of Division 7 of the Business and Professions Code), arising from
the purchase of goods, services, or materials pursuant to the public works contract or the subcontract.
This assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties. If the District receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under Chapter 11 (commencing with § 4550) of Division 5 of Title 1 of the Government Code, the assignor 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 bid price, less the expenses incurred in obtaining that portion of the recovery.

13.10.2 Assignment of Claim.

Upon demand in writing by the assignor, the District shall, within one (1) 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 the District has not been injured thereby or the District declines to file a court action for the cause of action.

13.11 STATE AUDIT

Pursuant to and in accordance with the provisions of Government Code § 10532, or any amendments thereto, all books, records, and files of the District, the Contractor, or any Subcontractor connected with the performance of this Contract involving the expenditure of state funds in excess of Ten Thousand Dollars ($10,000.00), including, but not limited to, the administration thereof, shall be subject to the examination and audit of the Office of the Auditor General of the State of California for a period of three (3) years after final payment is made under this Contract. Contractor shall preserve and cause to be preserved such books, records, and files for the audit period.

13.12 NOT USED

13.13 INDUSTRY STANDARDS

13.13.1 Applicability of Standards.

Unless the Contract Documents specify more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

13.13.2 Publication Dates.

Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.

13.13.3 Minimum Quantity or Quality Levels.

The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.
13.13.4 Copies of Standards.

Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not contained within the Contract Documents. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source and make them available on request.

13.13.5 Abbreviations and Acronyms for Industry Organizations.

Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

13.14 PRODUCTS

13.14.1 All products are to be new and not previously incorporated into or used in any other project or facility. Products salvaged or recycled from other projects are not considered new products and are not permitted.

13.14.2 The term product, as used in the Contract Documents, includes materials, equipment, systems, and like terms of similar intent.

13.14.3 Products include materials, machinery, components, equipment, fixtures and systems forming the Work and purchased for incorporation into the Work.

13.14.4 Do not reuse materials and/or equipment removed from existing premises except as specifically permitted by the Contract Documents.

13.14.5 Provide interchangeable components of the same manufacturer, for similar components.

13.14.6 Named products are items identified in the Contract Documents by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.

13.14.7 TRANSPORTATION AND HANDLING

13.14.7.1 Transport and handle products in accordance with manufacturer's instructions.

13.14.7.2 Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

13.14.8 SHIPPING REQUIREMENTS

13.14.8.1 Preparation for Shipment: All equipment shall be suitably packaged to facilitate handling and to protect against damage during transit and storage. All equipment shall be protected from exposure to the elements and shall be kept dry at all times.

13.14.8.2 Painted and coated surfaces shall be protected against impact, abrasion, discoloration, and other damage. Painted and coated surfaces which are damaged prior to acceptance of equipment shall be repainted to the satisfaction of District at the expense of Contractor.
13.14.9 PRODUCT DELIVERY, STORAGE, AND HANDLING

13.14.9.1 Store products only in staging area per provisions of the Contract Documents.

13.14.9.2 Handle, store, and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate-controlled enclosures.

13.14.9.3 For exterior storage of fabricated products, place on appropriate supports, above ground.

13.14.9.4 Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.

13.14.9.5 Deliver, store and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

13.14.9.6 Contractor shall comply with the following without limitation:

(a) Contractor shall bear the responsibility for delivery of equipment, spare parts, special tools, and materials to the Site and shall comply with the requirements specified herein and provide required information concerning the shipment and delivery of the materials specified in the Contract Documents.

(b) Electrical equipment and all equipment with antifriction or sleeve bearings shall be stored in weather-tight structures maintained at a temperature above 60 degree Fahrenheit. Electrical equipment controls and insulation shall be protected against moisture and water damage. All space heaters furnished in or with equipment shall be connected and operated continuously or according to manufacturer's requirements.

(c) Equipment and materials shall not have any pitting, rust, decay, or other deleterious effects of storage when installed in the Work.

(d) Store products to allow for inspection, measurement, and/or counting of units.

(e) Store materials in a manner that will not endanger adjacent Work.

(f) Store products that are subject to damage by the elements, under cover in a weather-tight enclosure above ground, with ventilation adequate to prevent condensation.

(g) Store cementitious products and materials on elevated platforms.

(h) Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
ARTICLE 14

TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR FOR CAUSE

14.1.1 Grounds for Termination.

The Contractor may terminate the Contract if the Work is stopped for a period of thirty (30) consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons performing portions of the Work for whom the Contractor is contractually responsible, for only the following reasons:

(a) Issuance of an order of a court or other public authority having jurisdiction; or

(b) An act of government, such as a declaration of national emergency.

14.1.2 Notice of Termination.

If one of the above reasons exists, the Contractor may, upon written notice of seven (7) additional days to the District, terminate the Contract and recover from the District payment for Work executed and for reasonable costs verified by the Architect with respect to materials, equipment, tools, construction equipment, and machinery, including reasonable overhead, profit, and damages.

14.2 TERMINATION BY THE DISTRICT FOR CAUSE

14.2.1 Grounds for Termination.

The District may terminate the Contractor and/or this Contract for the following reasons:

(a) Persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

(b) Persistently or repeatedly is absent, without excuse, from the job site;

(c) Fails to make payment to Subcontractors, suppliers, materialmen, etc.;

(d) Persistently disregards laws, ordinances, rules, regulations, or orders of a public authority having jurisdiction; or

(e) Becomes bankrupt or insolvent, including the filing of a general assignment for the benefit of creditors; or

(e) Otherwise is in substantial breach of a provision of the Contract Documents.

14.2.2 Notification of Termination.

When any of the above reasons exist, the District may, without prejudice to any other rights or remedies of the District and after giving the Contractor and the Contractor's surety, if any, written notice of seven (7) days, except in the event of an emergency or critical path delay to the schedule in which case the District may give written notice of forty-eight (48) hours, terminate the Contract and may, subject to any prior rights of the surety:
(a) Take possession of the Project and of all material, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

(b) Accept assignment of Subcontracts. Contractor acknowledges and agrees that if the District (in its sole and absolute discretion) decides to takeover completion of the Project, the Contractor agrees to immediately assign all subcontracts to the District which the District has chosen to accept; and

(c) Complete the Work by any reasonable method the District may deem expedient, including contracting with a replacement contractor or contractors.

14.2.3 Payments Withheld.

If the District terminates the Contract for one of the reasons stated in Paragraph 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is complete. All costs associated with the termination and completion of the Project shall be the responsibility of the Contractor and/or its surety.

14.2.4 Payments Upon Completion.

If the unpaid balance of the Contract Sum exceeds costs of completing the Work, including compensation for professional services and expenses made necessary thereby, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the District. The amount to be paid to the Contractor, or District, as the case may be, shall be certified by the Architect upon application. This payment obligation shall survive completion of the Contract.

14.3 TERMINATION OF CONTRACT BY DISTRICT (CONTRACTOR NOT AT FAULT)

14.3.1 Termination for Convenience.

District may terminate the Contract upon fifteen (15) calendar days of written notice to the Contractor and use any reasonable method the District deems expedient to complete the project, including contracting with replacement contractor or contractors, if it is found that reasons beyond the control of either the District or Contractor make it impossible or against the District’s interest to complete the work. In such a case, the Contractor shall have no claims against the District except: (1) the actual cost for labor, materials, and services performed which may be documented through timesheets, invoices, receipts, or otherwise, and (2) ten percent (10%) profit and overhead, and (3) five percent (5%) termination cost of the total of items (1) and (2). Contractor acknowledges and agrees that if the District (in its sole and absolute discretion) decides to takeover completion of the Project, the Contractor agrees to immediately assign all subcontracts to the District which the District has chosen to accept.

14.3.2 Non-Appropriation of Funds/ Insufficient Funds.

In the event that sufficient funds are not appropriated to complete the Project or the DISTRICT determines that sufficient funds are not available to complete the Project, DISTRICT may terminate or suspend the completion of the Project at any time by giving written notice to the Contractor. In the event that the DISTRICT exercises this option, the DISTRICT shall pay for any and all work and materials completed or delivered onto the site for which value is received, and the value of any and all work then in progress and orders actually placed which cannot be canceled up to the date of notice of termination. The value of work and materials paid for shall include a factor of fifteen percent (15%) for the Contractor’s
overhead and profit and there shall be no other costs or expenses paid to Contractor. All work, materials and orders paid for pursuant to this provision shall become the property of the DISTRICT. DISTRICT may, without cause, order Contractor in writing to suspend, delay or interrupt the Project in whole or in part for such period of time as DISTRICT may determine. Adjustment shall be made for increases in the cost of performance of the Agreement caused by suspense, delay or interruption.

14.4 REMEDIES OTHER THAN TERMINATION

If a default occurs, the District may, without prejudice to any other right or remedy, including, without limitation, its right to terminate the Contract pursuant to Article 14.2, do any of the following:

(a) Permit the Contractor to continue under this Contract, but make good such deficiencies or complete the Contract by whatever method the District may deem expedient, and the cost and expense thereof shall be deducted from the Contract Price or paid by the Contractor to the District on demand;

(b) If the workmanship performed by the Contractor is faulty or defective materials are provided, erected or installed, then the District may order the Contractor to remove the faulty workmanship or defective materials and to replace the same with work or materials that conform to the Contract Documents, in which event the Contractor, at its sole costs and expense, shall proceed in accordance with the District’s order and complete the same within the time period given by the District in its notice to the Contractor; or

(c) Initiate procedures to declare the Contractor a non-responsible bidder for a period of two to five years thereafter.

All amounts expended by the District in connection with the exercise of its rights hereunder shall accrue interest from the date expended until paid to the District at the maximum legal rate. The District may retain or withhold any such amounts from the Contract Price. If the Contractor is ordered to replace any faulty workmanship or defective materials pursuant to Paragraph (b) above, the Contractor shall replace the same with new work or materials approved by the Architect and the District, and, at its own cost, shall repair or replace, in a manner and to the extent the Architect and the District shall direct, all work or material that is damaged, injured or destroyed by the removal of said faulty workmanship or defective material, or by the replacement of the same with acceptable work or materials. In no event shall anything in this Paragraph be deemed to constitute a waiver by the District of any other rights or remedies that it may have at law or in equity, it being acknowledged and agreed by the Contractor that the remedies set forth in this Paragraph are in addition to, and not in lieu of, any other rights or remedies that the District may have at law or in equity.

END OF SECTION 00700
SECTION 01140
WORK RESTRICTIONS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in
this document, and provisions in the General Conditions and other Division 1 Specification
Sections shall apply to this Section without limitation.

1.2 SUMMARY OF WORK RESTRICTION REQUIREMENTS

A. Prior to the start of Work, Contractor shall familiarize itself with the Work Restrictions as they
relate to all Work required by the Contract Documents.

B. Work Restricted Activity Plan shall include:
   1. Full size drawing (36"x42") of site plan showing the proposed locations and dimensions of
temporary facilities and Work Restriction Activities including but not limited to all proposed
trailers, equipment and material storage areas on the Project site (locations must conform
to the available staging areas as delineated in the contract documents); safe and ADA
compliant access (ingress/egress) for pedestrians and vehicles around the construction
areas; proposed haul routes; all temporary construction and way-finding signage; temporary
fenced area(s); and temporary measures to maintain continuous and uninterrupted code
compliant use of all nearby occupied areas. Identify any areas that require temporary paving
for stabilization or prevention of tracking of mud, and for ADA complaint ingress and egress.
Indicate if the use of supplemental or other staging areas might be required. Also see Section
01500 for Temporary Facilities and Control for additional requirements [Section 01500 not
applicable].
   2. Contractor shall submit four (4) hard copies and email Adobe PDF Format of the initial
submittal of the Work Restricted Activity Plan for review by the District, Engineer, and by
personnel from the Campus (e.g., Buildings & Grounds, Police Department, and other
representatives).

C. Contractor shall construct dust partitions prior to the start of demolition and they must remain
in place until the completion of that activity where required by the Contract Documents.

D. Contractor shall perform and complete all Work Restricted Activities to ensure the following:
   1. The continuous and uninterrupted use of all nearby occupied areas, including but not limited
to the applicable power, data, telephone, waterline, fire alarm system, fire sprinkler system
mechanical, gas, storm, sewage, plumbing, and electrical systems serving these areas.
   2. Protection of students, staff, faculty and personnel in nearby occupied areas and
surrounding and adjacent areas from the hazards and dust associated with construction.
   3. The work areas, roads, parking lots, and streets are to be kept clear, clean, and free of loose
debris, construction materials and partially installed work which would create a safety
hazard or interfere with subcontractor and personnel duties and traffic. The Contractor shall
sweep the areas clean at the end of each work day and make every effort to keep dust and
noise to a minimum at all times.
4. Prior to starting work, the Contractor shall provide a proposed schedule of temporary interruptions or shutdown of any utility or electrical/mechanical systems to the District Representatives. The Contractor shall provide written request (5) working days prior to the desired time for the proposed interruption(s). Work shall be performed at times other than the Campus’s normal hours of operation, or as directed by the District’s Construction Manager. Temporary interruptions shall be completed prior to the start of the next business day at the Campus to maintain continuous and uninterrupted use of Campus facilities.

1.3 SUMMARY OF WORK RESTRICTIONS

A. General: Work Restrictions are comprised of Work Restricted Activities included in the Work Restricted Activity Plan described above. All Work Restricted Activities must be completed within the timelines, work shift times, and the scheduled time period as required by the Contract Documents. Comply with the following:

1. The Work Restricted Activity Plan shall be approved by the District prior to any Work starting on the Project site.
2. Contractor shall have all temporary fencing, signage, ADA compliant pathways and other temporary measures described in Paragraph 1.4 above installed, operational and accepted by the District prior to starting erosion control, demolition or other Work as applicable.
3. Work that produces excessive noise that would be a disturbance to classes operating below the roof areas must be performed off hours.

B. Time Essential Work Restrictions

1. Work on site is not to start prior to May 29th, 2018 the end of the 2018 Spring Semester.
2. There are no classes between May 29th and June 11th, 2018. Demolition and installation of temp HVAC unit must take place during this period with temp unit operational by June 11th, 2018.
3. Removal of existing units must be coordinated with the abatement work and may include disconnecting supports from the unit without disturbing the attachment to the roof if abatement of supports is not able to be performed with the unit in place.
4. AHUs must be Substantially Complete, fully operational, commissioning completed and staging areas clean and returned for campus use prior to July 30th and the start of the fall 2018 semester.
5. The Work Restricted Activities that are essential to protect the Campus community, and minimize disruption to the Campus’s daily operations include, but are not limited to: temporary construction fencing, temporary construction barriers, construction and way-finding signage, dust control and safe and ADA complaint access (ingress/egress) for pedestrians and vehicles around the construction areas.
6. Coordination and Time Sensitive Work Restrictions. Work Restricted Activities include the construction and installation of interim utilities; permanent utility/installation and other construction activities related to moving of vital infrastructure to keep portions of the Campus facilities operational during the course of construction. Certain activities related to these Work Restrictions, which do not disrupt or impact occupied areas of the nearby facilities, may be completed during the normal business hours.
C. Other Project Requirements to Meet the Contract Time

1. The staging area for the Contractor’s trailers, material, equipment and vehicle parking is limited to the areas specifically shown on the Contract Drawings, or described in the specifications, unless otherwise approved by the District. Contractor shall repair all damage to areas used by the Contractor or its subcontractors during construction to the District’s satisfaction. Access to Sector 10 & 13 will require Contractor to fence off a portion of walkways, as approved by the District and Campus, to maintain safe and unimpeded pedestrian/public access to the College Complex.

2. Contractor Submittals: Since time is of the essences, Contractor shall provide the District all submittals required in the technical specifications within ten (10) work days of the Contract Notice to Proceed. The District’s technical consultants shall review all Contractor submittals within 10 work days from the date received by the District’s technical consultants. Contractor will procure all long lead materials, supplies and equipment in a manner that will avoid delays with: a) scheduled installations and; b) Substantial Completion as defined in these Contract Documents. Contractor shall show such procurement of long lead items in its schedule and when they are to be installed and functional.

PART 2 – PRODUCTS

2.1 MATERIALS

A. All labor, equipment, and materials shall be provided and will be the sole responsibility of the Contractor for execution of entire work, including all requirements of each Work Restricted Activity.

PART 3 - EXECUTION

3.1 MEANS AND METHODS OF CONSTRUCTION

A. Contractor to provide and shall be responsible for any and all means and methods that will be constructed, implemented and/or maintained on the site for all Work Restricted Activities.
SECTION 01311
PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Specification Sections shall apply to this Section without limitation.

1.2 SUMMARY
A. This Section specifies the administrative requirements and includes descriptions of required project coordination for the work including, but not limited to, the following:
   1. Coordination
   2. Coordination of Contract Closeout

1.3 COORDINATION
A. Coordinate scheduling, submittals, and Work of the various Sections of Specifications to assure efficient and orderly sequence of Work, with provisions for accommodating items to be installed later and for accommodating items to be installed by other District contractors.
B. Resolve differences or disputes concerning coordination, interference, or extent of Work of the various Sections of the Specifications.
C. Coordinate completion and cleanup of Work of separate Sections in preparation for Substantial Completion.
D. Coordinate requests for substitutions to assure compatibility of space, of operating elements, and effect on work of other sections.
E. Cooperate with District and District suppliers and/or contractors during move-in and occupancy of the completed Work.
F. Contractor shall coordinate construction operations and means and method of construction included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
   1. Coordinate structural, mechanical, and electrical elements prior to installation. All penetrations of structural elements must first receive approval of Architect and District pursuant to the submittal process described in Section 00700, General Conditions. Rerouting of ductwork, piping, or conduit and resulting changes to other work caused by failure to coordinate beforehand is the responsibility of the Contractor and shall not be considered justification for either additional cost or time.
   2. Schedule construction operations in sequence required to obtain the best constructed results where installation of one part of the Work depends on installation of other components, before or after its own installation.
   3. Coordinate installation of different components with other contractors or other trades to ensure maximum and appropriate accessibility for required maintenance, service,
and repair. Where availability of space is limited, coordinate installation of different components to ensure maximum and appropriate performance and accessibility for required maintenance, service, operations, and repair of all components, and building systems.

4. Make adequate provisions to accommodate items scheduled for later installation.

5. The manner in which the Specifications are divided into Divisions and Sections is not intended to indicate division of work between trades nor indicate trade union or jurisdictional agreements.
   a. Assign and subcontract construction activities, and employ workers in a manner that will not risk jurisdictional disputes that could result in conflicts, delays, claims, or losses.

1.4 ADMINISTRATIVE COORDINATION
   A. Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work.

1.5 COORDINATION OF THE WORK
   A. Coordinate use of project space and sequence of installation of mechanical, electrical, structural, and other Work which is indicated diagrammatically on Drawings. Follow routings shown for pipes, ducts, and conduits as closely as practicable, with due allowance for available physical space; make runs parallel with lines of building. Utilize space efficiently for maximum and appropriate accessibility for other installations, for maintenance, service, operations, and for repairs.
   B. Contractor shall use large scale drawings, if their preparation is required as part of Work of these specifications, together with shop drawings if applicable and layout drawings of other affected sections of these specifications to check, to coordinate, and to integrate the Work of various sections to prevent interferences.
   C. Perform and complete checking and coordination before commencing construction in the affected areas.
   D. In finished areas, except as otherwise shown, conceal pipes, ducts, and wiring in the construction. Coordinate locations of plumbing, fixtures, electrical fixtures, and fixtures and outlets with finish elements.

1.6 CONSERVATION
   A. Contractor shall coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
      1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections of the Specifications for disposition of salvaged materials that are designated as District’s property.

1.7 MEANS AND METHODS
   A. Contractor is solely responsible for construction means, methods, techniques, sequences, and procedures for performing all Work.
1.8 ADMINISTRATIVE AND SUPERVISORY PERSONNEL
   A. Contractor shall provide other administrative and supervisory personnel as required for
      proper performance of the Work.
         1. Include specific or dedicated personnel required for coordination of operations with
            other contractors.

1.9 COORDINATION WITH WORK BY DISTRICT
   A. Coordinate service connections for District furnished and District installed equipment. Verify
      that service connections are correct sizes and in required locations.
   B. Coordinate support and anchorage for equipment furnished and installed by the District.
      Provide blocking and backing as shown or directed to facilitate installation of equipment by
      others.

1.10 PERIODIC VERIFIED REPORTS
   A. The Contractor shall complete and submit the Final Verified Report required by DSA when
      applicable. In addition to other conditions precedent to Final Payment, the Contractor's
      completion and submission of the Final Verified Report is an express condition precedent to
      the District's obligation to make the Final Payment. In addition to completion and submission
      of the Final Verified Report, as a material obligation under the Contract Documents, the
      Contractor shall comply all DSA requests for reports or other data relating to the Work, the
      status thereof or conformity of the Work to the Contract Documents.

PART 2 - PRODUCTS - Not Used.

PART 3 - EXECUTION - Not Used.

END OF SECTION 01311
SECTION 01312
PROJECT MEETINGS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and Specification Sections shall apply to this Section without limitation.

1.2 SUMMARY

A. This Section specifies administrative requirements and provides descriptions of the required project meetings for the Work and all phases of the Project. These meetings include, but not limited to, the following:

1. Preconstruction Conference
2. Schedule Review Meetings
3. Weekly Project Progress Meetings
4. Construction Schedule and Application for Payment Meetings
5. Special Meetings

1.3 PRECONSTRUCTION CONFERENCE

A. District will schedule and conduct the Preconstruction Conference at a time and place to be determined.

B. Contractor and all major subcontractors, as requested by the District, shall attend the Preconstruction Conference.

C. Meeting agenda will include, but is not limited to, discussion of the following items:

1. Construction Schedules
2. Personnel and vehicle permit procedures
3. Use of premises
4. Location of Contractor’s on-Site facilities
5. Security
6. Housekeeping
7. Submittal and RFI procedures
8. Inspection and testing procedures, on-Site and off-Site
9. Utility shutdown procedures
10. Control and reference point survey procedures
11. Injury and Illness Prevention Program
12. Schedule of Values
13. Schedule of Submittals
14. Project Directory
15. Emergency Contact List

1.4 SCHEDULE OF VALUES & CONSTRUCTION SCHEDULE MEETING

A. See Section 00700, General Conditions, for requirements. Meetings will be held as requested by the District, or as required by the District.

1.5 SHOP DRAWINGS & SUBMITTALS SCHEDULE MEETING

A. See Section 00700, General Conditions, for specific requirements. Meetings will be held as requested by the District, or as required by the District.

1.6 WEEKLY PROGRESS MEETINGS

A. Weekly Progress Meetings will be scheduled throughout duration of Work at a time acceptable to the District. Weekly Progress Meetings will be held weekly unless otherwise directed by District.

1. Meetings shall be held at Construction Manager’s on-site office, unless otherwise directed by the District.

2. The District’s Construction Manager will prepare an agenda, if needed.

3. The District or Architect will record meeting notes of the Weekly Progress Meetings. Within 3 working days after the meeting, the District or Architect will distribute minutes to attendees via e-mail, and to those affected by decisions made at the meeting. Attendees can either submit comments or additions to the minutes within 3 working days. The minutes will constitute a final documentation of the results of meeting.

B. Weekly Progress Meetings shall be attended by the Contractor’s project manager, project engineer, and job superintendent, District Construction Manager, Architect and Engineers, the Inspector of Record, and others as appropriate to agenda topics for each meeting.

C. Agenda will contain the following items, as appropriate:

1. Review, revise as necessary, and approve previous meeting minutes
2. Review Work progress since last meeting
3. Status of Construction Schedule, delivery schedules, adjustments
4. Submittal, RFI, and Change Order status
5. Review of the Contractor’s safety program activities and results, including report on any serious injury and/or damage accidents
6. Review of non-conforming Work (if any)
7. Other items relating to or affecting progress of Work
1.7 Special Meetings

A. District may call special meetings by notifying the desired participants. Special meetings may be held without advance notice in emergency situations.

B. At any time during the progress of Work, District shall have authority to require Contractor to attend a meeting with any or all of the subcontractors engaged in the Work, or in other work, and notice of such meeting shall be duly observed and complied with by Contractor.

C. Contractor shall schedule and conduct its own periodic coordination meetings as necessary to discharge coordination responsibilities.

D. Contractor shall give District 5 work days written notice of its coordination meetings. Contractors shall maintain and distribute minutes of coordination meetings to District. Attendees shall have 3 work days to submit comments or additions to minutes. Minutes will constitute final documentation of results of coordination meetings.

1.8 GUARANTEES/WARRANTIES, BONDS, AND SERVICE & MAINTENANCE CONTRACTS REVIEW MEETING

A. Ten Months following date of final acceptance, Contractor to hold a meeting to review guarantees/warranties, bonds, and service maintenance contracts for materials and equipment. Implement repair or replacement of defective items, and extend service and maintenance contracts, as desired by District.

B. Attending shall be:
   1. District Project Representatives
   2. Architect and Architect’s consultants, as appropriate
   3. Campus Buildings & Ground Representatives
   4. Contractor
   5. Subcontractors, as appropriate
   6. Others, as appropriate

PART 2 - PART 2 – PRODUCTS - Not Used

PART 3 - PART 3 – EXECUTION - Not Used

END OF SECTION 01312
SECTION 01330
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 1 Specification Sections shall apply to this Section without limitation.

1.2 RELATED DOCUMENTS SPECIFIED IN OTHER SECTIONS
A. Section 01010 – “Summary of Work”
B. Section 01400 – “Quality Control Requirements”
C. Section 01820 – “Demonstration and Training”
D. Divisions 22 through 26 sections for Submittal Procedures requirements for the work in these sections

1.3 SUMMARY
A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other Submittals.

1.4 DEFINITIONS
A. Action Submittals, as used herein are written and/or graphic information that requires Architect and/or District responsive action. Submittals may be rejected for not complying with requirements. Prepare and submit Action Submittals as required by individual Specification Sections.

B. Informational Submittals, as used herein are written and/or graphic information that does not require Architect responsive action. Submittals may be rejected for not complying with requirements. Prepare and submit Informational Submittals as required by individual Specification Sections.

C. Manufactured, as used herein applies to standard units usually mass-produced, and “fabricated” means items specifically assembled or made out of selected materials to meet individual design requirements.

D. Submittal Descriptions: Submittals requirements are specified in the technical sections. Submittals are identified by description as follows:
   1. Preconstruction Submittals, as used herein are submittals which are required following a Notice to Proceed and prior to commencing Work or any Phase of the Work on site. Examples include, but are not limited to:
      a. Certificates of insurance
      b. Surety bonds
      c. List of proposed products
d. Construction Schedule

e. Submittal Log

f. Schedule of Values

g. Safety plan

h. Waste Management Plan

i. Quality Control Plan

j. Others as required by the Contract Documents

2. Shop Drawings, as used herein are drawings, diagrams, schedules, and other data, which are prepared by Contractor, Subcontractors, manufacturers, fabricators, suppliers, or distributors illustrating some portion of the Work, and include: illustrations; fabrication, erection, layout and setting drawings; manufacturer’s standard drawings; schedules; descriptive literature, instructions, catalogs, and brochures; performance and test data including charts; wiring and control diagrams; and all other drawings and descriptive data pertaining to materials, equipment, piping, duct and conduit systems, and methods of construction as may be required to show that the materials, equipment, or systems and their position conform to the requirements of the Contract Documents.

a. Shop drawings shall establish the actual detail of all manufactured or fabricated items, indicate proper relation to adjoining work, amplify design details of mechanical and electrical systems and equipment in proper relation to physical spaces in the structure, and incorporate minor changes of design or construction to suit actual conditions.

3. Product data, as used herein are catalog cuts, illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate a material, product, or system for some portion of the Work. This includes samples of warranty language when the contract requires extended product warranties.

4. Samples, as used herein are physical examples furnished by Contractor to illustrate materials, equipment, or quality and includes natural materials, fabricated items, equipment, devices, appliances, or parts thereof as called for in the Specifications, and any other samples as may be required by the Architect to determine whether the kind, quality, construction, finish, color, and other characteristics of the materials, etc., proposed by the Contractor conform to the required characteristics of the various parts of the Work. All Work shall be in accordance with the approved samples.

5. Design Data, as used herein are design calculations, mix designs, analyses or other data pertaining to a part of Work.

6. Test Reports, as used herein, include:

a. Reports signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must have been within three years of date of contract award for the project.)

b. Reports which include findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.
c. Reports which include findings of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.
d. Investigation reports.
e. Daily performance logs.
f. Manufacturer or Installer checklists.
g. Manufacturer's Factory or Field Reports, including documentation of the testing and verification actions taken by manufacturer at the factory or manufacturer's representative at the job site, in the vicinity of the job site, or on a sample taken from the job site, on a portion of the work, during or after installation, to confirm compliance with manufacturer's standards or instructions. The documentation must be signed by an authorized official of a testing laboratory or agency and must state the test results; and indicate whether the material, product, or system has passed or failed the test.
h. Final acceptance test and operational test procedure.

7. Manufacturer's Instructions. Preprinted material describing installation of a product, system or material, including special notices, checklists, and Material Safety Data sheets concerning impedances, hazards and safety precautions.

8. Operation and Maintenance Data. Data that is furnished by the manufacturer or the system provider to the equipment operating and maintenance personnel, including manufacturer's help and product line documentation necessary to maintain and install equipment. This data is needed by District operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item. This data is intended to be incorporated in the Operations and Maintenance manual submittals.

9. Closeout Submittals. Documentation to record compliance with technical or administrative requirements in order to meet all requirements necessary to properly close out the Construction Contract. Also, submittal requirements necessary to properly close out a major phase of construction on a multi-phase contract. These include, but are not limited to:
   a. Record Drawings
   b. As-built drawings
   c. Others as required by the Contract Documents. See Section 00700 General Conditions.

1.5 PREPARATION AND FORMAT

A. Transmit each submittal, except sample installations and sample panels to the District Project Manager.

B. Transmit submittals with transmittal form prescribed by District and standard for the Project.
   1. On the transmittal form identify Contractor, indicate date of submittal, and include information prescribed by transmittal form and required in paragraph entitled "Identifying Submittals." Process transmittal forms to record actions regarding sample[s].

C. Identifying Submittals: When submittals are provided by a Subcontractor, the Contractor shall prepare, review and stamp with Contractor's approval stamp all specified submittals prior to
submitting for District approval. Identify submittals, except sample installations and sample panels, with the following information permanently adhered to or noted on each separate component of each submittal and noted on transmittal form. Mark each copy of each submittal identically, with the following:

1. District Project Number and title.
2. Construction contract number.
3. Date of the drawings and revisions.
4. Product identification and location in project.
5. Name, address, and telephone number of subcontractor, supplier, manufacturer and any other second tier Contractor associated with submittal.
6. Section number of the specification section which requires the submittal.
7. When a resubmission, add numeric revision suffix on submittal description, for example, submittal 18 would become 18R1, to indicate resubmission.

D. Format for Shop Drawings

1. Shop drawings are not to be less than 8 1/2 by 11 inches nor more than 30 by 42 inches, except for full size patterns or templates. Prepare drawings to accurate size, with scale indicated, unless other form is required.
2. Drawings are to be suitable for reproduction and be of a quality to produce clear, distinct lines and letters with dark lines on a white background.
3. Present 8 1/2 by 11 inches sized shop drawings as part of the bound volume for submittals required by section. Present larger drawings in sets.
4. Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to information required in paragraph entitled "Identifying Submittals."
5. Number drawings in a logical sequence. Each drawing is to bear the number of the submittal in a uniform location adjacent to the title block. Place the District Project number and number in the margin, immediately below the title block, for each drawing.
6. Reserve a blank space on the right hand side of each sheet for the Architect's disposition stamp.
7. Dimension drawings, except diagrams and schematic drawings and prepare drawings demonstrating interface with other trades to scale. Use the same unit of measure for shop drawings as indicated on the contract drawings. Identify materials and products for work shown.
8. Include the nameplate data, size and capacity on drawings. Also include applicable federal, military, industry and technical society publication references.

E. Format of Product Data and Manufacturer's Instructions

1. Present product data submittals for each section as a complete, bound volume. Include table of contents, listing page and catalog item numbers for product data.
2. Indicate by prominent notation each product which is being submitted; indicate specification section number and paragraph number to which it pertains.
3. Supplement product data with material prepared for Project to satisfy submittal requirements for which product data does not exist. Identify this material as developed specifically for project, with information and format as required for submission of Certificates.

4. Include the manufacturer's name, trade name, place of manufacture, and catalog model or number on all product data. Also include applicable industry and technical society publication references. Should manufacturer's data require supplemental information for clarification, include such information in the submittal.

5. Where equipment or materials are specified to conform to industry and technical society reference standards of the organizations such as American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), and Association of Edison Illuminating Companies (AEIC), submit proof of such compliance. The label or listing by the specified organization will be acceptable evidence of compliance.
   a. In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing, and approved by the District Project Manager. State on the certificate that the item has been tested in accordance with the specified organization's test methods and that the item complies with the specified organization's reference standard.

6. Collect required data submittals for each specific material, product, unit of work, or system into a single submittal and marked for choices, options, and portions applicable to the submittal. Mark each copy of the product data identically. Partial submittals will [not] be accepted for expedition of construction effort.

7. Submit manufacturer's instructions prior to installation.

F. Format of Samples

1. Furnish samples in sizes below, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately same size as specified:
   a. Sample of Equipment or Device: Full size.
   b. Sample of Materials Less Than 2 by 3 inches: Built up to 8 1/2 by 11 inches.
   c. Sample of Materials Exceeding 8 1/2 by 11 inches: Cut down to 8 1/2 by 11 inches and adequate to indicate color, texture, and material variations.
   d. Sample of Linear Devices or Materials: 10 inch length or length to be supplied, if less than 10 inches. Examples of linear devices or materials are conduit and handrails.
   e. Sample of Non-Solid Materials: Pint. Examples of non-solid materials are sand and paint.
   f. Color Selection Samples: 2 by 4 inches. Where samples are specified for selection of color, finish, pattern, or texture, submit the full set of available choices for the material or product specified. Sizes and quantities of samples are to represent their respective standard unit.
   g. Sample Panel: 4 by 4 feet.
   h. Sample Installation: 100 square feet.
2. Samples Showing Range of Variation: Where variations in color, finish, pattern, or texture are unavoidable due to nature of the materials, submit sets of samples of not less than three units showing extremes and middle of range. Mark each unit to describe its relation to the range of the variation.

3. Reusable Samples: Incorporate returned samples into work only if so specified, indicated, or approved by Architect and District. Incorporated samples are to be in undamaged condition at time of use.

4. Recording of Sample Installation: Note and preserve the notation of area constituting sample installation but remove notation at final clean up of project.

G. Format of Design Data and Certificates. Provide design data and certificates on 8 1/2 by 11 inches paper. Provide a bound volume for submittals containing numerous pages.

H. Format of Test Reports and Manufacturer's Field Reports
   1. Provide reports on 8 1/2 by 11 inches paper in a complete bound volume.
   2. Indicate by prominent notation, each report in the submittal. Indicate specification number and paragraph number to which it pertains.

I. Format of Operation and Maintenance Data shall comply with the requirements specified in Section 01785 Operation and Maintenance data for O&M Data format.

J. Format of Preconstruction Submittals and Closeout Submittals.
   1. When submittal includes a document which is to be used in Project or become part of Project Record, other than as a submittal, do not apply Contractor's approval stamp to document, but to a separate sheet accompanying document.
   2. Provide all dimensions in English units only.

1.6 QUANTITY OF SUBMITTALS

A. Number of Copies of Shop Drawings. Submit six (6) requiring review and approval by Architect or District.

B. Number of Copies of Product Data and Manufacturer's Instructions. Submit in compliance with quantity requirements specified for shop drawings.

C. Number of Samples.
   1. Submit two (2) samples, or three (3) sets of samples showing range of variation, of each required item. One approved sample or set of samples will be retained by District and one will be returned to Contractor.
   2. Submit one sample panel or provide one sample installation where directed. Include components listed in technical section or as directed.
   3. When required by Contract Documents, provide one sample installation where directed by Architect or District.
   4. Submit one sample of non-solid materials.

D. Number of Copies Design Data and Certificates. Submit in compliance with quantity requirements specified for shop drawings.
E. Number of Copies Test Reports and Manufacturer's Field Reports. Submit in compliance with quantity and quality requirements specified for shop drawings.

F. Number of Copies of Operation and Maintenance Data. Submit three(3) copies of O&M Data to the District Project Manager for review and approval.

G. Number of Copies of Preconstruction Submittals and Closeout Submittals. Unless otherwise specified, submit three(3) sets of administrative submittals.

1.7 SUBMITTALS, GENERAL

A. Contractor shall obtain and shall submit all required shop drawings, samples, technical data, and other submittals as required by the Contract Documents with such promptness as to cause no delay in its own Work or in that of any other contractor or subcontractor.

1. As required by the Contract Documents, the Contractor shall obtain and submit with shop drawings all seismic and other calculations, and all product data from equipment manufacturers.

B. Prepare a complete Submittal Log and maintain it as the Work progresses. Submit the initial Submittal Log for approval by District at the same time as the Schedule. Include the Contractor's anticipated submission dates and the approval needed dates (if approval is required).

1. Re-submit submittal log and annotate monthly by the Contractor with actual submission and approval dates. When all items on the log have been fully approved, no further resubmittal is required.

2. Carefully control procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Log."

3. Except as specified otherwise, allow review period of at least fifteen (15) working days for submittals requiring Architect or District approval. Period of review for submittals requiring approval begins when District receives submittal from Contractor.

4. For submittals requiring review by fire protection engineer and/or DSA, allow review period, beginning when District receives submittal thirty (30) calendar days for return of submittal to the Contractor.

5. Period of review for each resubmittal is the same as for initial submittal.

C. The District may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections.

D. Units of weights and measures used on all submittals are to be the same as those used in the contract drawings.

E. Each submittal is to be complete and in sufficient detail to allow ready determination of compliance with contract requirements.

F. No extensions of time will be granted to Contractor or any Subcontractor because of its failure to have shop drawings, samples, product data and/or other required submittals submitted in accordance with the approved Submittal Log and Master Construction Schedule.

G. Each Subcontractor shall submit all shop drawings, samples, product data and other required submittals for the review by the District and the Architect through the Contractor.
H. By submitting shop drawings, samples, product data and other required submittals, the Contractor represents that it has determined and verified all materials, field measurements, catalog numbers, related field construction criteria, and other relevant data in connection with each such submission, and that it has checked, verified, and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents, including the construction schedule.

I. Partial submittals are not acceptable, will be considered non-responsive, and will be returned without review by either District or Architect.

J. Mark each copy of each submittal to show which products and options are applicable.

K. The submission of the shop drawings, samples, product data and other required submittals, shall not deviate from the requirements of the Contract Documents including detailing and design intent which is specifically outlined in Contract Documents except as specifically authorized by the Architect or through an accepted substitution, per the requirements of the Contract Documents.

L. Deviations from the Contract Documents
   1. Any deviations from the Contract Documents shall be fully described in a transmittal accompanying the shop drawings, samples, product data and other required submittals. However, such submittals shall not be used as a means of requesting a substitution, the procedure for which is defined elsewhere in the Contract Documents.
   2. Architect and District approval is required for any proposed deviation from the accepted design which still complies with the Contract Documents before the Contractor is authorized to proceed with material acquisition or installation. If necessary to facilitate the project schedule, the Contractor and the Architect may discuss a submittal proposing a deviation with the District Project Manager prior to officially submitting it to the District. However, the District reserves the right to review the submittal before providing an opinion, if deemed necessary. In any case, the District will not formally agree to or provide a preliminary opinion on any deviation without either the Architect's approval or recommended approval.
   3. The District reserves the right to reject any deviation which may impact furniture, furnishings, equipment selections, and/or operations decisions that were made previously and based on the District reviewed and approved Project design.
   4. Contractor is responsible for the dimensions and design of connection details and construction of work. Failure to point out deviations may result in the District requiring rejection and removal of such work at the Contractor's expense.
   5. After submittals have been accepted by the Architect, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

M. Review by District and Architect shall not relieve the Contractor or any Subcontractor from its responsibility in preparing and submitting proper submittals in accordance with the Contract Documents.

N. Any submission, which in Architect’s opinion is incomplete, contains errors, or been superficially checked will be returned by the Architect without review for resubmission by the Contractor.
O. Electronic copies of the stamped and signed Contract Documents will not be provided by District or Architect for Contractor’s use unless:
   1. Contractor shall first request and obtain written approval from Architect prior to use of any Architect’s CAD files, drawings, or other documents for submittal purposes.
   2. Contractor shall be responsible for all reproduction, printing, and delivery cost associated with the use of any requested drawings and/or CAD files.
   3. Contractor provides disclaimer letters to the Architect and District (15) working days in advance of any proposed use of Architect’s documents and/or digital files. Such disclaimer letter shall be in a form acceptable to Architect and District.
   4. Contractor shall not reuse any Architect’s documents and/or electronic files for submittal purposes without prior written approval.

P. Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
      a. Architect and Project Manager reserve the right to withhold action on a submittal requiring coordination with other submittals until all such related submittals are received. No extension of the Contract Time will be authorized.
      b. Architect and Project Manager will return incomplete submittals to the Contractor without review. No extension of Contract Time will be authorized due to incomplete Contractor submittals.

Q. Submittals Schedule: Comply with requirements in Section 00700 General Conditions in planning for required submittals and relating them to scheduled construction activities.
   1. Initial Review: Allow seven (7) working days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will, through the Project Manager, advise Contractor when a submittal review must be delayed for coordination reasons.
   2. Intermediate Review: If intermediate submittal review is necessary, process it in the same manner as an initial submittal.
   3. Re-submittal Review: Allow five (5) working days for review of each re-submittal.
   4. Sequential Review: Where sequential review of submittals by Architect’s consultants, District, or other parties is indicated, allow ten (10) working days for initial review of each submittal.

R. Re-submittals: Make re-submittals in same form and number of copies as initial submittal.
   1. Note date and content of previous submittal.
   2. Note date and content of revision in label or title block and clearly indicate extent of revision(s).
   3. Resubmit submittals until they are marked “No Exceptions Taken” or “Make Corrections Noted” by the Architect.
S. After submittals have been accepted by the Architect, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.8 ARCHITECT’S REVIEW

A. Architect’s review is for general conformance with design concept only, and does not relieve Contractor in any way from compliance with Contract Documents, nor does it in any way constitute grounds for a Change Order. Contractor remains solely responsible for details and accuracy of all quantities and dimensions, and selection of fabrication and/or installation processes.

B. The Architect’s review shall neither be construed as a complete check which relieves the Contractor, Subcontractor, manufacturer, fabricator, or supplier from responsibility for any deficiency that may exist or from any departures or deviations from the requirements of the Contract Documents unless the Contractor has, in writing, called the Architect’s attention to the deviations at the time of submission.

C. The Architect’s review shall not relieve the Contractor or Subcontractors from responsibility for errors of any sort in any required submittals, for proper fitting of the Work, coordination of the differing subcontractor trades, and Work which is not indicated on any submittal at the time of submission.

D. In reviewing shop drawings, samples, product data and other required submittals, the Architect will not verify dimensions and field conditions.

E. The Architect will review and approve shop drawings, samples, product data and other required submittals for aesthetics and for conformance with the design concept of the Work and the Contract Documents.

F. Architect will review each submittal, make marks to indicate corrections or modifications required, and return it.

G. Contractor and Subcontractors shall be solely responsible for any quantities which may be shown on either the submittals or the Contract Documents.

H. Architect will not review submittals that do not bear Contractor’s approval stamp and will return them to the Contractor without review.

I. Architect will stamp each submittal appropriately to indicate action to be taken, as follows:
   1. No Exceptions Taken: Work covered by submittal may proceed provided it complies with the requirements of the Contract Documents. Compliance with Contract Documents is a condition of acceptance of the Work.
   2. Make Corrections Noted: Work covered by the submittal may proceed provided it complies with Architect and or Engineer notations and/or corrections. Contractor shall make all noted corrections. Compliance with Contract Documents is a condition of acceptance of the Work.
   3. Revise and Resubmit: Do not proceed with any Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise the submittal in accordance with Architect and/or Engineer notations and resubmit without delay. Repeat if necessary.
4. Rejected. See Remarks: Do not proceed with Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Prepare a new submittal in accordance with Architect/Engineer’s notations and resubmit without delay.

J. Use of Submittals for Construction: Use only final submittals with Architect’s mark indicating “No Exceptions Taken” or “Make Corrections Noted.”

K. Informational Submittals: Architect will review each submittal but will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

1.9 REJECTED SUBMITTALS

A. Contractor shall make corrections required by the Architect and resubmit.

B. If the Contractor considers any correction or notation on the returned submittals to constitute a change to the contract drawings or specifications, he shall provide notice to the Architect and District.

C. If changes are necessary to submittals, the Contractor shall make such revisions and submission of the submittals in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved.

1.10 NO EXCEPTIONS TAKEN OR MAKE CORRECTIONS NOTED SUBMITTALS

A. Acceptance will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor is responsible for the satisfactory construction of all work.

1.11 NO EXCEPTIONS TAKEN OR MAKE CORRECTIONS NOTED SAMPLES

A. Acceptance of a sample is only for the characteristics or use named in such acceptance and is not be construed to change or modify any contract requirements. Before submitting samples, the Contractor to assure that the materials or equipment will be available in quantities required in the project. No change or substitution will be permitted after a sample has been accepted.

B. Match the accepted samples for Materials and equipment incorporated in the work. If requested, accepted samples, including those which may be damaged in testing, will be returned to the Contractor, at his expense, upon completion of the contract. Samples not accepted will also be returned to the Contractor at its expense, if so requested. Failure of any materials to pass the specified tests will be sufficient cause for refusal to consider, under this contract, any further samples of the same brand or make of that material. District reserves the right to disapprove any material or equipment which previously has proved unsatisfactory in service.

C. Samples of various materials or equipment delivered on the site or in place may be taken by the District Project Manager for testing. Samples failing to meet contract requirements will automatically void previous acceptance, and Contractor shall replace such materials or equipment at Contractor expense to meet contract requirements.

D. Acceptance of the Contractor's samples by the AOR or District does not relieve the Contractor of his responsibilities under the contract.
1.12 WITHHOLDING OF PAYMENT

A. Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

B. No payment for materials incorporated in the work will be made if all required Designer of Record or required District approvals have not been obtained.

C. No payment will be made for any materials incorporated into the work for any conformance review submittals or information only submittals found to contain errors or deviations from the Solicitation or Accepted Proposal.

1.13 SUBMITTAL REQUIREMENTS

A. Shop Drawings

1. Transmittal Letter and Other Requirements. All shop drawings must be properly identified with the name of the Project and dated, and each lot submitted must be accompanied by a letter of transmittal referring to the name of the Project and to the Specification section number for identification of each item clearly stating in narrative form, as well as “clouding” on the submissions, all qualifications, departures, or deviations from the Contract Documents. Shop drawings, for each section of the Work shall be numbered consecutively and the numbering system shall be retained throughout all revisions. All Subcontractor submissions shall be made through the Contractor. Each drawing shall have a clear space for the stamps of Architect and Contractor.

2. Copies Required. Each submittal shall include one (1) original drawing, and five (5) legible prints of each drawing or schedule, table, cut sheet, etc., including fabrication, erection, layout and setting drawings, and such other drawings as required under the various sections of the Specifications, until final acceptance thereof is obtained. Subcontractor shall submit copies, in an amount as requested by the Contractor, of: (1) manufacturers’ descriptive data for materials, equipment, and fixtures, including catalog sheets showing dimensions, performance, characteristics, and capacities; (2) wiring diagrams and controls; (3) schedules; (4) all seismic calculations and other calculations; and (5) other pertinent information as required by the District or Architect.

3. Corrections. The Contractor shall make all corrections required by Architect and shall resubmit, as required by Architect, corrected copies and digital files of shop drawings or new samples until approved. Contractor shall direct specific attention in writing or on resubmitted shop drawings to revisions other than the corrections required by the Architect on previous submissions. Professional services required for more than one (1) re-review of required submittals of shop drawings, product data, or samples are subject to charge to the Contractor by the District.

4. Approval Prior to Commencement of Work. No portion of the Work requiring a shop drawing or sample submission or other submittal shall be commenced until the submission has been reviewed by Contractor and Architect and approved by Architect unless specifically directed in writing by the Architect. All such portions of the Work shall be in accordance with approved shop drawings and samples.

5. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed detail.
6. Fully illustrate requirements of the Contract Documents. Include the following information, as applicable:
   a. Dimensions
   b. Weights and measures
   c. Identification of products
   d. Fabrication and installation drawings
   e. Roughing-in and setting diagrams
   f. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring
   g. Electrical power requirements
   h. Shopwork manufacturing instructions
   i. Templates and patterns
   j. Schedules
   k. Design calculations
   l. Compliance with specified standards
   m. Notation of coordination requirements
   n. Notation of dimensions established by field measurement
   o. Relationship to adjoining construction clearly indicated
   p. Seal and signature of California professional engineer or other engineer if specified
   q. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring
   r. Other information as necessary or required by the Contract Documents

B. Samples

1. Samples Required. In case a considerable range of color, graining, texture, or other characteristics are anticipated in finished products, a sufficient number of samples of the specified materials shall be furnished by the Contractor to indicate the full range of characteristics which will be present in the finished products; and products delivered or erected without submittal and approval of a full range of samples shall be subject to rejection by the District.
   a. Except for range samples, and unless otherwise called for in the various sections of the Specifications, samples shall be submitted in duplicate.
   b. All samples shall be marked, tagged, or otherwise properly identified with the name of the submitting party, the name of the Project, the purpose for which the samples are submitted and the date, and shall be accompanied by a letter of transmittal containing similar information, together with the Specification section number. Each tag or sticker shall have clear space for the review stamps of Contractor and Architect.

2. Labels and Instructions. All samples of materials shall be supplied with the manufacturer’s descriptive labels and application instructions.
3. **Architect’s Review.** The Architect will review and, if appropriate, approve submissions and will return them to the Contractor with the Architect’s stamp and signature applied thereto, indicating the timing for review and appropriate action in compliance with the Contract Documents.

4. **Identification:** Attach label on unexposed side of Samples that includes the following information:
   a. Generic description of Sample
   b. Product name and name of manufacturer
   c. Sample source
   d. Number and title of appropriate Specification Section
   e. District Project name and number
   f. Contractor’s name
   g. Date of submittal

5. **Disposition:** Maintain sets of all approved Samples at Project site, available for quality-control comparisons throughout the course of the Project. Sample sets may be used to determine final acceptance of construction associated with each sample or sample set.
   a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
   b. Samples not incorporated into the Work, if any, or otherwise designated as District’s property, are the property of Contractor.

6. **Samples for Initial Selection:** Submit manufacturer’s color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
   a. Number of Samples: Submit 6 full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer’s product line.

7. **Samples for Verification:** Where required by the Contract Documents, submit full-size units of Samples, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
   a. Number of Samples: Unless indicated otherwise, submit six sets of Samples. Architect will retain two Sample sets; remaining four sets will be returned.
      i) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
      ii) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by Sample, submit at least four sets of paired units that show approximate limits of variations.
8. **District’s Property.** All shop drawings, computer disks, annotated specifications, samples, and other submittals shall become the District’s property upon receipt by the District or Architect.

C. **Other Submittals**

1. **General:** Prepare and submit Submittals required by other Specification Sections.
   
   a. **Test and Inspection Reports:** Comply with requirements specified in Section 01400 Quality Control Requirements.
   
   b. **Coordination Drawings:** Comply with requirements specified in Section 01311 Project Management and Coordination.
      
      i) Coordination Drawings are required where limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

2. **Product Data:** Submit manufacturer’s printed literature in original form as required in the Contract Documents. Submittal shall include specifications, physical dimensions, and ratings of all equipment. Furnish performance curves for all fans and pumps. Where printed literature describes items in addition to that item being submitted, submitted item shall be clearly marked on submittal and superfluous information shall be crossed out in the same manner on all copies. Equipment submittals shall be complete and include space requirements, weight, electrical and mechanical requirements, performance data, and any supplemental information that may be available or requested.

3. **Qualification Data:** Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

4. **Welding Certificates:** Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Report (PQR) on AWS forms. Include names of firms and personnel certified.

5. **Installer Certificates:** Prepare written statements on manufacturer’s letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

6. **Manufacturer Certificates:** Prepare written statements on manufacturer’s letterhead certifying that product complies with requirements in the Contract Documents.

7. **Material Certificates:** Prepare written statements on manufacturer’s letterhead certifying that material complies with requirements in the Contract Documents.

8. **Material Test Reports:** Prepare reports written by a qualified testing agency, on testing agency’s standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

9. **Product Test Reports:** Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
10. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
   a. Name of evaluation organization
   b. Date of evaluation
   c. Time period when report is in effect
   d. Product and manufacturer’s names
   e. Description of product
   f. Test procedures and results
   g. Limitations of use

11. Schedule of Tests and Inspections: Comply with requirements specified in Section 01400 Quality Control Requirements.

12. Preconstruction Test Reports: Prepare test reports written by a qualified testing agency, on testing agency’s standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

13. Compatibility Test Reports: Prepare test reports written by a qualified testing agency, on testing agency’s standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

14. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency’s standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

15. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Section 01785 (Operation and Maintenance Data.)

16. Manufacturer’s Installation and Operations Instructions: Prepare written or published information that documents manufacturer’s recommendations, guidelines, and procedures for installing or operating a product or equipment. Manufacturer’s Instructions shall be available for review on site at all times. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
   a. Preparation of substrates
   b. Required substrate tolerances
   c. Sequence of installation or erection
   d. Required installation tolerances
   e. Required adjustments
   f. Recommendations for cleaning and protection

17. Manufacturer’s Field Reports: Prepare written information documenting factory-authorized service representative’s tests and inspections. Include the following, as applicable:
a. Name, address, and telephone number of factory-authorized service representative making report.
b. Statement on condition of substrates and their acceptability for installation of product.
c. Statement that products at Project site comply with requirements.
d. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
e. Results of operational and other tests and a statement of whether observed performance complies with requirements.
f. Statement whether conditions, products, and installation will affect warranty.
g. Other required items indicated in individual Specification Sections.

PART 2 - PRODUCTS:
Not Used.

PART 3 - EXECUTION:
Not Used.

END OF SECTION 01330
SECTION 01340
ADMINISTRATIVE FORMS & LOGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Specification Sections shall apply to this Section without limitation.

1.2 SUMMARY

A. This section specifies the information and format requirements for administrative forms and logs.

1.3 ADMINISTRATIVE FORMS & LOGS

A. The Contractor shall use District provided administrative forms for the Work. Administrative forms and logs include, but are not limited to, the following:
   1. Transmittal Form
   2. Submittal Transmittal Form
   3. Request for Information Form
   4. Substitution Request Form
   5. 3-Week Projected Construction Schedule Form
   6. 3-Week Testing & Inspection Schedule Form
   7. Proposed Change Order Form*
   8. Change Order Form*
   9. Request for Information Log Form
   10. Submittal Log Form
   11. Proposed Change Order Log Form
   12. Change Order Log Form
   13. Contractor's Proposal for Contract Modification Form* (includes sample numbers to demonstrate calculations only)
   14. Contractor Production Report
   15. Construction Directive Form

B. Forms generated by project management software may be substituted if substitution forms contain essentially the same information as shown in these contract documents. Allowance for the use of substitute forms is at the sole discretion of the District, and shall be requested and approved before use of the substitute form. Forms marked with an asterisk (*) may NOT be substituted under any condition.

C. Microsoft Excel files of these forms are available for Contractor use from the District.
1.4 FORMS INCORPORATED BY REFERENCE

A. Forms available from the California Department of General Services, Division of the State Architect, http://www.dgs.ca.gov/dsa/Forms.aspx, related to administration, construction, testing, and inspection of public work school facilities are hereby incorporated by reference into these Contract Documents.

1.5 CONTRACTOR RESPONSIBILITIES

A. Nothing in this Section, including, but not limited to, the above forms and log forms, shall be construed to limit, relieve, or release Contractor from liability to District for any damages sustained as a result of inaccurate or incorrect information supplied by the Contractor.

PART 2 – PRODUCTS - Not Used.

PART 3 – EXECUTION - Not Used.
SUBMITTAL TRANSMITTAL

Date: ___________________  Transmittal No. ___________________
From: ___________________

To: ___________________
Via: ___________________

Attn: ___________________

Contract No.: ____________  Project No. and Name: ________________

Specification Section:  Request Return (per Schedule):  Action Codes
Shop Drawings  Test Reports  Specifications  No Exception Take (NET)
Copy of Letter  Certificate  Plans  Make Correction Noted (MCN)
O&M Manual  Test Reports  Samples  Revise and Resubmit (RR)
Project Closeout Documents  Product Data  Disks  Submit Specified Item (SI)
Warranty Documents  Other:  Other:

Certification: A separate Submittal Transmittal is required for each specification section. This form is to be used ONLY if there are NO deviations from the Contract Documents. If there are ANY deviations, the Contractor shall submit in accordance with Specification Section 01625 Product Options and Substitutions. We certify that all items contained in this Submittal meet all requirements specified in the Contract Documents.

CONTRACTOR USE ONLY

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Para No. and/or Dwg No.</th>
<th>Item Identification (Type, size, model no., Mfg. Name, dwg. or brochure no.)</th>
<th>Action Code</th>
<th>Reviewer Initials and Date</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

Contractor Comments:

Copies of Submittals to District:  Yes  No

[Signature]  [Date]

Reviewer Use Only:

[Signature]  [Date]

Copy To: ___________________  Received by: ___________________

[Print Name]  [Signature]

Page 1 of 1
CONTRA COSTA COMMUNITY COLLEGE DISTRICT
500 Court Street, Martinez, CA 94553

Request for Information (RFI)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Request:</th>
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</tbody>
</table>

Suggestion:

Request Issued By:
Contractor's Signature      Name (Printed)      Date

Response Issued By:
Architect/Engineer Signature      Name (Printed)      Date

Response Reviewed By:
Owner Authorized Representative (Project Manager)      Name (Printed)      Date

Note to Contractor:
This Form Cannot Modify Contract Amount or Milestones and/or Contract Time.
CONTRA COSTA COMMUNITY COLLEGE DISTRICT  
500 Court Street, Martinez, CA 94553  

SUBSTITUTION REQUEST FORM  

Contractor Name:  
Contract #:  

RFS #  

Date:  

DSA Application #:  

Campus:  

Project No., Name:  

Contractor pursuant to General Conditions submit the proposed items. If the District accepts such items as described, the undersigned may furnish such items with all necessary labor, materials, equipment and incidentals to perform and complete the Work. 

<table>
<thead>
<tr>
<th>Item No.</th>
<th>SPECIFIED ITEM OR DRAWING</th>
<th>SPECIFICATION SECTION</th>
<th>PROPOSED SUBSTITUTION (and name of Subcontractor if different)</th>
</tr>
</thead>
</table>

CERTIFICATION  

Under penalty of perjury under the Laws of California, I certify that the proposed substitution will be readily available, perform adequately the functions and achieve the results called for by the design concept, be similar in substance to that specified, and be subject to the terms and conditions as specified in Contract Documents. 

Contractor:  

(Please print name of company)  

Name and Title(s)  

Contractor Authorized Representative  

Date  

A. Does the substitution affect dimensions shown on Drawings?  

B. Will the undersigned pay for changes to the building design, including engineering and detailing costs caused by the requested substitution?  

C. What effect does the substitution have on other trades?  

D. Will substitution cause change to Project Schedule, or to critical delivery dates? Add ? Shorten ?  

E. Differences between proposed substitution and specified item?  

F. What is the Cost Differential including all mark-ups?  

G. Are Manufacturer’s guarantees for the proposed item the same as for item specified? Explain differences.  

H. The undersigned accepts full responsibility for delays caused by redesign of other items of the Work necessitated by substitution.  

I. The undersigned states that the function, appearance and quality are equivalent or superior to the specified item.  

A/E Response:  

<table>
<thead>
<tr>
<th>District Representative Response:</th>
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<tbody>
<tr>
<td>Accepted</td>
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<tr>
<td>Accepted As Noted</td>
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</table>

By:  

Date:  

By:  

Date:  

K:\Project Filing System\CCCD\817-College Center Design\03 Design\Dev\G.40 Coral Docks Phase G.40 Spec & Product CCG:\DIVISION 0 & 1 DRAFT\Div 0 and 1 working templates\Forms & Logs\Templates\Substitution Request Form - SRF.pts  

Page 1 of 1
<table>
<thead>
<tr>
<th>Start Date:</th>
<th>Finish Date:</th>
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</table>

### 3 - Week Projected Testing and Inspection Schedule

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<th>Week 2</th>
<th>Week 3</th>
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<th>Task</th>
<th>Item</th>
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**Remarks:**

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Contra Costa Community College District
Los Medanos College
L-527 Mechanical Systems Upgrade
**CONTRA COSTA COMMUNITY COLLEGE DISTRICT**

500 Court Street, Martinez, CA 94553

**PROPOSED CHANGE ORDER**

PCO No.: __________________

<table>
<thead>
<tr>
<th>Contractor Name:</th>
<th>Date:</th>
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<tbody>
<tr>
<td>Contract #:</td>
<td>DSA File #: 7-C1</td>
</tr>
<tr>
<td>Contract Date:</td>
<td>DSA Application #:</td>
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<tr>
<td>NTP Date:</td>
<td>Campus:</td>
</tr>
<tr>
<td>GL #:</td>
<td>Project No., Name:</td>
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</tbody>
</table>

**PRELIMINARY CHANGE AS FOLLOWS:**

Within (1) days provide and submit to the Project Manager a complete and itemized proposal including but not limited to the following items: cost breakdown of Labor, Material, Equipment, Markup, Construction Schedule, etc. Provide either ADD or DEDUCT to the original Contract Amount.

<table>
<thead>
<tr>
<th>Scope of Work:</th>
<th>Ref. (Drawings, Specifications, Others):</th>
</tr>
</thead>
</table>

Final Cost of this PCO: $0.00

The Contractor requests that time will be: Increased; Decreased; By: Working Days

**NOTE:** The Contractor waives any claim for further adjustments of the Contract Sum and Contract Time related to the changes in Work as described above.

<table>
<thead>
<tr>
<th>1 - REVIEWED &amp; RECOMMENDED</th>
<th>5 - CONTRACTOR ACCEPTANCE</th>
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<tbody>
<tr>
<td>(Architect/Engineer of Record)</td>
<td>Company Name:</td>
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<td>Address:</td>
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<tr>
<th>2 - CONSTRUCTION MANAGER (CM)</th>
<th>6 - DISTRICT REPRESENTATIVE</th>
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<tr>
<td>(when applicable)</td>
<td>(when applicable)</td>
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<td>Signature/Date</td>
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<tr>
<th>3 - PROJECT INSPECTOR (PI)</th>
<th>4 - PROJECT MANAGER (PM)</th>
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<tbody>
<tr>
<td>(when applicable)</td>
<td>DSA APPROVAL (when applicable)</td>
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<td>Signature/Date</td>
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Contra Costa Community College District
Los Medanos College
L-527 Mechanical Systems Upgrade
CONTRA COSTA COMMUNITY COLLEGE DISTRICT
500 Court Street, Martinez, CA 94553

CHANGE ORDER No.: _______________________________________

Contractor Name: ___________________________________________
Contract #: _________________________________________________
Contract Date: ______________________________________________
NTP Date: __________________________________________________
GL #: ______________________________________________________

Date: _______________________________________________________
DSA File #: ________________
DSA Application #: _____________________________
Campus: ____________________________________________________
Project No., Name: __________________________________________

THE CONTRACT IS CHANGED AS FOLLOWS: (Attach Contractor Change Order Request or Proposal - if applicable)

<table>
<thead>
<tr>
<th>ADJUSTMENT TO CONTRACT AMOUNT / TIME</th>
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<tbody>
<tr>
<td>Original Contract Amount</td>
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<tr>
<td>Prior Contract Adjustments</td>
</tr>
<tr>
<td>Contract Sum Prior to this Change Order</td>
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<tr>
<td>Adjustment Per This Change Order</td>
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<tr>
<td>Revised Contract Amount</td>
</tr>
</tbody>
</table>

Original Contract Period: ____________________________
Start Date: ____________________________
End Date: ____________________________
The Contract Time will be ____________________________
Increased; Decreased; By ____________________________
Calendar Days
Revised Contract Completion Date: ____________________________

NOTE: The Contractor waives any claim for further adjustments of the Contract Sum and Contract Time related to the above changes in Work.

1 - REVIEWED & RECOMMENDED (architect/engineer of record)
   Company Name: ___________________________________________
   Address: _______________________________________________
   Signature / Date: _______________________________________
   Authorized Representative, Name & Title (PRR1)

2 - CONSTRUCTION MANAGER (CM) - (when applicable)
   Signature / Date: _______________________________________

PROJECT INSPECTOR (PI) - (when applicable)
   Signature / Date: _______________________________________
   C.O. NOT VALID WITHOUT Signature / Date

4 - PROJECT MANAGER (PM)
   DSA APPROVAL (when applicable)
   Signature / Date: _______________________________________

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Administrative Forms & Logs
CONTRA COSTA COMMUNITY COLLEGE DISTRICT
500 Court Street, Martinez, CA 94553

Request For Information Log - RFI LOG

<table>
<thead>
<tr>
<th>RFI No.</th>
<th>Requested By</th>
<th>Description</th>
<th>Date Submitted to AS for Review</th>
<th>Date Returned to Contractor</th>
<th>RFI returned with AS or PCC (when applicable)</th>
<th>RFIReviewed and Responded by:</th>
<th>Date Submitted to DSA</th>
<th>Date of Returned from DSA</th>
<th>Distribution List</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
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<td>GC AOR PR PM CM</td>
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</tbody>
</table>
## DSA Appl. #01-114479

### Contra Costa Community College District
500 Court Street, Martinez, CA 94553

### Submittal Log

<table>
<thead>
<tr>
<th>Contractor Name</th>
<th>Contract #:</th>
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<tbody>
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</table>

Date Updated: __________

<table>
<thead>
<tr>
<th>Submit No.</th>
<th>Specification Section No.</th>
<th>Item No.</th>
<th>Description</th>
<th>Date Submitted to A/E for Review</th>
<th>Required Return Date (per Submittal)</th>
<th>Date Returned to Contractor</th>
<th>No. of Submittals Returned</th>
<th>Set of Drawings</th>
<th>No. of Submittals Returned</th>
<th>A/E Review Comments</th>
<th>Date Submitted to DSA</th>
<th>Date of Returned from DSA</th>
<th>Distribution List</th>
<th>Remarks</th>
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### Project Submittal Analysis

<table>
<thead>
<tr>
<th>Number of Submittals</th>
<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td>No. Excision Taken (NET)</td>
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<tr>
<td>Make Correction New (MCNC)</td>
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</tr>
<tr>
<td>Revised and Resubmit (RR)</td>
<td></td>
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<tr>
<td>Submit Specified Item (SS)</td>
<td></td>
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<tr>
<td>Reject (R)</td>
<td></td>
</tr>
<tr>
<td>Open Deferred Approval Submittal</td>
<td></td>
</tr>
</tbody>
</table>
CONTRA COSTA COMMUNITY COLLEGE DISTRICT

500 Court Street, Martinez, CA 94553

Proposed Change Order Log - PCO Log

Contractor Name: 
Contract #: 

Date Updated: 

PCO No. | PCO Date | Description | Reference (C/O, S/B, LS, Direct) | Proposed Amount | Status | Approved Amount | $ Value of PCO | PCO Caused By: | Date Submitted to DSA | Date of Returned to DSA | Distribution List | Remarks |
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

PCO Break-Down Analysis (District Approved PCOs only) 

<table>
<thead>
<tr>
<th>PCO Caused By</th>
<th>Amount</th>
<th>Status Codes</th>
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<tbody>
<tr>
<td>PCO requested by college</td>
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<tr>
<td>PCO caused by adverse condition</td>
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<td>PCO caused by Agency’s direction request</td>
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<tr>
<td>PCO caused by Documents</td>
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<tr>
<td>PCO requested by District</td>
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</tbody>
</table>

Status Codes: 
- H - In Review 
- T - In Progress 
- E - Executed 
- N - In Negotiations 
- P - Pending Quote 
- PC - Potential Claim 
- W - Withdrawn 
- D - Denied / No Cost 
- L - In Litigation
<table>
<thead>
<tr>
<th>CO#</th>
<th>Date</th>
<th>Description</th>
<th>Date Submitted to DSA</th>
<th>Date Returned from DSA</th>
<th>DSA Comments</th>
<th>Distribution List</th>
<th>Date of Issue</th>
<th>Amount Approved</th>
<th>Time Extension (Calendar Days)</th>
<th>Remarks</th>
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**Adjustment to Contract Amount/Time**

- Original Contract Amount: $0.00
- Contract Adjustments: $0.00
- Revised Contract Amount: $0.00
- Original Contract Completion Date: 
- Number of Calendar Days Adjusted:
- Revised Contract Completion Date: 

Total Approved Changes: $ -
# Project Re-inspection Record

By: Project Inspector

<table>
<thead>
<tr>
<th>IOR Name:</th>
<th>Project #:</th>
<th>Contract:</th>
<th>Contract Start Date:</th>
<th>GL #</th>
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<table>
<thead>
<tr>
<th>Date</th>
<th>Hours</th>
<th>Description</th>
<th>List of Re-inspection by IOR (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon.</td>
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<td>Date / Hours</td>
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<td>Tue.</td>
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<td>Description of Re-inspection</td>
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</tbody>
</table>

Signature: [IOR Name]

Date: [Signature Date]

Print name: Inspector of Record

Project File #: 7-C1

DSA Application #: [ ]

Campus: [ ]

Project Name: [ ]

Sub total hours

Signature: [Project Manager]

Date: [Signature Date]

Print name: Project Manager
**CONTRACTOR’S PROPOSAL FOR CONTRACT MODIFICATION**

*05/11*

**Project No. and Name:**

**CONTRACT NO.:**

**Prime Contractor:**

**SHORT DESCRIPTION OF CHANGE:**

*Description attached*

<table>
<thead>
<tr>
<th>PRIME CONTRACTOR’S WORK</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Direct Materials</td>
<td>$0.00</td>
</tr>
<tr>
<td>2. Sales Tax on Materials</td>
<td>9.25% of Line 1</td>
</tr>
<tr>
<td>3. Direct Labor</td>
<td>$0.00</td>
</tr>
<tr>
<td>4. Insurance, Taxes, and Fringe Benefits</td>
<td>19.19% of Line 3</td>
</tr>
<tr>
<td>5. SUBTOTAL Materials and Labor (Add lines 1-4)</td>
<td></td>
</tr>
<tr>
<td>6. Rental Equipment</td>
<td>$0.00</td>
</tr>
<tr>
<td>7. Sales Tax on Rental Equipment</td>
<td>9.25% of Line 5</td>
</tr>
<tr>
<td>8. Equipment Ownership and Operating Expenses</td>
<td></td>
</tr>
<tr>
<td>9. SUBTOTAL Equipment (Add Lines 6-8)</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

**SUMMARY**

<table>
<thead>
<tr>
<th>Line</th>
<th>Description</th>
<th>% of Total</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.</td>
<td>Prime Contractor’s Work (Add Lines 5 and 8)</td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td>11.</td>
<td>Overhead and Profit On Prime Material and Labor</td>
<td>15.00% of Line 9</td>
<td>15.00%</td>
</tr>
<tr>
<td>12.</td>
<td>Overhead and Profit On Prime Equipment</td>
<td>10.00% of Line 9</td>
<td>10.00%</td>
</tr>
<tr>
<td>13.</td>
<td>Total of Subcontractor’s Work (See Backup)</td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td>14.</td>
<td>Prime’s Overhead on all Subcontractor’s Work</td>
<td>0.00% of Line 10</td>
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<tr>
<td>15.</td>
<td>SUBTOTAL (Add Lines 10-14)</td>
<td></td>
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<tr>
<td>16.</td>
<td>Prime Contractor’s Bond Premium</td>
<td>1% of Line 16</td>
<td>1.00%</td>
</tr>
<tr>
<td>17.</td>
<td>TOTAL COST (Add Lines 15-16)</td>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

**Prime Contractor’s Bond Premium:**

| Work Days | $0.00 |

**Estimated time extension and justification [attach schedule analysis]:**

**Prime Contractor’s Comments:**

**Signature and Title of Preparer:**

**Date:**

---

(1) Material (attach itemized quantity and unit cost plus sales tax)

(2) Labor (attach itemized hours and rates)

(3) Indemnity and Property Damage Insurance, Worker’s Compensation Insurance, Social Security, and Unemployment Taxes, not to exceed as follows:

- PICA @ 6.2% - with a wage ceiling of $84,900
- Medicare @ 1.45% - with a wage ceiling of $7,000
- FUTA @ .8% - with a wage ceiling of $7,000
- ETT @ 0.2% - with a wage ceiling of $7,000
- Workers’ Compensation @ 2.94%
- Unemployment @ 1.5%

Only to the extent not to exceed $10,100. (Note: Modifications to these percentages will be evaluated and possibly modified only on a case-by-case basis and only after proper proof of alternate percentages are documented and approved in advance. In addition, as wage ceilings are met, those corresponding percentages must drop from the “basis” calculations.)

(4) Equipment (attach invoices)

(5) If Subcontractor performed work, use Subcontractor’s sheets to calculate costs.

(6) Prime Contractor’s Overhead and Profit on Subcontractor work. No more than five percent (5%) of Item (13). Subcontractor overhead and profit (all tiers cumulative) not to exceed fifteen percent (15%) of the lower tier Subcontractor Total Cost.

(7) Bond not to exceed two percent (2%) of Item (16). Use actual percentage from Performance/Payment bonds submitted at contract award.
### Instructions for Preparing Contractor Proposal for Contract Modification

All contract modification proposals shall be addressed to the District and be received only from the Prime Contractor. Proposals must clearly state the conditions and scope of the modification and shall be accompanied by a breakdown of costs, as indicated. Lump sum costs will not be accepted in either the prime or sub-contractor's breakdown of direct cost. The total cost for labor, material, and equipment for each item shall be transferred to the corresponding item on the front of this form.

### Prime Contractor

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Unit Cost</th>
<th>Total Cost</th>
<th>Labor</th>
<th>Total Cost</th>
<th>Rest Days</th>
<th>Rate</th>
<th>Rental Cost</th>
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</table>

### Breakdown of Direct Costs

<table>
<thead>
<tr>
<th>Total $</th>
<th>Total $</th>
<th>Total $</th>
</tr>
</thead>
</table>

### Prime Contractor's Totals

- Direct Costs: $-
- Total Costs: $-

### Equipment Costs

- Rental Cost: $-
- Owned Cost: $-
## Contractor's Proposal for Contract Modification

### Project No. and Name:

<table>
<thead>
<tr>
<th>Tier 1 Subcontractor:</th>
<th>CONTRACT NO.:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Short Description of Change:

Description attached

### Tier 1 Subcontractor's Work

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Quantity</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Materials</td>
<td></td>
<td></td>
<td>$ -</td>
</tr>
<tr>
<td>Sales Tax on Materials</td>
<td>9.25%</td>
<td>Line 1</td>
<td>9.25%</td>
</tr>
<tr>
<td>Direct Labor</td>
<td></td>
<td></td>
<td>$ -</td>
</tr>
<tr>
<td>Insurance, Taxes, and Fringe Benefits</td>
<td>19.19%</td>
<td>Line 3</td>
<td>19.19%</td>
</tr>
<tr>
<td>SUBTOTAL Materials and Labor (Add lines 1-4)</td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td>Rental Equipment</td>
<td></td>
<td></td>
<td>$ -</td>
</tr>
<tr>
<td>Sales Tax on Rental Equipment</td>
<td>9.25%</td>
<td>Line 5</td>
<td>9.25%</td>
</tr>
<tr>
<td>Equipment Ownership and Operating Expenses</td>
<td></td>
<td></td>
<td>$ -</td>
</tr>
<tr>
<td>SUBTOTAL Equipment (Add lines 6-8)</td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

### Summary

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Quantity</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIER 1 Contractor's Work (Add lines 5 and 8)</td>
<td></td>
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<td>$0.00</td>
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<tr>
<td>Overhead and Profit On TIER 1 Material and Labor</td>
<td>15.00%</td>
<td>Line 9</td>
<td>15.00%</td>
</tr>
<tr>
<td>Overhead and Profit On TIER 1 Equipment</td>
<td>10.00%</td>
<td>Line 9</td>
<td>10.00%</td>
</tr>
<tr>
<td>Total of all Subcontractor's Work (See Backup)</td>
<td></td>
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<td>$0.00</td>
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<tr>
<td>Tier 1 Overhead on Subcontractor's Work</td>
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<td>Line 10</td>
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<tr>
<td>SUBTOTAL (Add Lines 10-14)</td>
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<tr>
<td>TIER 1 Contractor's Bond Premium</td>
<td>1%</td>
<td>Line 16</td>
<td>1.00%</td>
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<tr>
<td>TOTAL COST (Add Lines 15-16)</td>
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<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

Estimated time extension and justification: Work Days

### Subcontractor Comments:

Prime contractor's Name:

Signature and Title of Preparer: Date:

---

1. Material (attach itemized quantity and unit cost plus sales tax)
2. Labor (attach itemized hours and rates)
3. Liability and Property Damage Insurance, Worker’s Compensation Insurance, Social Security, and Unemployment Taxes, not to exceed as follows: FICA @ 6.2% with a wage ceiling of $98,900; Medicare @ 1.45% - no wage ceiling; FUTA @ .8% - with a wage ceiling of $7,000; SUTA @ 2.9% - with a wage ceiling of $7,000; Workers’ Compensation @ 1.94%; Liability and Property Damage @ 2.5%. Total not-to-exceed is 19.19%. (Note: Modifiers to these percentages will be evaluated and possibly modified only as a case-by-case basis and only after proper proof of alternate percentages are documented and approved in advance. In addition, as wage ceilings are met, those corresponding percentages must drop from the "burden" calculations.)
4. Material not to exceed two percent (2%) of Item (13). Use actual percentage from Performance/Payment bonds submitted at contract award.
# Contractor's Proposal for Contract Modification

**Date:**

<table>
<thead>
<tr>
<th>Project No. and Name:</th>
<th>CONTRACT NO.:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 2 Subcontractor:</td>
<td></td>
</tr>
</tbody>
</table>

**Short Description of Change:**
Description attached

### Tier 2 Subcontractor's Work

<table>
<thead>
<tr>
<th>Item</th>
<th>Material</th>
<th>Sales Tax on Materials</th>
<th>Direct Labor</th>
<th>Insurance, Taxes, and Fringe Benefits</th>
<th>Subtotal Materials and Labor</th>
<th>Rental Equipment</th>
<th>Sales Tax on Rental Equipment</th>
<th>Equipment Ownership and Operating Expenses</th>
<th>Subtotal Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Direct Materials</td>
<td>9.25% of Line 1</td>
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<td>$0.00</td>
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<td>Sales Tax on Materials</td>
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<td>3</td>
<td>Direct Labor</td>
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<td>Insurance, Taxes, and Fringe Benefits</td>
<td>19.19% of Line 1</td>
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<td>$0.00</td>
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<td>5</td>
<td>Subtotal Materials and Labor (Add lines 1-4)</td>
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<td>7</td>
<td>Sales Tax on Rental Equipment</td>
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<td>8</td>
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<td>9</td>
<td>Subtotal Equipment (Add Lines 6-8)</td>
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### Summary

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<tr>
<th>Item</th>
<th>Material</th>
<th>Sales Tax on Materials</th>
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<th>Insurance, Taxes, and Fringe Benefits</th>
<th>Subtotal Materials and Labor</th>
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<th>Sales Tax on Rental Equipment</th>
<th>Equipment Ownership and Operating Expenses</th>
<th>Subtotal Equipment</th>
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<tbody>
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<td>$0.00</td>
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<td>$0.00</td>
</tr>
<tr>
<td>11</td>
<td>Overhead and Profit on Tier 2 Material and Labor</td>
<td>15.00% of Line 9</td>
<td>15.00%</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>12</td>
<td>Overhead and Profit on Tier 2 Equipment</td>
<td>10.00% of Line 9</td>
<td>10.00%</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>13</td>
<td>Total of all Subcontractor's Work (See Backup)</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>14</td>
<td>Tier 2 Overhead on Subcontractor's Work</td>
<td>0.00% of Line 10</td>
<td>0.00%</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>15</td>
<td>Subtotal (Add Lines 10-14)</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>16</td>
<td>Tier 2 Contractor's Bond Premium</td>
<td>1% of Line 16</td>
<td>1.00%</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>17</td>
<td>Total Cost (Add Lines 15-16)</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

**Estimated Time Extension and Justification:**

**Work Days**

### Tier 2 Subcontractor's Comments:

**Signature and Title of Preparer:**

**Date:**

---

**(1) Material (attach itemized quantities and unit cost plus sales tax)**

**(2) Labor (attach itemized hours and rates)**

**(4) Liability and Property Damage Insurance, Worker's Compensation Insurance, Social Security, and Unemployment Taxes, not to exceed as follows:**

- **FICA @ 6.5%** with a wage ceiling of $150,000; **Medicare @ 1.45%** with a wage ceiling of $9,300; **Unemployment Taxes @ 2.9%** with a wage ceiling of $7,000; **FUTA @ .8%** with a wage ceiling of $7,000; **SUTA @ 2.3%** with a wage ceiling of $7,000; **Workers' Compensation @ 1.94%**; **Liability and Property Damage @ 2.5%**. **Total not-to-exceed is 19.19%**.

**Note:**

Modifications to these percentages will be evaluated and possibly modified only on a case-by-case basis and only after proper proof of alternate percentages are documented and approved in advance. In addition, any wage ceilings are met, those corresponding percentages must drop from the “burden” calculations.

**(11) Equipment (attach invoices)**

**(13) If lower tier Subcontractor performed Work, use Subcontractor's sheets to calculate costs.**

**(14) Subcontractor's Overhead and Profit on lower tier Subcontractor work. No more than five percent (5%) of item (13). Subcontractor overhead and profit (all tiers cumulative) not to exceed fifteen percent (15%) of the lowest tier Subcontractor Total Cost.**

**(15) Bond not to exceed two percent (2%) of item (14). Use actual percentage from Performance/Payment Bond submitted at contract award.**
# CONTRACTOR’S PROPOSAL FOR CONTRACT MODIFICATION

**Contract No.:**

**Tier 3 Subcontractor:**

**Short Description of Change:**

**Tier 3 Subcontractor’s Work**

<table>
<thead>
<tr>
<th>Work Description</th>
<th>Percentage of Line 1</th>
<th>Percentage of Line 2</th>
<th>Unit Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Direct Materials</td>
<td></td>
<td></td>
<td>$ -</td>
</tr>
<tr>
<td>2. Sales Taxon Materials</td>
<td>9.25%</td>
<td>9.25%</td>
<td>0.00</td>
</tr>
<tr>
<td>3. Direct Labor</td>
<td></td>
<td></td>
<td>$ -</td>
</tr>
<tr>
<td>4. Insurance, Taxes, and Fringe Benefits</td>
<td>18.19%</td>
<td>18.19%</td>
<td>0.00</td>
</tr>
<tr>
<td>5. SUBTOTAL Materials and Labor</td>
<td></td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>6. Rental Equipment</td>
<td></td>
<td></td>
<td>$ -</td>
</tr>
<tr>
<td>7. Sales Tax on Rental Equipment</td>
<td>9.25%</td>
<td>9.25%</td>
<td>0.00</td>
</tr>
<tr>
<td>8. Equipment Ownership and Operating Expenses</td>
<td></td>
<td></td>
<td>$ -</td>
</tr>
<tr>
<td>9. SUBTOTAL Equipment (Add Lines 6-8)</td>
<td></td>
<td></td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Summary**

<table>
<thead>
<tr>
<th>Work Description</th>
<th>Percentage of Line 1</th>
<th>Percentage of Line 2</th>
<th>Unit Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Tier 3 Contractor’s Work (Add Lines 5 and 8)</td>
<td></td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>11. Overhead and Profit On Tier 3 Material and Labor</td>
<td>15.00%</td>
<td>15.00%</td>
<td>0.00</td>
</tr>
<tr>
<td>12. Overhead and Profit On Tier 3 Equipment</td>
<td>10.00%</td>
<td>10.00%</td>
<td>0.00</td>
</tr>
<tr>
<td>13. Total of All Subcontractor’s Work (See Backup)</td>
<td></td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>14. Tier 3 Overhead on Subcontractor’s Work</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00</td>
</tr>
<tr>
<td>15. SUBTOTAL (Add Lines 10-14)</td>
<td></td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>16. Tier 3 Contractor’s Bond Premium</td>
<td>1%</td>
<td>1.00%</td>
<td>0.00</td>
</tr>
<tr>
<td>17. TOTAL COST (Add Lines 15-16)</td>
<td></td>
<td></td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Estimated time extension and justification:**

**Tier 3 Subcontractor’s Comments:**

**Signature and Title of Preparer:**

(1) Material (attach itemized quantity and unit cost plus sales tax)
(2) Labor (attach itemized hours and rates)
(3) Liability and Property Damage Insurance, Worker’s Compensation Insurance, Social Security, and Unemployment Taxes, not to exceed as follows: FICA @ 6.2% with a wage ceiling of $120,000; Medicare @ 1.45%; no wage ceiling; FUTA @ .8% with a wage ceiling of $7,000; ETT and SUI @ 2.9% with a wage ceiling of $7,000; workers’ compensation @ 2.9%; Liability and Property coverage @ 2.5%. Total not to exceed is 28.2%. Note: Modifications to these percentages will be evaluated and possibly modified only on a case-by-case basis and only after proper proof of alternate percentages are documented and approved in advance. In addition, as wage ceilings are met, those corresponding percentages must drop from the “burden” calculations.
(4) If lower tier subcontractor performed work, use subcontractor’s sheets to calculate costs.
(11) Subcontractor’s Overhead and Profit on lower tier subcontractor work. No more than five percent (5%) of item (13). Subcontractor overhead and profit (all tiers cumulative) not to exceed fifteen percent (15%) of the lowest tier subcontractor total cost.
(15) Bond not to exceed two percent (2%) of item (16). Use actual percentage from Performance/Payment bond submitted at contract award.
SECTION 01400
QUALITY CONTROL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 1 Specification Sections shall apply to this Section without limitation.

1.2 SUMMARY
A. This Section includes Administrative and Procedural Requirements for Quality Control and Quality Assurance Services includes, but not limited to, the followings:
   1. Quality assurance and control of installation.
   2. References.
   3. Inspection and testing laboratory services
   4. Manufacturers’ field services and reports
   5. Field sample
   6. DSA Project Inspector if applicable
   7. Inspection by the Division of the State Architect if applicable
   8. Conflicts

1.3 QUALITY ASSURANCE/CONTROL OF INSTALLATION
A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions and workmanship, to produce Work of specified quality.
B. Comply fully with manufacturers' written instructions, including each step in sequence.
C. When manufacturers' instructions conflict with Contract Documents, request clarification from District’s Representative before proceeding.
D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
E. All Work shall be performed by persons qualified to produce workmanship of specified quality.
F. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.
G. Contractor's Line of Authority: Contractor shall provide one person who shall be both knowledgeable and responsible for all work to be performed on the Project at all times during normal work hours. In Contractor’s absence, Contractor’s appointed representative shall be responsible for all directions given him and said directions shall be binding as if given to the Contractor. Contractor’s representative shall be responsible to coordinate all Work to be performed on the Project.
H. Shop and field work shall be performed only by mechanics skilled and experienced in the fabrication and installation of the work involved. All work on this Project shall be done in accordance with the best practices of the various trades involved and in accordance with the Contract Documents, approved shop drawings and these specifications.

I. All work shall be erected and installed plumb, level, square and true and in proper alignment and relationship to the work of other trades. All finished work shall be free from defects. The District’s Representatives reserve the right to reject any materials and workmanship that are not considered to be of the highest standards of the trades involved. Any such inferior material or workmanship shall be removed and replaced at no additional cost or time impact to the District.

J. The specifications and recommendations of the manufacturer whose materials are used shall be strictly adhered to during the application or installation of materials. Manufacturer’s specifications, installation instructions, and testing and startup directions shall be available for inspection on Site.

K. Any additional work beyond that specified or illustrated in the Contract Documents, or any modification thereto, that is necessary to obtain the guarantees specified in the Contract Documents shall be provided by the Contractor without any additional cost or time impact to the District.

1.4 REFERENCES

A. Conform to reference standards in force on the most recent date of issue of the approved Contract Documents.

B. When specified reference standards conflict with Contract Documents, request clarification from District’s Representative before proceeding.

C. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

D. The Contractor shall be responsible for being current and knowledgeable for all building codes involved for all trades under his direction.

E. Provide all work and materials in full in accordance with the latest applicable Rules and Regulations of the California Code of Regulations Title 24 Building Code Standards, the State Fire Marshal, Safety Orders of the Division of Industrial Safety, and any other applicable laws or regulations. Nothing in these plans or specifications is to be construed to permit Work not conforming to these Codes.

F. American Society for Testing and Materials (ASTM):

   1. 29 CFR 1910, Subpart A, Section 1910.7: Definitions and Requirements for a National Recognized Testing Laboratory.

H. NIST: National Institute of Standards and Technology.

I. Furnish all material and labor required to comply with these Rules and Regulations without any additional cost to District.
1.5 **MANUFACTURERS’ FIELD SERVICES AND REPORTS**

A. When specified in individual Specification Sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, testing, adjusting, and balancing of equipment as applicable, and to provide instructions when necessary.

B. Provide four (4) sets of Manufacturer’s Field Representative report to District and Architect for review within 5 days of field observation.

C. Manufacturer’s Field Service: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections.

1.6 **FIELD SAMPLES**

A. Install field samples at the site for District and Architect review as required by individual Specifications Sections.

B. Samples accepted by the Architect in writing represent the quality level required for the Work.

C. Where a field sample is specified in individual sections to be removed, clear area after field sample has been accepted by Architect.

1.7 **PROJECT INSPECTOR**

A. District will employ a Project Inspector in accordance with the regulations of the DSA and subject to the provision of Part 1, Title 24, CCR. Project Inspector’s authority, rights and duties shall be as set forth in Section 4-342, Part 1, Title 24, CCR.

1.8 **INSPECTION BY THE DIVISION OF THE STATE ARCHITECT**

A. Work will be monitored and observed through periodic site visits by the Division of the State Architect Field Inspector according to Section 4-334, Part 1, Title 24, CCR.

1.9 **CONFLICTS**

A. Contractor shall comply with rules of documents interpretation as indicated in Contract General Conditions including, but not limited to the following items:

1. Contract Documents take precedence over statutory requirements or standard when requiring materials of higher quality or performance, or larger sizes or capacity, or greater protection, safety or quantity than required by said codes or standards.

2. This shall not operate to allow deviations from code requirements, prior approvals and other provisions as specified.

3. Modifications to published statutory requirements currently adopted or enforced by regulating agencies having jurisdiction shall take precedence over said published requirements.

B. Conflicts within Contract Documents and/or between Project Manual (including specifications) Drawings, Addenda: The more stringent requirement shall govern.
C. Subcontractor, supplier, and installer work may be called for in any section of the Contract Documents; Project Manual Specifications, Drawings and Addenda. Work by any one discipline is not limited to any specification section of the Project Manual, Drawings, Addenda, and Contract Documents shall be bid in total and not in parts.

D. If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding. Contractor shall, within (15) working days, notify the Architect in writing for the context of requirements.

E. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Contractor shall, within (15) working days, notify any uncertainties to the Architect and District for a decision before proceeding.

1.10 QUALITY CONTROL, GENERAL

A. District will provide inspections, tests, and similar quality control services required performed by the Division of the State Architect. All other tests are Contractor’s responsibility.

1. District will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and description of types of testing and inspecting they are engaged to perform.

2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

1.11 QUALITY CONTROL: LABORATORY, TESTS, AND REPORTING REQUIREMENTS

A. Construction materials testing laboratories must be accredited by a laboratory accreditation authority and will be required to submit a copy of the Certificate of Accreditation and Scope of Accreditation.

1. The laboratory's scope of accreditation must include the appropriate ASTM standards (E 329, C 1077, D 3666, D 3740, A 880, E 543) listed in the technical sections of the specifications.

B. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA. The policy applies to the specific laboratory performing the actual testing, not just the Corporate Office.

C. Laboratory Accreditation Authorities: Laboratory Accreditation Authorities include the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology at: http://ts.nist.gov/ts/htdocs/210/214/214.htm the American Association of State Highway and Transportation Officials (AASHTO) program at http://www.transportation.org/aashto/home.nsf/frontpage , International Accreditation Services, Inc. (IAS) at http://www.iasonline.org, the American Association for Laboratory Accreditation (A2LA) program at http://www.a2la.org/.
D. Capability Check: The District retains the right to check laboratory equipment in the proposed laboratory and the laboratory technician’s testing procedures, techniques, and other items pertinent to testing, for compliance with the standards set forth in this Contract.

E. Test Results: Cite applicable Contract requirements, tests or analytical procedures used. Provide actual results and include a statement that the item test or analyzed conforms or fails to conform to specified requirements.
   1. If the item fails to conform, notify the District immediately. Conspicuously stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable.
   2. Test results must be signed by a testing laboratory representative authorized to sign certified test reports.
   3. Furnish the signed reports, certifications, and other documentation to the District via the QC Manager.
   4. Furnish the signed reports, certifications, and a summary report of field tests at the end of each month to the District. Attach a copy of the summary report to the last daily Contractor Quality Control Report of each month.

1.12 NOTIFICATION ON NON-COMPLIANCE

A. The District will notify the Contractor of any detected non-compliance with the Contract. Take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the District may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders will be made the subject of claim for extension of time for excess costs or damages by the Contractor.

PART 2 - PRODUCTS - Not Used.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work constitutes acceptance of existing conditions by the Contractor.

B. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Verify utility services are available, of correct characteristics, and in correct locations.

3.2 TEST AND INSPECTION LOG

A. Prepare a record of tests and inspections. Include the following:
   1. Date test or inspection was conducted.
   2. Description of the Work tested or inspected.
   3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special Inspector conducting test or inspection.

B. Maintain test and inspection log at project site. Post changes and modifications as they occur. Provide access at the Project site to the District and Architect, during normal working hours, to Contractor generated test and inspection logs.

3.3 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.
B. Seal cracks or openings of substrate prior to applying next material or substance.
C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

3.4 PREPARATION AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
B. Protect construction exposed by or for quality-control service activities.
C. Repair and protection are Contractor’s responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01400
SECTION 01415
MITIGATION MONITORING REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Specification Sections shall apply to this Section without limitation.

1.2 SUMMARY

A. This Mitigation Monitoring and Reporting Program (MMRP) was formulated based on the findings of the Initial Study/Mitigated Negative Declaration (IS/MND) prepared for the Contra Costa College Improvement Implementation Project. This MMRP is in compliance with Section 1509 of the CEQA Guidelines, which requires that the Lead Agency “adopt a program for monitoring or reporting of the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects.” The MMRP lists mitigation measures recommended in the IS/MND and identifies mitigation monitoring requirements.

B. The District has attempted to insert these MMRP requirements into the various other Specification Sections that are related to the nature of each mitigation measure. This Section is included to provide a consolidated location for all of the CEQA requirements. Where measures are found in any of the Contract Documents that conflict with these measures, the more stringent measure shall apply.

1. Table 1 presents the mitigation measures identified for the Project. Each mitigation measure is numbered according to the topical section to which it pertains in the IS/MND. As an example, Mitigation measure AIR-1 is the first mitigation measure identified in the IS/MND for the Project.

a. Elements of the MMRP which have been stricken out do not apply to this project.

b. The first column of Table 1 identifies the mitigation measure from the IS/MND.

b. The second column, entitled “Action and Implementation Timing,” describes each mitigation measure.

c. The third column, “Party Responsible for Monitoring,” names the party ultimately responsible for ensuring that the mitigation measures are implemented.

d. The fourth column “Action by Monitor,” outlines the steps for monitoring the action identified in the mitigation measure.

e. The fifth column entitled “Monitoring Timing,” states the time the monitor must ensure that the mitigation measure has been implemented.

f. The last column will be used by the District to ensure that individual mitigation measures have been monitored.
### Table 1: LMC Mitigation Monitoring and Reporting Program

<table>
<thead>
<tr>
<th>Recommended Mitigation Measures</th>
<th>Action and Implementation Timing</th>
<th>Party Responsible for Implementing Mitigation</th>
<th>Party Responsible for Monitoring</th>
<th>Action by Monitor</th>
<th>Monitoring Timing</th>
<th>Verification of Compliance Name/Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>III. AIR QUALITY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIR-1: Consistent with guidance from the BAAQMD, the District shall require contractors to include emissions control measures in construction specifications for the project. The District shall review the final construction specifications to verify that the requirements have been included prior to beginning grading and excavating activities for the project. The District shall verify via field inspection at least twice during construction that the measures are being implemented. The following actions are required:</td>
<td>Implement all the emission control measures listed in Mitigation Measure AIR-1 during construction</td>
<td>Contra Costa Community College District and construction contractor</td>
<td>Contra Costa Community College District</td>
<td>1. Review final construction specifications to ensure all requirements listed in Mitigation Measure AIR-1 are included</td>
<td>1. Before grading begins</td>
<td>Name: Date:</td>
</tr>
<tr>
<td>Idling time of diesel powered construction equipment shall be limited to 2 minutes; Alternative powered construction equipment (i.e., CNG, biodiesel, electric) shall be utilized when feasible; Add-on control devices shall be used such as diesel oxidation catalysts or particulate filters; Project construction shall be phased; and Operating hours of heavy duty equipment shall be minimized.</td>
<td></td>
<td></td>
<td></td>
<td>2. Visit project site at least twice to verify that emission control measures are being implemented</td>
<td>2. During project construction</td>
<td></td>
</tr>
</tbody>
</table>
Recommended Mitigation Measures | Action and Implementation Timing | Party Responsible for Implementing Mitigation | Party Responsible for Monitoring | Action by Monitor | Monitoring Timing | Verification of Compliance Name/Date
--- | --- | --- | --- | --- | --- | ---
AIR-2: Consistent with the guidance from the BAAQMD, the District shall include dust control measures in construction contracts and specifications for the project. The District shall verify via field inspection at least twice during construction of each project that the measures are being implemented. The following measures shall be required:
The following controls shall be implemented at all construction sites:
Water all active construction areas at least twice daily and more often during windy periods; active areas adjacent to existing land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers to control dust;
Cover all trucks hauling soil, land, and other loose materials or require all trucks to maintain at least two feet of freeboard;
Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, inactive construction areas, and staging areas at construction sites;
Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites; water sweepers shall vacuum up excess water to avoid runoff-related impacts to water quality;
Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets;
Implement the dust control measures listed in Mitigation Measure AIR-2 during construction | Contra Costa Community College District and construction contractor | Contra Costa Community College District | 1. Review final construction specifications to ensure all requirements listed in Mitigation Measure AIR-2 are included 2. Visit project site at least twice to verify that dust control measures are being implemented | 1. Before grading begins 2. During project construction | Name:  
Date:
<table>
<thead>
<tr>
<th>Recommended Mitigation Measures</th>
<th>Action and Implementation Timing</th>
<th>Party Responsible for Implementing Mitigation</th>
<th>Party Responsible for Monitoring</th>
<th>Action by Monitor</th>
<th>Monitoring Timing</th>
<th>Verification of Compliance Name/Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR-2 Continued</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enclose, cover, water twice daily, or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.); Install base rock at entryways for all existing trucks, and wash off the tires or tracks of all trucks and equipment in designated areas before leaving the site; Limit traffic speeds on unpaved roads to 15 mph; Install sandbags or other erosion control measures to prevent silt runoff to public roadways; Replant vegetation in disturbed areas as quickly as possible; and Suspend excavation and grading activity when sustained wind speeds exceed 25 mph. Sustained wind speed shall be determined by averaging observed values over a two-minute period. Wind monitoring by the construction manager shall be required at all times during excavation and grading activities.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIR-3a: Implement Mitigation Measure AIR-1.</td>
<td></td>
<td>See Mitigation Measure AIR-1</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>AIR-3b: Implement Mitigation Measure AIR-2.</td>
<td></td>
<td>See Mitigation Measure AIR-2</td>
<td></td>
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</tr>
</tbody>
</table>
### V. CULTURAL RESOURCES

**CULT-1**: The District shall inform its contractor(s) of the possibility of encountering archaeological resources during subsurface excavations by including the following directive in contract documents:

“If prehistoric or historical archaeological deposits are discovered during project activities, all work within 25 feet of the discovery shall be redirected and a qualified archaeologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations regarding the treatment of the discovery. Project personnel shall not collect or move any archaeological materials or human remains and associated materials. Adverse effects to archaeological deposits shall be avoided by project activities. If such deposits cannot be avoided, they shall be evaluated for their California Register of Historical Resources eligibility.”

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<tr>
<th>Recommended Mitigation Measures</th>
<th>Action and Implementation Timing</th>
<th>Party Responsible for Implementing Mitigation</th>
<th>Party Responsible for Monitoring</th>
<th>Action by Monitor</th>
<th>Monitoring Timing</th>
<th>Verification of Compliance Name/Date</th>
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<tbody>
<tr>
<td>CULT-1</td>
<td>1. Include the directive described in Mitigation Measure CULT-1 in contract documents &lt;br&gt;2. Evaluate any archaeological resources discovered during project construction as described in CULT-1 and submit report of findings to the District and the NWIC</td>
<td>1. Contra Costa Community College District &lt;br&gt;2. Construction contractor</td>
<td>1. Contra Costa Community College District &lt;br&gt;2. Contra Costa Community College District</td>
<td>1. Verify that the appropriate language has been incorporated in contract documents &lt;br&gt;2. Visit project site and verify that measures are being implemented and that any reports are submitted to the NWIC</td>
<td>1. Before grading begins &lt;br&gt;2. During project construction</td>
<td>Name: &lt;br&gt;Date:</td>
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<td>Recommended Mitigation Measures</td>
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<td>CULT-1 Continued</td>
<td>The Contra Costa Community College District shall verify that the language has been included in the contract documents. If the deposit is not eligible, a determination shall be made as to whether it qualifies as a “unique archaeological resource” under CEQA. If the deposit is neither a historical nor unique archaeological resource, avoidance is not necessary. If the deposit is eligible for the California Register, or is a unique archaeological resource, adverse effects shall be avoided or such effects must be mitigated. Mitigation may consist of, but is not necessarily limited to, systematic recovery and analysis of archaeological deposits; creation of a record for the resource; preparation of a report of findings; and an offer of the recovered archaeological materials to an appropriate curation facility. Public educational outreach may also be appropriate. Upon a completion of the assessment, the archaeologist shall prepare a report documenting the assessment methods and results, and provide recommendations for the treatment of the archaeological materials discovered. The report shall be submitted to the Contra Costa Community College District and the Northwest Information Center.</td>
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### Recommended Mitigation Measures

**CULT-2:** The District shall inform its contractor(s) of the sensitivity of the project area for paleontological resources by including the following directive in contract documents:

> “The subsurface at the construction site may be sensitive for paleontological resources. If paleontological resources are encountered during project construction, all ground-disturbing activities within 25 feet shall be redirected and a qualified paleontologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Project personnel shall not collect or move any paleontological materials. Paleontological resources include fossil plants and animals, and such trace fossil evidence of past life as tracks. Ancient marine sediments may contain invertebrate fossils such as snails, clam and oyster shells, sponges, and protozoa; and vertebrate fossils such as fish, whale, and sea lion bones. Vertebrate land mammals may include bones of mammoth, camel, saber tooth cat, horse, and bison. Paleontological resources also include plant imprints, petrified wood, and animal tracks.”

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<th>Recommended Mitigation Measures</th>
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<th>Party Responsible for Monitoring Mitigation</th>
<th>Action by Monitor</th>
<th>Monitoring Timing</th>
<th>Verification of Compliance Name/Date</th>
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<tr>
<td>CULT-2</td>
<td>1. Include the directive described in Mitigation Measure CULT-2 in contract documents</td>
<td>1. Contra Costa Community College District</td>
<td>1. Contra Costa Community College District</td>
<td>1. Verify that the appropriate language has been incorporated in contract documents</td>
<td>1. Before grading begins</td>
<td>Name: __________________________ Date: ______________</td>
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<td>2. Evaluate any paleontological resources discovered during project construction as described in CULT-2 and submit report of findings to the District and a paleontological repository</td>
<td>2. Construction contractor</td>
<td>2. Contra Costa Community College District</td>
<td>2. Visit project site and verify that measures are being implemented and that any reports are submitted to a paleontological repository</td>
<td>2. During project construction</td>
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The Contra Costa Community College District shall verify that the language has been included in the contract documents.
Adverse effects to such deposits shall be avoided by project activities. If avoidance is not feasible, the paleontological resources shall be evaluated for their significance. Paleontological resources are considered significant if they possess the possibility of providing new information regarding past life forms, paleoecology, stratigraphy, and geological formation processes. If the resources are not significant, avoidance is not necessary. If the resources are significant, project activities shall avoid disturbing the deposits, or the adverse effects of disturbance shall be mitigated. Mitigation may include monitoring, recording the fossil locality, data recovery and analysis, a final report, and accessioning the fossil material and technical report to a paleontological repository. Public educational outreach may also be appropriate. Upon completion of the assessment, a report documenting the assessment methods, findings, and recommendations shall be prepared and submitted to the Contra Costa Community College District, and, if paleontological materials are recovered, a paleontological repository, such as the University of California Museum of Paleontology.

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| **CULT-3**: If human remains are encountered, these remains shall be treated in accordance with HSC Section 7050.5. The project applicant shall inform its contractor(s) of the sensitivity of the project area for human remains by including the following directive in contract documents: “If human remains are encountered during project activities, work within 25 feet of the discovery shall be redirected and the County Coroner notified immediately. At the same time, an archaeologist shall be contacted, if an archaeological monitor is not present, to assess the situation and consult with agencies as appropriate. Project personnel shall not collect or move any human remains and associated materials. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Most Likely Descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods, which may include scientific removal and analysis of human remains and items associated with Native American burials.” | 1. Include the directive described in Mitigation Measure CULT-3 in contract documents 2. Stop work within 25 feet of human remains discovered during project construction; prepare and submit report of findings to the District and NWIC | 1. Contra Costa Community College District 2. Construction contractor | 1. Contra Costa Community College District 2. Contra Costa Community College District | 1. Verify that the appropriate language has been incorporated in contract documents 2. Visit project site and verify that measures are being implemented and that any reports are submitted to NWIC | 1. Before grading begins 2. During project construction | | **CULT-3 Continued**  
The Contra Costa Community College District shall verify that the language has been included in the contract documents. Upon completion of the assessment, the archaeologist shall prepare a report documenting the assessment methods and results, and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The report shall be submitted to the Contra Costa Community College District and the Northwest Information Center. | | | | | | | | | |
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<tr>
<td>VI. GEOLOGY AND SOILS</td>
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<tr>
<td>GEO-1: Implement Mitigation Measure HYD-1.</td>
<td>See Mitigation Measure HYD-1.</td>
<td>Contra Costa Community College District</td>
<td>Contra Costa Community College District</td>
<td>Verify that recommendations from geotechnical investigations are incorporated into all development plans</td>
<td>Prior to construction</td>
<td>Name: Date:</td>
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<td>GEO-2: The District shall incorporate all recommendations of a final site-specific design-level geotechnical investigation, prepared by a licensed professional, into all engineering and construction plans submitted for the project, including recommendations for grading, placement of fill materials, pretreatment of soils, and avoidance of settlement and/or differential settlement of infrastructure and buildings caused by expansive soils and protection of iron, steel, metal and concrete from deterioration caused by contact with corrosive soils.</td>
<td>Incorporate recommendations from geotechnical investigations into development plans</td>
<td>Contra Costa Community College District</td>
<td>Contra Costa Community College District</td>
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<td>VII. HAZARDS AND HAZARDOUS MATERIALS</td>
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<td>HAZ-1a: Prior to demolition of structures on the site, a comprehensive lead-based paint survey shall be conducted. If any lead-based paint is identified, it shall be removed from the site in accordance with all applicable regulations, including Occupational Safety and Health Administration (OSHA) guidelines. The District shall verify that the survey has been conducted before beginning demolition of buildings.</td>
<td>Complete a lead-based paint survey as described in Mitigation Measure HAZ-1a</td>
<td>Contra Costa Community College District</td>
<td>Contra Costa Community College District</td>
<td>Verify that the survey has been conducted</td>
<td>Before demolition begins</td>
<td>Name: Date:</td>
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<td>HAZ-1b: Prior to demolition of structures on the site, a complete Asbestos Hazard Emergency Response Act-Level Pre-Demolition Asbestos Survey shall be conducted. If asbestos is identified, a licensed asbestos abatement contractor shall be retained to abate identified asbestos-containing material in accordance with all applicable regulations. The District shall verify that the survey has been conducted before beginning demolition of buildings.</td>
<td>Complete an asbestos survey as described in Mitigation Measure HAZ-1b</td>
<td>Contra Costa Community College District</td>
<td>Contra Costa Community College District</td>
<td>Verify that the survey has been conducted</td>
<td>Before demolition begins</td>
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<td>VIII. HYDROLOGY AND WATER QUALITY</td>
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| **HYD-1:** The District shall prepare a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential impacts to surface water quality through the construction and operational periods of the project including all on- and off-site improvements. The SWPPP shall be prepared by the Facilities Division of the CCCCDD and submitted to the Division of the State Architect prior to issuance of project approvals. The SWPPP must be maintained on-site and made available to Water Board staff upon request. The SWPPP shall include specific and detailed BMPs designed to mitigate construction-related and operational period pollutants. | Facilities Division of the District shall prepare and the Division of the State Architect shall approve a SWPPP that includes requirements listed in HYD-1 | Contra Costa Community College District | Contra Costa Community College District | Verify that the SWPPP has been prepared | Before construction begins | Name:  
Date: |
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<th>Recommended Mitigation Measures</th>
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<td>HYD-1 Continued Construction Period: At a minimum, BMPs shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with stormwater. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain. An important component of the stormwater quality protection effort is the knowledge of the site supervisors and workers. To educate on-site personnel and maintain awareness of the importance of stormwater quality protection, site supervisors shall conduct regular tailgate meetings to discuss pollution prevention. The frequency of the meetings and required personnel attendance list shall be specified in the SWPPP. The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, which must include both dry and wet weather inspections. In addition, in accordance with State Board Resolution No. 2001-046, monitoring would be required during the construction period for pollutants that may be present in the runoff that are “not visually detectable in runoff.” Water Board personnel, who may make unannounced site inspections, are empowered to levy considerable fines if it is determined that the SWPPP has not been properly implemented.</td>
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<td>HYD-1 Continued</td>
<td>BMPs designed to reduce erosion of exposed soil may include, but are not limited to: soil stabilization controls, watering for dust control, perimeter silt fences, placement of fiber rolls, and sediment basins. The potential for erosion is generally increased if grading is performed during the rainy season as disturbed soil can be exposed to rainfall and storm runoff. If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control; that is, keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment wash-down facilities shall be designed to be accessible and functional during both dry and wet conditions. <strong>Operational Period: (Post-Construction Storm Water Management)</strong> The SWPPP shall include descriptions of the IMPs or BMPs to reduce pollutants in storm water discharges after all construction phases have been completed at the site (Post-Construction BMPs). Post-Construction BMPs include the minimization of land disturbance, the minimization of impervious...</td>
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<td>HYD-1 Continued surfaces, treatment of storm water runoff using infiltration, detention/retention, bio-filter BMPs, use of efficient irrigation systems, ensuring that interior building drains are not connected to a storm sewer system, and appropriately designed and constructed energy dissipation devices. These must be consistent with all applicable post-construction storm water management requirements, policies, and guidelines. The discharger must consider site-specific and seasonal conditions when designing the control practices. Operation and maintenance of control practices after construction is completed shall be addressed, including short- and long-term funding sources and the responsible party. The SWPPP shall include a discussion of the program to inspect and maintain all BMPs as identified in the site plan or other narrative documents throughout the entire life of the project. A qualified person shall be assigned the responsibility to conduct inspections. Inspections shall be performed before and after storm events and once each 24-hour period during extended storm events to identify BMP effectiveness and implement repairs or design changes as soon as feasible depending upon field conditions. Equipment, materials, and workers must be available for rapid response to failures and emergencies. All corrective maintenance to BMPs shall be performed as soon as possible after the conclusion of each storm depending upon worker safety.</td>
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<td>The SWPPP shall include operational-period BMPs that would result in treatment of an appropriate percentage of the runoff from the project including all on- and off-site improvements. The SWPPP shall include as many LID BMPs as feasible. The Facilities Division of the CCCCD shall prepare and the Division of the State Architect shall approve the SWPPP, including operational period BMPs, prior to approval of the project plans.</td>
<td>See Mitigation Measure HYD-1</td>
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<td>HYD-2: Implement Mitigation Measure HYD-1.</td>
<td>See Mitigation Measure HYD-1</td>
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<td>HYD-3: Implement Mitigation Measure HYD-1.</td>
<td>See Mitigation Measure HYD-1</td>
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<td>HYD-4: Implement Mitigation Measure HYD-1.</td>
<td>See Mitigation Measure HYD-1</td>
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**XI. NOISE**

NOISE-1: The project shall implement the following noise reduction measures:
- The District shall coordinate with the LMC campus administration and the construction contractor to schedule loud construction activities to less sensitive time periods.
- All heavy construction equipment used on the project site shall be maintained in good operating condition, with all internal combustion, engine-driven equipment fitted with intake and exhaust mufflers that are in good condition.

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<tbody>
<tr>
<td>NOISE-1</td>
<td>Implement the noise-reducing measures described in Mitigation Measure NOISE-1</td>
<td>Construction contractor</td>
<td>Contra Costa Community College District</td>
<td>Visit project site and verify that noise control measures are being implemented</td>
<td>During project construction</td>
<td>Name: Date:</td>
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PART 2 – PRODUCTS - Not Used.

PART 3 – EXECUTION - Not Used.

END OF SECTION 01415
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 1 Specification Sections shall apply to this Section without limitation.

1.2 SUMMARY

A. In Compliance with CEQA requirements, the District conducted an Initial Study to ascertain if the project may have an effect on the environment. The Initial Study identified potential impacts on the environment. However, all potential impacts of the proposed Project can be avoided or reduced to a less-than-significant level by implementation of the following mitigation measures. Contractor shall conform with the following mitigation measures, including but not limited to, the following:
   1. Noise Control
   2. Dust Control
   3. Traffic Control
   4. Spill Prevention, Control and Countermeasures
   5. Tree Protection
   6. Migratory Bird Protection
   7. Cultural Resources Protection

B. In no case shall the restrictions identified in this Section limit the Contractor’s responsibility for compliance with all Federal, state, and local safety ordinances and regulations.

1.3 NOISE CONTROL

A. The intent of this Section is to minimize construction noise within construction areas, lay-down areas, and communities adjacent to the construction site. To this end, the Contractor and all subcontractors, suppliers, and vendors, are required to comply with all applicable noise regulations, specification requirements, and the noise level limits specified herein.

B. The Contractor shall use equipment with efficient noise-suppression devices and employ other noise abatement measures such as enclosures and barriers necessary for the protection of the public, as necessary.

C. The Contractor shall schedule and conduct operations in a manner that will minimize, to the greatest extent feasible, the disturbance to the public in areas adjacent to the Work and to occupants of buildings in the vicinity of the Work.

D. Noise Control Measures. Contractor shall implement the following noise-control measures to reduce and control noise generated from construction, demolition, and construction related activities:
   1. Restrict noise-producing construction activities to between 7:00 a.m. and 7:00 p.m. on weekdays. If construction is scheduled for Saturdays or Sundays to avoid disrupting college operations, restrict noise-producing construction activities to between 9:00 a.m. and 5:00
p.m. Construction on Sundays shall be avoided, if possible, and there will be no construction on public holidays without prior written request submitted to and written approval returned by the District, at its sole discretion. A decision by the District to deny Sunday or holiday work shall not be deemed to cause a delay in the Contract Time. When activities must occur outside the hours specified above, conform with notification requirements of this Section and utilize local barriers around equipment and other noise attenuating devices if necessary to limit noise to acceptable levels.

2. Comply with all City of Pittsburg requirements regarding both allowable hours of Work and noise level limitations.

3. All construction equipment shall have appropriate mufflers, intake silencers, and other required noise-control features, shall be properly maintained and in compliance with State standards.

4. Vehicles and other gas or diesel powered equipment shall be prohibited from unnecessary warming up, idling, and engine revving.

5. Impact tools shall utilize “quiet technology” to minimize noise.

E. Secure written permission from Construction Manager at least three (3) working days prior to using noisy and vibratory equipment, such as jackhammers, concrete saws, impact tools, and high frequency electrical equipment. Cooperate with District if the use of noisy equipment becomes objectionable to college employees and/or students.

F. The work must be conducted so that nearby residents and college operations in surrounding facilities and classrooms will not be disturbed at any time during any phase of the Work including, but not limited to, the following requirements:

1. Do not use loud vocal or mechanical signals. Use of outside speakers, loud radios and similar devices are prohibited.

2. Work shall be performed in a manner to prevent nuisance conditions such as noise which exhibits a specific audible frequency or tone (e.g., backup alarms, poorly maintained equipment, brake squeal, etc.) or impact noise (e.g., jackhammers, hoe rams). The District will make any final interpretation concerning whether or not nuisance noise conditions exist. Only the District representatives and specifically designated College representatives have the authority to stop the Work until nuisance noise conditions are resolved, without additional Contract Time or compensation for the Contractor.

1.4 DUST CONTROL

A. Contractor shall implement dust control measures to protect air quality during construction to control dust emissions generated during construction, implement the following Bay Area Air Quality Management District (BAAQMD) measures for construction emissions of particulate matter over 10 microns in size (PM10).

1.5 TRAFFIC CONTROL

A. Contractor shall implement traffic control to minimize the effects of construction traffic on the campus and surrounding residential areas, as appropriate.

B. Contractor shall notify the District, Architect, Construction Manager, Project Inspector, Campus Police Department, city and county agencies, as applicable, a minimum of five (5) working days in advance of performing work which necessitates closing or interfering with traffic on public
thoroughfares, parking areas, driveways and walks. Obtain written permission prior to effecting such closures and interruptions.

1.6 SPILL PREVENTION, CONTROL AND COUNTERMEASURES

A. Contractor shall implement Spill Prevention, Control and Countermeasures to minimize the potential for and effects from spills of hazardous, toxic or petroleum substances during construction and demolition activities.

B. The federal reportable spill quantity for petroleum products, as defined in 40 CFR 110, is any oil spill that includes any of the following:

1. Violates applicable water quality standards.
2. Causes a film or sheen on or discoloration of the water surface or adjoining shoreline.
3. Causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.

C. If a spill is reportable, notify the District’s Representative and take action to contact appropriate safety and clean-up crews.

1. A written description of reportable releases must be submitted to the District’s Representative and to the San Francisco Bay Regional Water Quality Control Board (RWQCB). This submittal must contain a description of the spill, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred and a description of the steps taken to prevent and control future releases. Document the releases on a spill report form.

2. If a reportable spill has occurred and results determine that project activities have adversely affected surface water or groundwater quality, the District will engage a registered environmental assessor at Contractor’s expense for a detailed analysis to identify the likely cause of contamination. This analysis will conform to American Society for Testing and Materials (ASTM) standards and will include recommendations for reducing or eliminating the source or mechanisms of contamination.

3. Based on this analysis, the Contractor shall select and implement measures to control contamination, with a performance standard that groundwater quality must be returned to baseline conditions. These measures will be subject to approval by the District.

1.7 TREE PROTECTION

A. Definitions:

1. Dripline: If applicable, the area on the ground from the trunk of any tree to the point directly below the outermost tips of the foliage of that tree.

2. Root Protection Zone (“RPZ”): If applicable, the areas enclosed with tree protection fencing as designated on the drawing(s).

3. Tree damage: If applicable, tree damage shall include, but not limited to, the following: Significant injury to the root system or other parts of a tree including burning, application of toxic substances, damaging through contact with equipment or machinery, changing the natural grade within the Dripline or RPZ, compacting the soil within the Dripline or RPZ, interfering with the normal water requirements of the tree, unauthorized trenching or excavating within the Dripline or RPZ, or unauthorized removal of more than 1/3 of the live wood, foliage or roots.
B. Root Protection: No storage of materials or equipment will be allowed within the Dripline. Whenever possible, excavation shall be on a radial line, diverging from the tree trunk. For items of Work delayed materially beyond Date of Substantial Completion, provide update submittal within 14 Days after acceptance, listing date of acceptance as start of warranty period.

C. Exposure to harmful substances: No storage or dumping of any substances that may be harmful to trees shall occur at any location on the Site.

D. Where construction is to be performed in the vicinity of trees and shrubbery, the Work shall be carried on in a manner that will cause minimum damage. District will designate trees that are to be removed. Under no circumstances are additional trees to be removed without written permission from District. Trees and shrubbery that are not to be removed shall be protected from injury or damage resulting from Contractor’s operations.

E. Any tree that is removed without District’s permission or is irreparably damaged, in the opinion of District, shall cost Contractor in damages [$100.00] per square inch of cross section, measured at 4 ½ feet above ground, but not less than [$250.00], such cost to be deducted from monies due or to become due under the Contract. If tree protection is not performed or is not performed adequately and District determines that a tree has been irreparably damaged, Contractor shall pay the same amount of damages as for unauthorized removal of a tree. Contractor shall immediately report all tree damage to District, so that District may determine applicable damages.

1.8 MIGRATORY BIRD PROTECTION

A. If applicable, conduct vegetation and tree removal outside of the migratory bird nesting season. The typical nesting season for migratory birds in this part of California is March 1st through July 31.

B. If vegetation and tree removal must take place during the nesting season, these activities shall be preceded by a survey for nesting migratory birds by the District’s qualified ornithologist. If bird nests are discovered in the trees or on the buildings, they shall not be removed while the nest(s) are active.

1.9 CULTURAL RESOURCES PROTECTION

A. If buried cultural resources, such as chipped or ground stone, historic debris, building foundations or human bones or paleontological resources are discovered inadvertently during ground-disturbing activities, Contractor shall avoid any further disturbance of the materials and immediately discontinue earthwork within 100 feet of the find. Contractor shall notify District’s Representative immediately upon encountering cultural resources. Contractor shall be prepared to move on to another location or phase of work, allowing sufficient time for District’s Representative to evaluate the nature and significance of the find and implement appropriate management procedures.

B. In the event that prehistoric human remains are encountered, further excavation or disturbance of the site shall cease immediately, pursuant to Health and Safety Code 7050.5. Contractor shall notify District’s Representative immediately upon encountering human remains. Contractor shall move on to another location or phase of Work to allow proper assessment of the situation.

C. If human remains of Native American origin are discovered during project construction, it will be necessary to comply with State laws relating to the disposition of Native American burials, which fall under the jurisdiction of the NAHC (Public Resources Code (PRC) Section 5097. Consequently,
if any human remains are discovered or recognized in any location other than a dedicated cemetery, there will be no further excavation or disturbance of the site or any nearby areas reasonably suspected to overlie adjacent human remains:

1. Until the Contra Costa County Coroner has been informed and has determined that no investigation of the cause of death is required;
2. If the remains are of Native American origin;
   a. The descendants of the deceased Native American(s) have made a recommendation to the landowner or the person responsible for the excavation work regarding means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98 or
   b. The NAHC has been unable to identify a descendent or the descendent failed to make a recommendation within 24 hours after being notified by the NAHC.

PART 2 – PRODUCTS - Not Used.

PART 3 – EXECUTION - Not Used.

END OF SECTION 01416
SECTION 01505
CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Specification Sections shall apply to this Section without limitation.

1.2 SUMMARY

A. The District has established that this Project shall generate the least amount of waste possible and that processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors shall be employed.

B. Of the inevitable waste that is generated, as many of the waste materials as economically feasible shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized.

1.3 WASTE MANAGEMENT GOALS FOR THE PROJECT

A. The District has established that this Project shall minimize the creation of construction and demolition waste, and shall divert a minimum of 75% of Project generated waste from landfills. Factors that contribute to waste such as over packaging, improper storage, ordering error, poor planning, breakage, mishandling, and contamination, shall be minimized. Of the inevitable waste that is generated, as many of the waste materials as economically feasible shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized. Both recycled and waste need to be logged and documented by volume and weight.

B. Diversion Goals: A minimum 75% of total Project waste shall be diverted from landfill. The following waste categories, at a minimum, shall be diverted from landfill. These materials include, but not limited to:

1. Landscape and land clearing debris (green wood materials)
2. Asphalt pavement
3. Gravel and aggregate products
4. Concrete
5. Masonry scrap and rubble (brick, concrete, masonry, stone)
6. Metals (ferrous and nonferrous)
7. Clean wood (dimensional lumber, sheet goods, millwork, scrap, pallets)
8. Plastics (films, containers, PVC products, polyethylene products)
9. Asphalt/Bituminous roofing
10. Insulation Materials
11. Glass (un-tempered)
12. Door and window assemblies
13. Carpet and carpet pad
14. Fibrous acoustic materials
15. Ceiling Tiles
16. Plumbing fixtures and equipment
17. Mechanical equipment
18. Lighting fixtures and electrical components  
19. Cardboard packing and packaging  
20. Furniture  
21. Sheet Rock  
22. Electronic Waste  
23. Universal Waste  
24. Paper

1.4 REFERENCES AND RESOURCES

A. This information is provided for Contractor’s convenience only, and the District does not warrant its accuracy. County specific information is available on the Contra Costa County Waste Reduction and Recycling web page at http://www.co.contra-costa.ca.us/depart/cd/recycle/index.html. Additional information may also be found at the County conservation web page at http://www.cccounty.us/index.aspx?NID=285. Refer to the Contra Costa County Builder’s Guide to Reuse & Recycling and the Contra Costa County Recycling Guide.

B. The following sources provided for references:
   1. BuildingGreen.com
   2. California Integrated Waste Management Board
   3. EPA Office of Solid Waste and Energy Response

1.5 QUALITY ASSURANCE:

A. Regulatory Requirements. Comply with applicable requirements of the State of California, local ordinances and regulations concerning management of construction, clearing, and inert materials.

B. Disposal Site, Recyclers and Waste Materials Processors. Use only facilities properly permitted by the State of California, and/or by local authorities where applicable.

1.6 WASTE DIVERSION DOCUMENTATION

A. Provide the District with delivery receipts for the recovered materials and waste materials sent to the permitted recycling facilities, processing facilities, or landfill with the following information on a form to be approved by the District:
   1. Name of firm accepting the recovered materials or waste materials
   2. Specify type of facility (e.g. retail facility, recycler, processor, Class III landfill, MRF)
   3. Location of the facility
   4. Type of materials
   5. Net weights (or volume) of each type of material
   6. Date of delivery

B. Application for Progress Payments: Contractor shall submit with each Application for Progress Payment a Summary of the project waste generated. Failure to submit this information shall render the Application for Payment incomplete and shall delay Progress Payment. The District and its representatives shall not be responsible for delaying Progress Payments. With each Application for Payment, submit required Progress Documentation, including:
   1. manifest,
2. weight tickets,
3. receipts,
4. and invoices specifically identifying the project and waste material.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

3.1 STORAGE AND HANDLING

A. Site Storage
1. Remove materials for recycling and recovery from the work locations to approved containers or storage area as required. Failure to remove waste or recovered materials will be considered cause for withholding payment and termination of Contract.
2. Position containers for recyclable and recoverable waste materials at a designated location on the Project Site. If materials are sorted on site, also provide a sorting area and necessary storage containers.
3. Change-out loaded containers for empty containers, as demand requires.
4. If recovered materials are stored on-site for project duration provide adequate security from pilferage.

B. Handling
1. Deposit indicated recyclable, and recoverable materials in storage areas or containers in a clean (no mud, adhesive, solvents, petroleum contamination), debris-free condition. Do not deposit contaminated materials into the containers until such time as such materials have been cleaned.
2. Insure all recovered materials are made safe for handling and storage.
3. If the contamination chemically combines with the material so that it cannot be cleaned, do not deposit into the recycle containers. In such case, request resolution by the District for disposal of the contaminated material. Directions from the District do not relieve the Contractor of responsibility for compliance with all legal and regulatory requirements for disposal, nor shall such directions cause a request for modification of the Contract.

3.2 PROJECT CONDITIONS

A. Site Condition:
1. Signs and instructions should be clear, and easy to understand. All recycling containers should be clearly labeled and lists of acceptable and unacceptable materials will be posted throughout the site. Whenever possible, they should be in multiple-languages, especially in Spanish, and in graphic symbols.
2. The Contractor shall ensure the safety of all personnel involved in the waste management process.
3. A site management plan shall be created by the Contractor including: work areas, materials processing areas, materials storage and disposal areas, worker hand-washing and changing stations, first aid and medical information.

END OF SECTION 01505
SECTION 01730

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 1 Specification Sections shall apply to this section without limitation.

B. Individual Product Specification Sections:
   1. Cutting and patching incidental to work of the section.
   2. Advance notification to other sections of openings required in work of those sections.
   3. Limitations on cutting structural members.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS

A. Section 01311 – “Project Management and Coordination”

B. Divisions 22 through 26 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to new or original conditions after installation of other Work.

1.4 RESPONSIBILITIES

A. The Contractor shall be responsible for cutting, fitting, or patching to complete the Work and to make all parts fit together properly. Contractor shall be responsible for ensuring that all trades are coordinated and scheduled so as to ensure the timely and proper execution of the work. When modifying existing work or installing new Work adjacent to existing work, Contractor shall match, as closely as conditions of Site and materials will allow, the finishes, textures, and colors of the original work, refinishing existing work at no additional cost to District. All cost caused by defective or ill-timed work shall be borne by Contractor. Contractor shall be solely responsible for protecting existing work on adjacent properties and shall obtain all required permits for shoring and excavations near property lines.

B. Contractor shall be responsible for all cutting, fitting, and patching, including associated excavation and backfill, required to complete the Work. This includes, but is not limited to:
   1. Making parts fit together properly
   2. Removal and replacement of defective Work
   3. Removal and replacement of Work not conforming to requirements of Contract Documents
4. Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit
5. Attaching new materials to existing improvements
6. Painting (or other finishes) to match adjacent or existing conditions

C. Contractor shall not cut or alter any part of the Work in such a way that endangers or compromises the integrity of the Work, the work of others, or the Project.

D. New or existing structural members and elements, including reinforcing bars and seismic bracing, shall not be cut, bored, or drilled except by written authority of the Architect. Work done contrary to such authority is at the Contractor’s risk and subject to replacement at its own expense without reimbursement under the Contract. Schedule delays resulting from Agency approvals for unauthorized work shall be the Contractor’s responsibility.

E. Permission to patch any areas or items of the Work shall not constitute a waiver of the District’s or the Architect’s right to require complete removal and replacement of the areas of items of the Work if, in the opinion of the Architect or the District, the patching does not satisfactorily restore quality and appearance of the Work or does not otherwise conform to the Contract Documents.

1.5 QUALITY ASSURANCE

A. Requirements for Cutting and Patching relating to structural elements: Do not cut and/or patch structural elements in a manner that would alter their structural design characteristics.
1. Obtain written approval of the cutting and patching proposal from the Structural Engineer of Record prior to cutting and/or patching any structural elements.
2. Where cutting and patching Work involves adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure. Contractor shall be responsible for any costs associated with required Structural Engineer and/or DSA reviews and approvals.

B. Operational Limitations: Do not cut and patch operating elements or related components in a manner that would result in reducing their capacity to perform as intended. Do not cut and patch operating elements or related components in a manner that would result in increased maintenance or decreased operational life or safety.

C. Visual Requirements: Do not cut and patch exposed Work in a manner that would, in the Architect or District’s opinion, reduce the building's aesthetic qualities. Do not cut and patch construction in a manner that would result in visual evidence of cutting and patching. Remove and replace construction cut and patched in a visually unsatisfactory manner as directed by District.

D. Contractor shall ensure that all cutting, fitting, and patching shall achieve the security, strength, weather protection, and appearance for aesthetic match, efficiency, operational life, maintainability, safety of operational elements, and the continuity of existing fire ratings as required by the Contract Documents.

E. Contractor shall ensure that cutting, fitting, and patching shall successfully duplicate undisturbed adjacent profiles, materials, textures, finishes, colors, and that materials shall match existing
construction. Where there is dispute as to whether duplication is successful or has been achieved to a reasonable degree, the District’s decision shall be final.

F. Operational Elements: Do not cut and patch operating elements and/or related components in a manner that results in reducing their capacity to perform as intended, results in increased maintenance requirements, that decreases operational life, or that affects system or component safety. Operating elements include, but are not limited to the following:

1. Fire-suppression systems.
2. HVAC systems.
3. Control systems.
4. Mechanical systems piping and ducts.
5. Air smoke barriers.
6. Telephone and communication systems.
7. Electrical wiring systems.
8. Primary operational systems and equipment.

G. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or those results in increased maintenance or decreased operational life or safety.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01730
SECTION 01785
OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Specification Sections shall apply to this Section without limitation.

1.2 SUMMARY
   A. This section includes administrative and procedural requirements for Operation and Maintenance (O&M) data and documents.

1.3 FORMAT
   A. Contractor shall compile O&M manuals for all building equipment including mechanical, plumbing and electrical equipment, commissioned or not.
   B. Submit O&M Data specifically applicable to this contract and a complete and concise depiction of the provided equipment, product, or system, stressing and enhancing the importance of system interactions, troubleshooting, and long-term preventative maintenance and operation. Organize and present information in sufficient detail to clearly explain O&M requirements at the system, equipment, component, and subassembly level. Include an index preceding each submittal. Submit in accordance with this section and Section 00700, General Conditions.

1. Package Quality. Documents must be fully legible. Poor quality copies and material with hole punches obliterating the text or drawings will not be accepted.

2. Package Content. Data package content shall be as shown in the paragraph titled "Schedule of Operation and Maintenance Data Packages." Comply with the data package requirements specified in the individual technical sections, including the content of the packages and addressing each product, component, and system designated for data package submission.

3. Changes to Submittals. Manufacturer-originated changes or revisions to submitted data shall be furnished by the Contractor if a component of an item is so affected subsequent to acceptance of the O&M Data. Changes, additions, or revisions required by the Architect or District Project Manager for final acceptance of submitted data, shall be submitted by the Contractor within 30 calendar days of the notification of this change requirement.

1.4 SYSTEMS COVERED
   A. The Contractor shall supply the required information for all systems identified in Contract Documents. A separate manual or chapter shall be provided for all new equipment or systems referenced in the Contract Documents.

1.5 COMPUTER PROGRAMS
   A. When any equipment requires operation by computer programs, submit copy of original program on CD, with a hard-copy and an electronic copy (Adobe PDF format) of all user manuals and guides for operating the programs. Program shall be Windows compatible, latest edition or as requested by the District. Provide required licenses to District at no additional cost.
1.6 **SUPPLEMENTAL DATA**

A. Contractor shall prepare written text and/or special drawings to provide necessary information when manufacturer’s standard printed data is not available and/or additional information is necessary for a proper understanding and operation and maintenance of equipment or systems, or when it is necessary to supplement data included in the manual or Project documents.

1.7 **SCHEDULE OF INFORMATION FOR OPERATION AND MAINTENANCE DATA PACKAGES**

A. Supply all of the following, when and where applicable, for each O&M data package:
   1. Safety precautions
   2. Operator prestart
   3. Startup, shutdown, and post-shutdown procedures
   4. Normal operations
   5. Emergency operations
   6. Operator service requirements
   7. Environmental conditions
   8. Lubrication data
   9. Preventive maintenance plan and schedule
   10. Cleaning recommendations
   11. Troubleshooting guides and diagnostic techniques
   12. Wiring diagrams and control diagrams
   13. Maintenance and repair procedures
   14. Removal and replacement instructions
   15. Spare parts and supply list
   16. Special tools required to service or maintain the equipment
   17. Corrective maintenance man-hours
   18. Product submittal data
   19. O&M submittal data
   20. Parts identification
   21. Warranty information
   22. Personnel training requirements
   23. Testing equipment and special tool information
   24. Testing and performance data
   25. Installing Subcontractor information

**PART 2 – PRODUCTS** - Not Used.

**PART 3 – EXECUTION** - Not Used.

END OF SECTION 01785
SECTION 01820

DEMONSTRATION AND TRAINING PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Specification Sections shall apply to this Section without limitation.

1.2 SUMMARY
A. This Section includes administrative and procedural requirements for instructing District’s personnel, including the following:
   1. Demonstration of operation of systems, subsystems, and equipment
   2. Training in operation and maintenance of systems, subsystems, and equipment
   3. Demonstration and training videos

1.3 SUBMITTALS
A. At completion of training, provide two (2) complete training manuals for the District’s use.
B. Attendance Record: For each training module, provide list of participants and length of instruction time.

1.4 QUALITY ASSURANCE
A. Instructor Qualifications: A factory-authorized service representative or District approved equivalent, complying with requirements in Section 01400 Quality Control Requirements, and technical specification sections where required. Service representative shall be experienced in operation and maintenance procedures and training for Project specific systems and equipment.
B. Contractor shall coordinate instruction schedule and verify availability of educational materials, instructor’s personnel, audiovisual equipment, and facilities needed to avoid delays.
C. For instruction that must occur outdoors, review weather forecast and provide alternatives if conditions are unfavorable.

1.5 COORDINATION
A. Contractor shall coordinate instruction schedule with District Construction Manager.
B. Provide written notice, ten (10) working days in advance, to District Construction Manager and Architect prior to scheduling any instruction sessions. District Construction Manager shall furnish Contractor with names and positions of intended participants.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM
A. Program Structure: Contractor shall develop and provide instruction program that includes group training modules for each system and equipment not part of a system, but included in individual Specification Sections.
B. Training Modules: Contractor shall develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:

1. Review basis of system design
2. Operational requirements and criteria, including:
   a. System, subsystem, and equipment descriptions
   b. Operating standards
   c. Regulatory requirements
   d. Operating characteristics
   e. Limiting conditions
   f. Performance curves
3. Detailed review of documentation, including:
   a. Emergency manuals and procedures
   b. Operations manuals and procedures
   c. Maintenance manuals and procedures
   d. Identification systems
   e. Warranties and Guarantees
   f. Maintenance service agreements and similar continuing commitments
   g. Normal shutdown instructions
   h. Required sequences for electric or electronic systems
   i. Special operating instructions and procedures
   j. Troubleshooting and diagnostics
   k. Test and inspection procedures

PART 3 - EXECUTION

3.1 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.

B. Set up as required at instructional location.

END OF SECTION 01820
PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Demolition of and removal of roof systems and underlying light-weight topping slab.
B. Demolition of and removal of exterior finishes to perform the roof installation.
C. Protection of building interiors from dirt, dust and damage.

1.02 RELATED SECTIONS

A. Division 1 – General Requirements.
B. Appendix – Hazardous Material Abatement

1.03 SPECIAL JOB CONDITIONS

A. Roofing, exterior wall finish and sealant that is removed shall be made watertight and secure in the same day’s operation.
B. Contractor will verify roof demolition scope with the Construction Manager and/or Architect/Engineer prior to the start of work.
C. The site will be occupied and in use during the work.
D. The Contractor will be responsible for the building watertightness after the existing roofs are removed.

1.04 SUBMITTALS

A. The Contractor shall submit a detailed demolition plan to the Construction Manager, outlining the means and methods to be utilized in the removal, transportation and disposal of the existing roof system and related debris. The removal plan shall also include the Contractor’s proposed methods for interior and exterior protection and cleanup during removal and re-roofing operations. Identify the proposed location(s) of dumpsters.

1.05 EQUIPMENT

A. Conveyances: Buggies or wheelbarrows used on roofs shall be limited to 3/8 cubic yard capacity.
B. Chutes: Provide enclosed chutes for debris transfer from the roof vertically for a distance of 10 feet or more. Do not extend chutes in an unbroken line for more than 20 feet, without substantial breaks at intervals not greater than 20 feet. Debris shall not spill from the bottom of the chute directly onto the ground. Direct chutes into an approved construction debris container. Provide a hose with a nozzle connected to an adequate water supply, near chute outlet to wet debris as necessary for dust control.

C. Hoists/Cranes: Provide hoists or cranes to remove debris and transport materials to and from the roof. All materials shall be properly secured to prevent loose materials or debris from breaking loose from hoisting apparatus. Debris to be transported from the roof shall be placed directly in approved construction debris containers. Proper protection of wall areas for their entire height shall be provided in the form of heavy duty tarps secured or affixed to exterior walls directly adjacent to or under the area of hoisting.

D. The use of “bobcat” type removal equipment is prohibited.

E. Mechanical cutting equipment: Roof cutting equipment shall have an operable blade depth setting mechanism, in order to control the cutting depth of the blade and alleviate the potential of damage to the structural deck.

PART 2 – MATERIALS

NOT USED

PART 3 – EXECUTION

3.01 PREPARATION

A. Provide, erect, and maintain temporary barriers and security devices as required for performance of the Work.

B. Protect existing landscaping materials, appurtenances, structures, and finish materials that are not to be demolished.

C. Mark location of utilities.

D. Protect existing structures and paving from damage or displacement.

E. Where nature of demolition requires their use, erect and maintain trash and dust chutes for disposal of materials, rubbish and debris (See Paragraph 1.05).

3.02 DEMOLITION REQUIREMENTS

A. Conduct demolition to minimize interference with adjacent occupancies.
B. Conduct operations with minimum interference to public or private accesses. Maintain egress and access at all times.

3.03 DEMOLITION

A. Disconnect, cap, and identify designated utilities within demolition areas; protect those utilities to remain from damage.

B. Remove materials to be re-installed or retained. Store and protect in manner to prevent damage.

C. Remove demolished materials and debris from site.

D. Do not burn or bury materials on site.

E. Leave site in clean condition.

F. Remove temporary work.

3.04 STORAGE AND DISPOSAL

A. Items to be removed, stored, and protected for re-installation: As indicated on the Drawings and herein, including but not limited to the following:

   1. All mechanical units, condensate lines or communications items that may require removal and reinstallation during reconstruction (see Mechanical Drawings).

B. Items to be removed: As indicated on the Drawings and herein, including but not limited to the following:

   1. Roof systems, underlying lightweight topping slabs, and features as indicated on the Drawings.
   2. HVAC units and ducts (see Mechanical Drawings).

C. Debris disposal:

   1. All debris shall be transported to dumpsters at ground level by enclosed chute. Uncontrolled dropping of debris to ground level will not be permitted. Control visible emissions at the dumpster location by wetting the debris with a fine spray of water at the dumpster level and by providing a tarp cover over the dumpster.
   2. Dispose of all debris in accordance with all applicable local, State, Federal regulations for the proper transportation and disposal of roofing materials at an approved landfill.
3.05 CLEANING

A. Clean, restore and/or replace items stained, dirtied, discolored or otherwise damaged due to the Work, as required by the Owner.

B. Clean roof, building (interior and exterior), and surrounding areas so they are free of trash, debris and dirt caused by, or associated with the Work.

C. Clean out drain leaders and piping to the point where it exits the site. Water test all downspouts and gutters prior to and after construction by running water from a hose into each gutter and downspout in the presence of the Owner and/or Owner Representative.

D. Sweep site and paved areas clean daily.

END OF SECTION
SECTION 07 52 16
MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. This Section specifies requirements for the new roof systems of the main building roofs as shown on the Drawings:
1. Provide new 2-ply, cold process adhesive, modified bitumen roof membrane, 2-ply modified bitumen base flashings and strippings.

1.02 RELATED SECTIONS

A. Section 07 60 00 – Flashing and Sheet Metal
B. Section 07 90 00 - Sealants

1.03 SUBMITTALS

A. Certificates of Compliance: Roof membrane manufacturer's certification that materials are chemically and physically compatible with each other and suitable for inclusion in roof system and are acceptable for warranty specified. Do not submit materials without obtaining membrane manufacturer’s written certification. Explicitly identify in writing, difference between manufacturer's written requirements and these specifications, and membrane manufacturer’s approval of proposed asphalt source.

B. Product data: For each product specified in Part 2.

C. Shop Drawings: Plans, elevations, sections, details, and attachments to other work.
1. Base flashings, cants, and membrane termination.

D. Samples:
1. Smooth membrane sheet
E. Warranties

F. Contractor's letter certifying a minimum of 5-years commercial built-up roofing experience with list of project references, including names and phone numbers.

1.04 QUALITY ASSURANCE

A. Manufacturer Approval:

1. Installer Qualifications: Approved by manufacturer to install manufacturer's products. A single applicator with a minimum of five years previous successful experience in installations of similar systems.

2. Source Limitations: To greatest extent possible, obtain auxiliary materials for roofing system from roofing membrane manufacturer. Provide letter of acceptance from manufacturer for auxiliary materials from other sources.

3. System Approval: Provide statement from manufacturer that specified roof system meets requirements for requested warranty.

4. Comply with manufacturer's written instruction and these Specifications for roofing and associated work. Provide skilled tradesmen experienced in installation of 2-ply modified bitumen roofing systems. Foreman shall have a minimum of 5 years of previous membrane installation experience.

5. Identify in writing specific contract requirements that are not approved or warrantable by manufacturer.

B. Minimum quality standards: Comply with NRCA/ARMA publications “Quality Control Guidelines for the Application of Built-up Roofing” and “Quality Control Guidelines for Polymer Modified Bitumen Roofing”. Standards within these specifications that exceed NRCA/ARMA shall prevail.

C. Regulatory Requirements

1. Federal regulations, safety standards, and codes mandated in the United States.

2. Products Manufactured in Countries Outside of United States: Products shall be approved by governing/sanctioning entity for country in which project is located and/or product is manufactured.

3. Classified by Underwriters' Laboratories, Inc. as a Class A roof covering.
4. Classified by Factory Mutual Engineering as a Class I, approved assembly.
   
a. 1-75

5. Install in accordance with manufacturer's current published application procedures and recommendations of the National Roofing Contractor's Association.

D. Make no deviations made from this Specification or the approved shop drawings without prior written approval of Architect/Engineer.

E. Perform entire work of this Section in accordance with the best standards of practice relating to the trades involved.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original, unopened containers or packages with labels intact and legible.

B. Store materials in accordance with manufacturer's recommendations. Store rolled goods on clean raised platforms. Store other materials in dry area, protected from water and direct sunlight, and maintain at a temperature of 60 to 80 degrees Fahrenheit.

C. Provide continuous protection of materials against deterioration.

D. Materials Stored on Roof Levels for Immediate Use.
   1. Distribute to prevent concentrated loads that would impose excessive strain on deck or structural members.
   2. Positively secure to prevent displacement by wind.
   3. Tarp for protection from exposure.
   4. Cut and remove manufacturer's plastic "shrink wrapping" from materials during storage.

1.06 PROJECT CONDITIONS

A. Existing Conditions: Examine existing building and decking to determine physical conditions that affect installation of roofing.

B. Environmental Requirements:
   1. Apply roofing in dry weather.
2. Do not expose membrane and accessories to a constant temperature in excess of 180 degrees Fahrenheit.

C. Protection

1. Provide special protection or avoid heavy traffic on completed work when ambient temperature is above 80 degrees Fahrenheit.
2. Restore to original condition or replace work or materials damaged during handling or roofing materials.

D. Emergency Equipment: Maintain on-site equipment necessary to apply emergency temporary edge seal in the event of sudden storms or inclement weather.

E. A minimum of two fully charged 20-pounds dry chemical fire extinguishers in separate, easily accessible torch work locations at all times.

1.07 SEQUENCING AND SCHEDULING

A. Do not install more roofing in one day than can be night sealed with roofing and flashing in the same day.

1.08 GUARANTEES AND WARRANTIES

A. Roofing Material Manufacturer's Warranty: Install in such a manner that the roof system manufacturer will furnish a written warranty agreeing to replace/repair defective materials, including leakage of water, abnormal aging or deterioration of materials, and other failures of the materials to perform as required within warranty period. Warranty period is twenty (20) years.

B. Contractor's Workmanship Warranty: In addition, furnish a written warranty agreeing to repair/replace defective installation and workmanship labor causing leakage of water, deterioration of materials, and other failures of the installed system, sealants, painting, coatings, and related work on this project, to perform as required within the warranty period. Warranty period is two (2) years.

PART 2 – PRODUCTS

2.01 PRODUCT PERFORMANCE

A. Provide products fully compatible with substrates and other assembly components. Materials shall be approved for UL Class A fire rating service and meet FM I-75 (minimum) wind uplift requirements.

B. Modified bitumen products and systems shall comply with test methods designated in ASTM D 5147-91.
2.02 MODIFIED BITUMENT SHEETS

A. 2-ply Roofing Membrane: ASTM D 6164, Grade S, Type I or II, polyester-reinforced, SBS-modified asphalt sheet; smooth surfaced; suitable for cold process adhesive application.

1. Base Ply: Ruberoid 20 by GAF or approved equal.

2. Top Ply: Ruberoid SBS FR by GAF or approved equal.

B. Modified Bitumen Flashing Ply: ASTM D 6164, Grade S, Type I or II, polyester-reinforced, SBS-modified asphalt sheet; smooth surfaced; suitable for cold process adhesive application. Ruberoid Mop Smooth 1.5 by GAF or approved equal.

C. Modified Bitumen Top Ply: ASTM D 6164, Grade G, Type I or II, polyester-reinforced, SBS-modified asphalt sheet; white granule surfaced; suitable for application by torching. Base Ply: Ruberoid Mop Granule FR by GAF or approved equal.

2.03 AUXILIARY ROOFING MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.

B. Asphalt Primer: ASTM D 41

C. Cold-Applied Adhesive: Roofing system manufacturer's standard asphalt-based, one- or two-part, asbestos-free, cold-applied modified bitumen adhesive specially formulated for compatibility and use with roofing membrane. Field Adhesive: Matrix 102 by GAF or approved equal. Vertical Adhesive: Matrix 202 by GAF or approved equal.

D. Sealant: One-part polyurethane, gunnable grade, high performance elastomeric sealant: ASTM C 920, Type S, Grade NS, Class 25, use NT.

E. Cant Strip: wood fiber cant strips.

F. Termination Bar: 34 mm wide, pre-punched metal strip of a U-shaped profile with holes 150 mm (6 inches) on center minimum spacing used to secure vertical edge of the flashing top ply.

G. Polyethylene Slip Sheet: 6 mil minimum thick polyethylene.

I. Base Flashing Coating: SBR or SEBS Butyl rubber based bright white coating engineered to be applied over the specified roof system and to resist the affects of ponded water.

J. Insulation: EnergyGuard Tapered Polyiso Foam Roof Insulation Board by GAF or approved equal.

K. Cover Board: ½ in. thick wood fiberboard, ASTM C208.

L. Insulation and Cover Board Adhesive (Concrete Decks): GAF Olybond 500 or approved equal.

M. Insulation and Cover Board Fasteners (Wood Decks): Drill Tec Standard #12 with Drill Tec Pressure Plates by GAF or approved equal.

N. Coating: Topcat MB Plus by GAF or approved equal.

O. Liquid-Reinforced Coating: Major Seal Liquid Flashing by GAF or approved equal.

PART 3 – EXECUTION

3.01 PREPARATION

A. Verify that the substrate is suitable for membrane application.

B. Remove any loose/flaking particles, including film from removed light-weight concrete; follow manufacturer substrate recommendations.

C. Prime masonry, concrete, and sheet metal surfaces in contact with bituminous materials, including sheet metal flanges (both sides) and lead sheet at drain sumps (both sides) with asphaltic primer prior to roofing or flashing installation. Allow primer to dry thoroughly prior to installing bituminous flashings.

D. Do not deliver to site or install a material or system that has not been approved. Remove materials installed without prior approval upon Owner’s request.

E. Surfaces to receive new membrane and flashings shall be clean and thoroughly dry. Should surface moisture such as dew exist, provide necessary equipment to dry surface prior to application. Do not dry with open flames.

F. Comply with Midwest Roofing Contractors Association MRCA publication “Safety in Torch Welded Roofing” specified to operation of liquefied petroleum gas (propane) hand torches and kettle.
G. All reinforcing plies, self-adhering membrane envelopes, and base flashings must be installed concurrently with roof membrane installation work, and must be complete and up to date by end of each work week (i.e. Friday or next working day).

3.02 INSULATION AND COVER BOARD

A. Concrete Decks: Install insulation and cover boards in adhesive, following the written manufacturer instructions. Comply with the specified FM rating.

B. Wood Decks: Install and fasten the insulation and cover board with fasteners, following the manufacturer written instructions. Comply the specified FM rating.

3.03 BASE PLY MEMBRANE SHEET INSTALLATION

A. Sheets shall be laid parallel to longest dimension of tapered area to be roofed and/or perpendicular to slope of area. Application shall start at low point of area working to high point. Laps shall be parallel to slope of short dimension of tapered area and in no case shall laps buck flow of water. Stager end laps and side laps relative to base sheet laps by 12 in., minimum.

B. Unroll dry membrane on substrate and align with adjacent sheet, providing 3 in. side laps and 6 in. end laps. Stagger end laps of adjacent sheets by 12 in. minimum. Reroll approximately one-half of dry membrane sheet while maintaining alignment.

C. Apply adhesive in accordance with roof manufacturer’s written instructions. Membrane is not to be walked on while adhesive is not cured.

D. Membrane sheets shall be applied free of wrinkles, creases, fishmouths, or voids. Maintain alignment of sheets utilizing marked lap lines. Should lap lines become misaligned while unrolling, cut sheet and establish a new end lap. Do not attempt to realign a partially adhered membrane roll.

E. Inspect ply sheet application for defects. Cut wrinkles, creases, and fishmouths to relax membrane. Apply a full width strip of base ply membrane over defect in a full mopping of hot asphalt and lapped a minimum of 3 in. beyond cut. Unbonded lap seams of more than ½ in. wide shall be reheated and rolled-in.

3.04 REINFORCING PLY INSTALLATION

A. Verify that repairs have been made to field membrane in areas adjacent to flashing area.

B. Cut reinforcing plies for horizontal metal flange applications wide enough to provide full coverage of flange and 6 in. onto membrane. Ensure that membrane is solidly set with no voids. Provide 3 in. laps at end of strips.
C. Cut reinforcing plies across width of roll for base flashings at walls, curbs, and other vertical applications to lengths sufficient to provide full coverage to top of vertical element, across cant, and 6-inches onto horizontal surface of built-up membrane.

D. Provide 3-inch laps and stagger laps.

3.05 TOP PLY MEMBRANE SHEET INSTALLATION

A. Verify that all repairs have been made to the field membrane and reinforcing plies have been properly installed. Surfaces should be free of sawdust, dirt, insulation debris, and other contaminants prior to starting installation.

B. Sheets shall be laid perpendicular to the flow of water starting at the low point of the area and working to the high point. Unroll dry membrane and allow it to relax. Provide 3 in. side laps and 6 in. end laps, and stagger end laps of adjacent cap sheets by 24 in. Align the granulated side of the sheet over the selvage side of the adjacent sheet. While maintaining alignment, reroll approximately one-half of the dry membrane sheet.

C. Apply adhesive in accordance with manufacturer’s written instructions.

D. Sheets shall be applied free of wrinkles, creases, fishmouths, or voids. Maintain alignment of sheets utilizing marked lap lines. Should the lap lines become misaligned while unrolling, cut the sheet and establish a new end lap. Do not attempt to realign a partially adhered membrane roll.

E. Inspect sheet application for defects. Cut wrinkles, creases, and fishmouths to relax the membrane. Apply a full width strip of cap sheet membrane over the defect, lapped a minimum of 6 in. beyond the cut. Unbonded lap seams of more than 1/2 in. wide shall be reheated and rolled.

3.06 FLASHING AND STRIPPING SHEET INSTALLATION

A. Apply stripping sheets using detail torch manufactured specifically for roofing membrane applications.

B. Ensure that other wood, wood fiber, and other combustible components are enveloped with base sheet or ply sheet material. Maintain fire watch during and after torch applications.

C. Verify repairs have been made to field membrane in area adjacent to cant to receive flashing sheet. Snap chalk line distance of 100-mm minimum from edge of reinforcing ply and on field side of roof.
D. Install three-course flashing over termination bars and top of base flashing.

3.07 TEMPORARY PROTECTION

A. Unfinished perimeter and penetration components: Provide temporary waterstops adequate to prevent moisture intrusion into newly installed work around exposed edges and incomplete flashing locations. Remove temporary materials completely prior to continuing with subsequent work.

B. Tie-ins: Provide temporary waterstops at deck and tie-ins between newly installed and existing membrane as detailed. Inspect tie-ins thoroughly and repair as needed to provide watertight assembly prior to leaving site.

3.08 COATING

A. Ensure roof system is clean, dry and acceptable for roof coating.

B. Apply first coat over the existing exposed top ply using brush or spray applied techniques. Provide reinforcing mesh at inside and outside. Apply first coat using the manufacturer’s recommended application rates but in no case less than 2 gallons per 9.2 sm.

C. Allow first coat to dry 12-15 hours and apply second or top coat using the manufacturer’s recommended application rates but in no case less than 2 gallons per 9.2 sm. The finished product shall provide a bright white appearance.
SECTION 07 60 00
FLASHING AND SHEET METAL

PART 1 - GENERAL

1.01 SECTION INCLUDES
   A. Sheet metal flashings shown on the Drawings

1.02 RELATED WORK
   A. Section 07 52 16 – Modified Bitumen Roofing
   B. Section 07 90 00 – Sealants

1.03 REFERENCES
   A. ASTM A153 – Zinc Coating Hop Dip
   B. SMACNA – Architectural Sheet Metal Manual
   C. MIL-S-687ZB – General Specifications for Soldering Process
   D. AWS D1.1 – Structural Welding Code

1.04 SUBMITTALS
   A. Submit three (3), 6 inch by 6 inch samples, of each type and thickness of sheet metal to be used in the construction.
   B. Submit three (3), samples of gutter assembly and flashings to be used in the construction.
   C. Submit shop drawings with dimensions of all sheet metal details.
   D. Submit mill certification.
   E. Submit manufacturer literature for all accessory items in Part 2 of this Section.

1.05 STORAGE
   A. Stack performed material to prevent twisting, bending, or abrasion, and provide ventilation.
   B. Prevent contact with materials during storage, which may cause discoloration, staining or damage.
PART 2 - PRODUCTS

2.01 SHEET MATERIALS

A. Sheet Metal
   1. 22 gauge galvanized steel: ASTM A123 and A525.

B. Lead
   1. Minimum weight of 4 pounds per square foot.

C. Steel bars
   1. ASTM A36.

2.02 FINISHES

A. Not applicable.

2.03 ACCESSORIES

A. Fasteners
   1. Sheet Metal-to-Wood Blocking: No.12, 1-1/2 inch minimum long Stubbs stainless steel nails, annular-thread shank.
   2. Sheet Metal-to-Sheet Metal: No. 10, 1 inch long stainless steel sheet metal screws with metal capped neoprene washers.
   4. Unistrut: 3/8 inch diameter lag bolts, 3 inch long minimum.

B. Solder
   1. 50% tin and 50% lead.
   2. Flux: ASTM B32

C. Sealant and Backer Rod
   1. Refer to Section 07 90 00 – Sealants.

D. Miscellaneous
   2. Cold galvanized compound: Zinc-rich, spray-applied compound.

4. Drain Pipes: Schedule 40 cast iron, wall thickness ¼ in.

2.04 FABRICATION SCHEDULE

A. All sheet metal to be 22 gauge galvanized steel except as noted below.

B. Lead

1. Plumbing Vent Flashings and Caps

2.05 FABRICATION

A. Form sections true to shape, accurate in size, square and free from distortion or defects.

B. Form pieces to maximum length of 8 feet.

C. Mechanically fasten and solder watertight joints, splices and transitions which are not designed for expansion.

1. Fasten metal for strength and watertightness by solid riveting, welding or forming double lock seams.

2. Sealant for water tightness by soldering: after soldering, immediately remove all traces of acid or flux with appropriate neutralizer, followed by repeated washing and scrubbing.

3. Sealant-filled joints may not be substituted for solder joints: Use sealant as indicated on the Drawings.

D. Do not fabricate any sheet metal components without approved shop drawings and fabrication samples.

PART 3 - EXECUTION

3.01 INSPECTION

A. Field measure site conditions prior to fabricating Work Notify Architect/Engineer immediately of any inconsistency between existing conditions and the drawings.

B. Beginning of installation means acceptance of existing conditions.

3.02 PREPARATION

A. Allow substrates to dry thoroughly. Do not proceed with flashing application if moisture content of exposed wood is above 19%.
B. Clean debris from all substrates.

3.03 INSTALLATION

A. General

1. Proceed with sheet metal installation in conjunction with roofing and flashing in each area.

2. Do not dilute primers, coatings, or sealants.

3. Keep containers closed except when removing materials from them.

4. Field fabricate sheet metal following the same criteria set forth in Paragraph 2.05 – FABRICATION.

5. Except as otherwise specifically shown on the Drawings or approved shop drawings, conform to the drawing details included in the SMACNA manual.

6. Comply with Military Specification MIL-S-6872B entitled, "General Specifications for Soldering Process" when forming soldered joints. Use conduction soldering methods. Areas to be joined shall be cleaned of all oil, grease, pencil marks, paint, dirt or other foreign substances. Remove all burrs using files, grinding stones or other methods. Hold parts in place using clamps, jigs and supports or by self-fixturing. If parts are tack-soldered to hold them in place, the area of tack-soldering shall be reworked into the final soldering. Parts cannot be allowed to move during the soldering process.

7. All corners, transition and termination pieces shall be mechanically fastened and soldered to provide strength and a weatherproof connection.

8. Apply sealant over the head when using pop rivets for fastening

9. All sheet metal edges shall be hemmed 1/4 inch minimum.

10. Roof deck flanges shall be 4 inches wide minimum.

11. Set roof flanges in roof cement and nail 3 inches on center staggered.

12. Prime and flash all roof flanges (top and bottom) in accordance with this Specification.

13. Flux shall be applied to all surfaces that will receive solder. Flux-cored solder shall not be used. Flux shall be fluid when heated and be effective in removing oxides and other impurities from the joint. Flux should be readily displaced by the molten solder.
14. Areas to be joined shall be heated above the liquious temperature of the solder. To deliver maximum heat, the copper bit of the soldering iron shall be applied at the right angle so that the flat side of the iron's bit provides maximum contact area. Solder shall be applied to the joint and not the bit of the iron. Allow solder to flow in place to provide a minimum 1 inch final width of solder over the joint. Joint shall not be disturbed until it has been allowed to completely cool. After soldering, completely remove all flux and acid by washing and scrubbing with a neutralizing agent.

B. Hook Strips

1. Hook strips shall be formed with a 3 inch face and a 3/4 inch kick, bent out at a 60° angle to the face (or 30° to the wall).

2. Secure continuous hook strips to wood blocking with nails spaced at 6 inches on center.

3. Provide 1/8 inch butt joints between hook strip sections.

C. Securement Clips

1. Securement clips shall be 6 inches long, 2 inches wide, and hemmed along each side of the long dimension.

2. Secure clips to substrate with specified fasteners. Use a minimum of two (2) clips. Space clips 32” o.c. minimum.

3. Bend clips a minimum of 1 inch over bottom drip edge of counterflashing and crimp tightly.

D. Counterflashing

1. Install counterflashing in accordance with approved shop drawings and manufacturer's product data to comply with specified performance requirements. Reglet and counter flashing components shall be true to line, without buckling, creasing, warp or bind in finished surfaces.

2. Coordinate counterflashing at roof surfaces with roofing work to provide weather tight condition at roof terminations.

3. Isolate dissimilar materials to prevent electrolysis. Separate bituminous coating.

4. Secure counterflashing using continuous cleats, clips and fasteners in accordance with product data and as indicated.

E. Skirt Flashing
1. Skirt flashings shall be formed with a 4 inch face and a ¾ inch kick, bent out a 60° angle to the face (or 30° to the wall).

2. Secure skirt flashings to the existing counterflashings with stainless steel rivets at all areas where existing counterflashings are being reused. Clean existing counterflashing and apply sealant over rivets.

F. Gravel Stop and Edge Metal

1. Secure continuous hook strips with the specified fasteners as previously specified.

2. Form gravel stop/edge metal cover plates to the dimensions indicated.

3. Apply asphalt primer to both the top and bottom sides of the roof deck flanges.

4. Provide 6 inch wide cover plates, set in full bed of sealant over all 1/8-inch butt joints in sheet metal sections. Hem edges of cover plates to fit snugly against fascias. Stagger butt joints between the hook strips and the fascias.

G. Sleeve Flashing and Storm Hoods

1. Storm hood and sleeve flashing shall be formed with locked and soldered seams. Sleeves shall have integral deck flanges with hemmed edges to the configurations shown on the Drawings. Storm hood shall counterflashing sleeves flashing 3 inches, minimum.

2. Secure sleeve flashings to wood blocking and flash into roof system.

3. Storm hood shall be secured to exhaust pipe with stainless steel band clamp. Set storm hood in full bed of sealant.

H. Vent Pipes

1. Provide new vent pipe sleeve with integral roof deck flange and cap. All seams shall be locked and soldered.

2. Slide sleeve over vent pipe and secure and flash flange to wood blocking. Set cap in full bed of sealant over top of vent pipe.

3. Prior to installing flashing extend vent pipes as required in accordance with acceptable plumbing standards and codes.
I. Mechanical Unit Cover Fasteners

1. Secure existing light mechanical unit covers to wood curbs with Number 10 stainless steel wood screws with integral metal-capped neoprene washers. Install screws at 12 inches on center, maximum, with a minimum of two screws per side of curb.

2. Secure mechanical unit to curb using 1/4 inch lag bolts installed through EPDM gasketed metal cap washer. Set EPDM gasket in bed of polyurethane sealant.

K. Vent, Duct, and Fan Flashings

1. Contractor shall provide samples or shop drawing for new vent, duct, and pan flashing with sheet metal covers. Do not fabricate prior to approval of samples and shop drawings.

2. Flashings shall be fabricated to be vandal resistant with solid welds.

END OF SECTION
SECTION 07 90 00
SEALANTS

PART 1 - GENERAL

1.01 SECTION INCLUDES
A. Sealant for sheet metal joints
B. Sealant for hot pipes

1.02 RELATED SECTIONS
A. Section 07 52 16 – Modified Bitumen Membrane Roofing
B. Section 07 60 00 – Flashing and Sheet Metal

1.03 SPECIAL JOB CONDITIONS
A. Comply with application temperatures of the manufacturer.
B. The Contractor shall utilize skilled and experienced specialty workers to install the Work. Experienced trade workers shall be utilized for all aspects of the Work.

1.04 SUBMITTALS
A. Submit Manufacturer literature, specifications and color charts for the sealants and primers.

PART 2 - MATERIALS

2.01 SEALANT
A. Metal-to-metal joints: One-part polyurethane conforming to ASTM C920 such as NP-1 by Sonneborne. Color to be selected by Owner.
B. Concealed metal-to-metal joints: One-part butyl sealant conforming to ASTM C1085.
C. Hot pipes: A non-corrosive one-part silicone, with a service temperature from -60°F to +400°F, such as Dow Corning 999-A or approved equal.
2.02 ACCESSORIES

A. Backer rod: Round, closed cell polyethylene with a waxed surface; size shall be sufficient to be compressed 25% to fit the joint width.

B. Primer, cleaners and similar joint preparation materials shall be as recommended by the sealant manufacturer.

PART 3 - EXECUTION

3.01 GENERAL WORKMANSHIP

A. All materials shall be stored in secure, dry locations and be protected from the environment.

B. Follow manufacturer’s environmental limitations and material storage requirements.

C. Provide all devices (including heaters and insulation) necessary to maintain the correct temperature and humidity for proper curing.

3.02 CONCEALED SHEET METAL LOCATIONS

A. Provide sealant at all concealed sheet metal joints and as detailed.

B. Use full beads of sealant along entire length of joints.

3.03 HIGH TEMPERATURE SEALANT

A. Install high temperature sealant at high temperature locations where required. Provide a full bead of sealant beneath storm hood locations as detailed.

3.04 REPRESENTATIVE SAMPLING

A. Extract representative samples of new sealant joints for inspection as directed by and in the presence of the Owner.

END OF SECTION
SECTION 22 07 19
PLUMBING PIPING INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

1.02 REFERENCE STANDARDS

1.03 SUBMITTALS
   A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
   B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.
   C. Manufacturer's Instructions: Indicate installation procedures that ensure acceptable workmanship and installation standards will be achieved.

1.04 QUALITY ASSURANCE
   A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.
   B. Applicator Qualifications: Company specializing in performing the type of work specified in this section with minimum three years of experience.

1.05 DELIVERY, STORAGE, AND HANDLING
   A. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.

1.06 FIELD CONDITIONS
   A. Maintain ambient conditions required by manufacturers of each product.
   B. Maintain temperature before, during, and after installation for minimum of 24 hours.

PART 2 PRODUCTS

2.01 REQUIREMENTS FOR ALL PRODUCTS OF THIS SECTION
   A. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E 84, NFPA 255, or UL 723.

PART 3 EXECUTION

3.01 EXAMINATION
   A. Verify that piping has been tested before applying insulation materials.
   B. Verify that surfaces are clean and dry, with foreign material removed.

3.02 INSTALLATION
   A. Install in accordance with manufacturer's instructions.

3.03 SCHEDULES

END OF SECTION
SECTION 22 10 05
PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Pipe, pipe fittings, valves, and connections for piping systems.
   1. Domestic water.

1.02 REFERENCE STANDARDS
A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; The American Society of Mechanical Engineers; 2012 (ANSI/ASME B16.18).
B. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings; The American Society of Mechanical Engineers; 2013.
C. ASME B16.23 - Cast Copper Alloy Solder Joint Drainage Fittings - DWV; The American Society of Mechanical Engineers; 2011.
D. ASME B16.26 - Cast Copper Alloy Fittings for Flared Copper Tubes; The American Society of Mechanical Engineers; 2011.
E. ASME B31.9 - Building Services Piping; The American Society of Mechanical Engineers; 2011 (ANSI/ASME B31.9).
I. AWWA C651 - Disinfecting Water Mains; American Water Works Association; 2005 (ANSI/AWWA C651).

1.03 SUBMITTALS
A. See Division 1 for submittal procedures.
B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.
C. Pipe Test Reports: Submit pipe pressure test reports for all piping installed under this contract indicating that piping systems have been tested in accordance with the California Plumbing Code.

1.04 QUALITY ASSURANCE
A. Perform work in accordance with applicable codes.
B. Valves: Manufacturer's name and pressure rating marked on valve body.
C. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.

1.05 REGULATORY REQUIREMENTS
A. Perform Work in accordance with State of California plumbing code.
B. All wetted parts of pipes, pipe and plumbing fittings, and fixtures for use in potable water systems shall be in compliance with California state bill AB1953, which served to amend California’s Health and Safety Code 116875 (effective January 1, 2010). Lead content shall not exceed 0.25% by weight.
1.06 DELIVERY, STORAGE, AND HANDLING
A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
B. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
C. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

PART 2 PRODUCTS
2.01 WATER PIPING, ABOVE GRADE
A. Copper Tube: ASTM B88 (ASTM B88M), Type L (B), Drawn (H).
   1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.

2.02 FLANGES, UNIONS, AND COUPLINGS

PART 3 EXECUTION
3.01 PREPARATION
A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
B. Remove scale and dirt, on inside and outside, before assembly.
C. Prepare piping connections to equipment with flanges or unions.

3.02 INSTALLATION
A. Install and test all plumbing piping systems in strict accordance with the California Plumbing Code.
B. Install in accordance with manufacturer's instructions.
C. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
D. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
E. Install piping to maintain headroom, conserve space, and not interfere with use of space.
F. Group piping whenever practical at common elevations.
G. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings. Refer to Section 22.07.19.
H. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
I. Install water piping to ASME B31.9.
J. Sleeve pipe passing through roof.

3.03 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM
A. Prior to starting work, verify system is complete, flushed and clean.
B. Ensure pH of water to be treated is between 7.4 and 7.6 by adding alkali (caustic soda or soda ash) or acid (hydrochloric).
C. Inject disinfectant, free chlorine in liquid, powder, tablet or gas form, throughout system to obtain 50 to 80 mg/L residual.
D. Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets.
E. Maintain disinfectant in system for 24 hours.
F. If final disinfectant residual tests less than 25 mg/L, repeat treatment.

G. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.

H. Take samples no sooner than 24 hours after flushing, from 10 percent of outlets and from water entry, and analyze in accordance with AWWA C651.

END OF SECTION
SECTION 22 10 06
PLUMBING PIPING SPECIALTIES

PART 1 GENERAL
1.01 SECTION INCLUDES
   A. Hose bibbs.

1.02 REFERENCE STANDARDS
   A. ASSE 1011 - Hose Connection Vacuum Breakers; American Society of Sanitary Engineering; 2004 (ANSI/ASSE 1011).

1.03 SUBMITTALS
   A. See Division 1 for Submittal Procedures.
   B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.
   C. Manufacturer's Instructions: Indicate Manufacturer's Installation Instructions: Indicate assembly and support requirements.
   D. Maintenance Data: Include installation instructions, spare parts lists, exploded assembly views.

1.04 QUALITY ASSURANCE
   A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING
   A. Accept specialties on site in original factory packaging. Inspect for damage.

PART 2 PRODUCTS
2.01 HOSE BIBBS
   A. Manufacturers:
   B. Hose Bibbs:
      1. Bronze or brass with integral mounting flange, replaceable hexagonal disc, hose thread spout, chrome plated where exposed with handwheel, integral vacuum breaker in conformance with ASSE 1011.
      2. All wetted parts of pipe, valves, equipment and appurtenances for use in potable water systems shall be in compliance with the Reduction of Lead in Drinking Water Act, amendments to Section 1417 of the Safe Drinking Water Act which are effective January 4, 2014. Lead content shall not exceed 0.25% by weight.

PART 3 EXECUTION
3.01 INSTALLATION
   A. Install in accordance with manufacturer's instructions.

END OF SECTION
SECTION 23 05 19
METERS AND GAGES FOR HVAC PIPING

PART 1 GENERAL
1.01 SECTION INCLUDES
   A. Pressure gages and pressure gage taps.
   B. Thermometers and thermometer wells.

1.02 REFERENCE STANDARDS
   A. ASME B40.100 - Pressure Gauges and Gauge Attachments; The American Society of
      Mechanical Engineers; 2005.

1.03 SUBMITTALS
   A. See Division 1.
   B. Product Data: Provide list that indicates use, operating range, total range and location for
      manufactured components. Indicate scale range, figure interval and minor graduation markings
      for all pressure and compound ranges.

1.04 FIELD CONDITIONS
   A. Do not install instrumentation when areas are under construction, except for required rough-in,
      taps, supports and test plugs.

PART 2 PRODUCTS
2.01 PRESSURE GAGES
   A. Manufacturers:
      1. Ashcroft Model Duragage; Model 1279:
   B. Gage: ASME B40.1, phenolic case, phosphor bronze bourdon tube, rotary geared brass
      movement, brass socket, with front recalibration adjustment, black scale on white background.
      1/2" NPT bottom system connection.
      1. Size: 4-1/2 inch diameter.
      2. Mid-Scale Accuracy: 1/2 percent.
      3. Scale: Psi.

2.02 PRESSURE GAGE TAPPINGS
   A. Gage Cock: Tee or lever handle, brass for maximum 150 psi.

2.03 DIGITAL THERMOMETERS
   A. Manufacturers:
      1. Size: 3-1/2 inch industrial stem
      2. Display: 3/8" LCD digits, wide ambient formula.
      3. Accuracy: 1 percent.
      4. Resolution: 1/10 Degrees F between -19.9/199.9 Degrees F
      5. Range: -40/300 Degrees F
      6. Ambient Operating Temperatures: -30/140 Degrees F
      7. Power: Integrated Photo Voltaic Cells

2.04 THERMOMETER SUPPORTS
   A. Socket: Brass separable sockets for thermometer stems with or without extensions as required,
      and with cap and chain.
2.05 CONTROLS SUPPORTS
A. Provide taps: Forged, ASTM A105 carbon steel, threaded branch connection suitable for sizes and schedules to be connected for 150 psig working pressure. Bonney Forge Thred-o-let or approved equal. Coordinate with Controls Subcontractor for size, location and quantities.

2.06 TEST PLUGS
A. Test Plug: 1/4 inch or 1/2 inch brass fitting and cap for receiving 1/8 inch outside diameter pressure or temperature probe with neoprene core for temperatures up to 200 degrees F.

PART 3 EXECUTION
3.01 INSTALLATION
A. Install in accordance with manufacturer's instructions.
B. Provide one pressure gage per pump, installing taps before strainers and on suction and discharge of pump. Pipe to gage.
C. Install thermometers in piping systems in sockets in short couplings. Enlarge pipes smaller than 2-1/2 inch for installation of thermometer sockets. Ensure sockets allow clearance from insulation.
D. Install thermometer sockets adjacent to controls systems thermostat, transmitter, or sensor sockets.
E. Provide instruments with scale ranges selected according to service with largest appropriate scale.
F. Install gages and thermometers in locations where they are easily read from normal operating level. Install vertical to 45 degrees off vertical.
G. Adjust gages and thermometers to final angle, clean windows and lenses, and calibrate to zero.
H. Locate test plugs adjacent thermometers and thermometer sockets.

END OF SECTION

Contra Costa Community College District
Los Medanos College
L-527 Mechanical Systems Upgrade

METERS AND GAGES FOR HVAC PIPING

23 05 19 - 2
SECTION 23 05 53
IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL
1.01 SECTION INCLUDES
A. Nameplates.
B. Tags.
C. Pipe Markers.

1.02 REFERENCE STANDARDS

1.03 SUBMITTALS
A. See Division 1 for submittal procedures.
B. List: Submit list of wording, symbols, letter size, and color coding for mechanical identification.
C. Product Data: Provide manufacturers catalog literature for each product required.

PART 2 PRODUCTS
2.01 IDENTIFICATION APPLICATIONS
A. Air Handling Units: Nameplates.
B. Reheat Coil: Tags.
C. Automatic Controls: Tags. Key to control schematic.
D. Control Panels: Nameplates.
E. Major Control Components: Nameplates.
F. Piping: Pipe markers.
G. Pumps: Nameplates.
H. Valves: Tags and ceiling tacks where located above lay-in ceiling.

2.02 NAMEPLATES
A. Manufacturers:
   2. Kolbi Pipe Marker Co.: www.kolbipipemarkers.com
   4. Substitutions: See Division 1.
   7. Background Color: Black.

2.03 TAGS
A. Manufacturers:
   1. Advanced Graphic Engraving: www.advancedgraphicengraving.com
   2. Brady Corporation: www.bradyCorp.com
   5. Substitutions: See Division 1.
B. Plastic Tags: Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inch diameter.
C. Metal Tags: Brass with stamped letters; tag size minimum 1-1/2 inch diameter with smooth edges.

2.04 PIPE MARKERS
A. Manufacturers:
   2. Kolbi Pipe Marker Co.: www.kolbipipemarkers.com
   5. Substitutions: See Division 1.
B. Color: Conform to ASME A13.1.
C. Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid being conveyed.
D. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

PART 3 EXECUTION
3.01 PREPARATION
A. Degrease and clean surfaces to receive adhesive for identification materials.

3.02 INSTALLATION
A. Install nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.
B. Install tags with corrosion resistant chain.
C. Install plastic pipe markers in accordance with manufacturer's instructions.
D. Install plastic tape pipe markers complete around pipe in accordance with manufacturer's instructions.
E. Use tags on piping 3/4 inch diameter and smaller.
F. For pipe markers, tape or tags:
   1. Identify service, flow direction, and pressure.
   2. Install in clear view and align with axis of piping.
   3. Locate identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and Tee, at each side of penetration of structure or enclosure, and at each obstruction.

END OF SECTION
SECTION 23 05 93
TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 GENERAL
1.01 SECTION INCLUDES
A. Testing, adjustment, and balancing of air systems.
B. Testing, adjustment, and balancing of heating hot water and chilled water systems.
C. Measurement of final operating condition of HVAC systems.

1.02 REFERENCE STANDARDS

1.03 SUBMITTALS
A. See Division 1 - Administrative Requirements, for submittal procedures
B. Qualifications: Submit name of adjusting and balancing agency and TAB supervisor for approval within 30 days after award of Contract.
C. TAB Plan: Submit a written plan indicating the testing, adjusting, and balancing standard to be followed and the specific approach for each system and component.
   1. Submit to Engineer.
   2. Include certification that the plan developer has reviewed the contract documents, the equipment and systems, and the control system with the Engineer and other installers to sufficiently understand the design intent for each system.
   3. Include at least the following in the plan:
      a. List of all air flow, water flow, sound level, system capacity and efficiency measurements to be performed and a description of specific test procedures, parameters, formulas to be used.
      b. Copy of field checkout sheets and logs to be used, listing each piece of equipment to be tested, adjusted and balanced with the data cells to be gathered for each.
      c. Identification and types of measurement instruments to be used and their most recent calibration date.
      d. Discussion of what notations and markings will be made on the duct and piping drawings during the process.
      e. Final test report forms to be used.
      f. Detailed step-by-step procedures for TAB work for each system and issue, including:
         1) Terminal flow calibration (for each terminal type).
         2) Diffuser proportioning.
         3) Branch/submain proportioning.
         4) Total flow calculations.
         5) Rechecking.
         6) Diversity issues.
      g. Expected problems and solutions, etc.
      h. Details of how TOTAL flow will be determined; for example:
         1) Air: Sum of terminal flows via control system calibrated readings or via hood readings of all terminals, supply (SA) and return air (RA) pitot traverse, SA or RA flow stations.
      i. Specific procedures that will ensure that both air and water side are operating at the lowest possible pressures and methods to verify this.
j. Confirmation of understanding of the outside air ventilation criteria under all conditions.
k. Method of verifying and setting minimum outside air flow rate will be verified and set and for what level (total building, zone, etc.).
l. Method of checking building static and exhaust fan and/or relief damper capacity.
m. Procedures for field technician logs of discrepancies, deficient or uncompleted work by others, contract interpretation requests and lists of completed tests (scope and frequency).
n. Procedures for formal deficiency reports, including scope, frequency and distribution.

D. Control System Coordination Reports: Communicate in writing to the controls installer all setpoint and parameter changes made or problems and discrepancies identified during TAB that affect, or could affect, the control system setup and operation.

E. Final Report: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.
1. Revise TAB plan to reflect actual procedures and submit as part of final report.
2. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for Engineer and for inclusion in operating and maintenance manuals.
3. Provide reports in soft cover, letter size, 3-ring binder manuals, complete with index page and indexing tabs, with cover identification at front and side. Include set of reduced drawings with air outlets and equipment identified to correspond with data sheets, and indicating thermostat locations.
4. Include actual instrument list, with manufacturer name, serial number, and date of calibration.
5. Form of Test Reports: Where the TAB standard being followed recommends a report format use that; otherwise, follow ASHRAE Std 111.
6. Units of Measure: Report data in I-P (inch-pound) units only.
7. Include the following on the title page of each report:
   a. Name of Testing, Adjusting, and Balancing Agency.
   b. Address of Testing, Adjusting, and Balancing Agency.
   c. Telephone number of Testing, Adjusting, and Balancing Agency.
   d. Project name.
   e. Project location.
   f. Project Engineer.
   g. Project Contractor.
   h. Report date.

1.04 QUALITY ASSURANCE
A. Perform total system balance in accordance with AABC MN-1, ASHRAE Std 111, or NEBB Procedural Standards for Testing, Balancing and Adjusting of Environmental Systems.
B. TAB Agency Qualifications: Company specializing in the testing, adjusting, and balancing of systems specified in this Section with minimum three years documented experience certified by AABC.

C. Perform Work under supervision of AABC Certified Test and Balance Engineer or NEBB Certified Testing, Balancing and Adjusting Supervisor experienced in performance of this Work and licensed in California.

1.05 SEQUENCING AND SCHEDULING
A. Sequence work to commence after completion of systems and schedule completion of work before Substantial Completion of Project.

1.06 WARRANTY
A. Furnish AABC National Performance Guaranty for this project.
PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Test Instruments:
   1. Balancing Contractor shall provide all necessary test instruments required to take
      readings including, but not limited to: Pressure gauges, thermometers, humidity
      instruments, sling psychrometers, flow meter read out instruments (differential pressure
      gauges, etc.), air flow hoods, pitot tubes, anemometers, ammeters, voltmeters,
      tachometers, sound level meters, vibration analyzers, etc., as required to perform
      measurements required to perform the work of this section and applicable Commissioning
      specifications. These instruments are considered to be the property of the balancing
      contractor and required for usual performance of testing and balancing work. No
      allowance will be made for contractor's failure to provide adequate test instruments.

B. Incidental Equipment and Materials:
   1. Balancing Contractor shall provide at his own expense incidental and/or temporary
      equipment required to make such readings as required for the performance of this work.
      Such incidentals include but are not limited to: pipe nipples, couplings, tees, elbows, plugs
      and caps, gauge valves, teflon tape, and other miscellaneous fittings required to make
      readings required for balancing work. Incidental materials and fittings shall be removed
      and the facility restored to 'as found' condition after completion of readings and balancing
      activities.

C. Tools and Labor:
   1. Balancing Contractor shall provide all tools and labor required to effect necessary
      readings for balancing work, including but not limited to electric drill and bits, wrenches,
      pliers, screwdrivers, teflon tape, flashlights, rags, pocket knife or leatherman, pencils,
      pens, test forms, paper, and other minor tools required for work of this section.
   2. Provide labor to alter minor piping and other systems to allow temporary installation of test
      gages and thermometers, etc., required to make necessary readings. This includes
      removal of plugs on pump castings and temporary installation of piping, valves, gauges
      and nipples required to attach pressure gauges for readings, drilling required holes in
      ductwork and subsequent installation of plugs to allow ductwork pitot tube traverses,
      connections to flow elements, including a reasonable effort to clear obstructions from test
      ports, etc. Remove temporary fittings, valves and gauges at completion of readings and
      restore equipment to 'as found' condition.

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. Perform total system balance in accordance with one of the following:
   1. AABC MN-1, AABC National Standards for Total System Balance.
   2. ASHRAE Std 111, Practices for Measurement, Testing, Adjusting and Balancing of
   4. Maintain at least one copy of the standard to be used at project site at all times.

B. Begin work after completion of systems to be tested, adjusted, or balanced and complete work
   prior to Substantial Completion of the project.

C. Where HVAC systems and/or components interface with life safety systems, including fire and
   smoke detection, alarm, and control, coordinate scheduling and testing and inspection
   procedures with the authorities having jurisdiction.

D. TAB Agency Qualifications:
   1. Company specializing in the testing, adjusting, and balancing of systems specified in this
      section.
   2. Having minimum of three years documented experience.
   3. Certified by one of the following:


E. TAB Supervisor and Technician Qualifications: Certified by same organization as TAB agency.

F. Coordinate with controls contractor for work needed to complete test and balance work. Also see sequence of operation on controls sheet on plans for TAB work to be completed for the controls work.

3.02 EXAMINATION

A. Verify that systems are complete and operable before commencing work. Ensure the following conditions:
   1. Systems are started and operating in a safe and normal condition.
   2. Temperature control systems are installed complete and operable.
   3. Proper thermal overload protection is in place for electrical equipment.
   4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
   5. Duct systems are clean of debris.
   6. Fans are rotating correctly.
   7. Fire and volume dampers are in place and open.
   8. Air coil fins are cleaned and combed.
   9. Access doors are closed and duct end caps are in place.
  10. Air outlets are installed and connected.
  11. Duct system leakage is minimized.
  12. Hydronic systems are flushed, filled, and vented.
  13. Pumps are rotating correctly.
  14. Proper strainer baskets are clean and in place.
  15. Service and balance valves are open.

B. Submit field reports. Report defects and deficiencies that will or could prevent proper system balance.

C. Beginning of work means acceptance of existing conditions.

3.03 PREPARATION

A. Hold a pre-balancing meeting at least one week prior to starting TAB work.
   1. Require attendance by all installers whose work will be tested, adjusted, or balanced.
      Required attendance by personnel that will actually be performing the balancing work.
   
B. Provide instruments required for testing, adjusting, and balancing operations. Make instruments available to Engineer to facilitate spot checks during testing.

C. Provide additional balancing devices as required.

3.04 ADJUSTMENT TOLERANCES

A. Air Handling Systems: Adjust to within plus or minus 5 percent of design for supply systems and plus or minus 10 percent of design for return and exhaust systems.

B. Air Outlets and Inlets: Adjust total to within plus 10 percent and minus 5 percent of design to space. Adjust outlets and inlets in space to within plus or minus 10 percent of design.

C. Hydronic Systems: Adjust to within plus or minus 10 percent of design.

3.05 RECORDING AND ADJUSTING

A. Field Logs: Maintain written logs including:
   1. Running log of events and issues.
   2. Discrepancies, deficient or uncompleted work by others.
   4. Lists of completed tests.

B. Ensure recorded data represents actual measured or observed conditions.
C. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.

D. Mark on the drawings the locations where traverse and other critical measurements were taken and cross reference the location in the final report.

E. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.

F. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

G. At final inspection, recheck random selections of data recorded in report. Recheck points or areas as selected and witnessed by the District.

3.06 AIR SYSTEM PROCEDURE

A. After systems are balanced, work with the controls contractor to determine optimal final setpoint of fan system static pressure controls. Final setpoint shall be determined by supplying design airflow to all zones with one box throttling.

B. Adjust air handling and distribution systems to provide required or design supply, return, and exhaust air quantities at site altitude.

C. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of duct.

D. Measure air quantities at air inlets and outlets.

E. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.

F. Use volume control devices to regulate air quantities only to extend that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers and splitters.

G. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required, including sheaves and labor. Vary branch air quantities by damper regulation.

H. Provide system schematic with required and actual air quantities recorded at each outlet or inlet.

I. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across the fan. Make allowances for 50 percent loading of filters.

J. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design conditions.

K. Measure temperature conditions across outside air, return air, and exhaust dampers to check leakage.

L. Where modulating dampers are provided, take measurements and balance at extreme conditions. Balance variable volume systems at maximum air flow rate, full cooling, and at minimum air flow rate, full heating.

M. Measure building static pressure and adjust supply, return, and exhaust air systems to provide required building pressure near the building entries.

N. See outside air setting per sequence of operations on drawings.

3.07 WATER SYSTEM PROCEDURE

A. Adjust water systems to provide required or design quantities.

B. Use calibrated Venturi tubes, orifices, or other metered fittings and pressure gauges to determine flow rates for system balance. Where flow metering devices are not installed, base flow balance on temperature difference across various heat transfer elements in the system.
C. Adjust systems to provide specified pressure drops and flows through heat transfer elements prior to thermal testing. Perform balancing by measurement of temperature differential in conjunction with air balancing.

D. Effect system balance with automatic control valves fully open to heat transfer elements.

E. Effect adjustment of water distribution systems by means of balancing cocks, valves, and fittings. Do not use service or shut-off valves for balancing unless indexed for balance point.

F. Where available pump capacity is less than total flow requirements or individual system parts, full flow in one part may be simulated by temporary restriction of flow to other parts.

3.08 SCOPE

A. Test, adjust, and balance the following:
   1. HVAC Pumps
   2. Air Coils
   3. Air Handling Units
   4. Air Inlets and Outlets

3.09 MINIMUM DATA TO BE REPORTED

A. Electric Motors:
   1. Manufacturer
   2. Model/Frame
   3. HP/BHP
   4. Phase, voltage, amperage; nameplate, actual, no load
   5. RPM
   6. Service factor
   7. Starter size, rating, heater elements
   8. Sheave Make/Size/Bore

B. V-Belt Drives:
   1. Identification/location
   2. Required driven RPM
   3. Driven sheave, diameter and RPM
   4. Belt, size and quantity
   5. Motor sheave diameter and RPM
   6. Center to center distance, maximum, minimum, and actual

C. Pumps:
   1. Identification/number
   2. Manufacturer
   3. Size/model
   4. Impeller
   5. Service
   6. Design flow rate, pressure drop, BHP
   7. Actual flow rate, pressure drop, BHP
   8. Discharge pressure
   9. Suction pressure
   10. Total operating head pressure
   11. Shut off, discharge and suction pressures
   12. Shut off, total head pressure

D. Cooling Coils:
   1. Identification/number
   2. Location
   3. Service
   4. Manufacturer
   5. Air flow, design and actual
   6. Entering air DB temperature, design and actual
7. Entering air WB temperature, design and actual
8. Leaving air DB temperature, design and actual
9. Leaving air WB temperature, design and actual
10. Water flow, design and actual
11. Water pressure drop, design and actual
12. Entering water temperature, design and actual
13. Leaving water temperature, design and actual
14. Saturated suction temperature, design and actual
15. Air pressure drop, design and actual

E. Heating Coils:
1. Identification/number
2. Location
3. Service
4. Manufacturer
5. Air flow, design and actual
6. Water flow, design and actual
7. Water pressure drop, design and actual
8. Entering water temperature, design and actual
9. Leaving water temperature, design and actual
10. Entering air temperature, design and actual
11. Leaving air temperature, design and actual
12. Air pressure drop, design and actual

F. Reheat Coils:
1. Identification/number
2. Location
3. Service
4. Manufacturer
5. Air flow, design and actual
6. Water flow, design and actual
7. Water pressure drop, design and actual
8. Entering water temperature, design and actual
9. Leaving water temperature, design and actual
10. Entering air temperature, design and actual
11. Leaving air temperature, design and actual
12. Air pressure drop, design and actual

G. Air Handling Unit:
1. Location
2. Manufacturer
3. Model number
4. Serial number
5. Arrangement/Class/Discharge
6. Air flow, specified and actual
7. Return air flow, specified and actual
8. Minimum outside air at low speed and high speed
9. Total static pressure (total external), specified and actual
10. Inlet pressure
11. Discharge pressure
12. Sheave Make/Size/Bore
13. Number of Belts/Make/Size
14. Fan RPM

H. Air Distribution Tests:
1. Air terminal number
2. Room number/location
3. Terminal type
4. Terminal size
5. Area factor
6. Design velocity
7. Design air flow
8. Test (final) velocity
9. Test (final) air flow
10. Percent of design air flow

END OF SECTION
SECTION 23 07 13
DUCT INSULATION

PART 1 GENERAL
1.01 SUMMARY
   A. Ductwork Insulation

1.02 QUALITY ASSURANCE
   A. Qualification of Workers: Use proficient journeyman insulators and supervisors in the execution
      of this portion of the work to ensure proper and adequate installation of insulation throughout. A
      firm with at least 5 years successful installation experience on projects with installations similar
      to that required for this project.
   B. Compliance with Specifications:
      1. Whenever required during progress of the work, furnish proof acceptable to the District
         that items installed are equal to or exceed requirements specified for this work.
      2. In the event such proof is not available, or is not acceptable to the District, the District may
         require the Contractor to remove the item or items and replace with material meeting the
         specified requirements and to repair damage caused in the removal and replacement, at
         no additional cost to the District.
      3. Install per manufacturer’s written instructions.
      4. As a minimum, comply with appropriate state energy code or other applicable codes.
      5. Duct insulation products to contain less than 0.1 percent by weight PBDE in all insulating
         materials.

1.03 SUBMITTALS
   A. Product Data: Submit manufacturer’s technical data and installation instructions for each type
      of insulation, jacket, glue, paint, fitting cover, and accessory. Submit schedule showing
      manufacturer’s product number, thickness, and furnished accessories for duct system requiring
      insulation.

1.04 PRODUCT HANDLING
   A. Protection: Use all means necessary to protect insulation materials before, during and after
      installation.
   B. Replacements: In the event of damage, immediately make repairs and replacements
      necessary.

1.05 LINING MATERIALS
   A. Materials to be mold-, humidity-, and erosion-resistant surface that meets the requirements of
      UL 181.

1.06 FIRE HAZARD CLASSIFICATION
   A. Maximum fire hazard classification of the composite insulation construction as installed to be
      not more than a flame spread of 25, fuel contributed of 50 and smoke developed of 50 as
      tested by ASTM E84 (NFPA 255) method.
   B. Test duct insulation in accordance with ASTM E84 and bear the UL label.

PART 2 PRODUCTS

2.01 MANUFACTURERS
   A. Armacell LLC Armaflex, Certainteed, Johns Mansville, Knauf, Owens-Corning, PPG, or
      approved.

2.02 TYPE A, FLEXIBLE FIBERGLASS BLANKET
   A. ASTM C553, Type 1, Class B-2; flexible blanket.
   B. 'K' Value: 0.27 BTU/IN/(HR*SF*F) at 75 degrees F installed, maximum service temperature: 250
      degrees F.
C. Density: 0.75 pounds per cubic foot.
D. Vapor Barrier Jacket: FSK aluminum foil reinforced with fiberglass yarn and laminated to fire resistant Kraft, secured with UL listed pressure sensitive tape or outward clinched expanded staples and vapor barrier mastic as needed.

2.03 TYPE B, DUCT LINER
A. ASTM C1071; flexible blanket.
B. ’K’ Value: ASTM C518, 0.25 BTU-in/(hr*ft²) at 75 degrees F, maximum service temperature: 250 degrees F.
C. Noise Reduction Coefficient: 0.65 or higher based on "Type A mounting."
D. Maximum Velocity on Mat or Coated Air Side: 5,000 FPM.
E. Adhesive: UL listed waterproof type.
F. Fasteners: Duct liner galvanized steel pins. Welded or mechanically fastened.
G. Erosion-Resistant Services: UL 181.
H. ASTM G21 and ASTM G22 Microbial Growth Resistance.

2.04 OUTDOOR DUCTING
A. Aluminum Jacket: 0.016-inch-thick sheet, smooth/embossed finish, with longitudinal slip joints and 2-inch laps.
B. Nonwater vapor retarder, nonburning, weatherproof coating for use over insulation where “breathing” is required.
C. UV resistant polyvinyl chloride covering with joints secured and sealed.

2.05 JACKETING
B. Canvas Jacket: UL listed fabric, 6 oz/sq.yd., plain weave cotton treated with dilute fire retardant lagging adhesive.
C. Aluminum Jacket: 0.016-inch-thick sheet, (smooth/embossed) finished, with longitudinal slip joints and 2-inch laps, die-shaped fitting covers with factory attached protective liner.
D. Stainless Steel Jacket: Type 304 stainless steel, 0.010 inch, (smooth/corrugated) finish.

PART 3 EXECUTION
3.01 VERIFICATION OF CONDITIONS
A. Do not apply insulation until pressure testing of the ducts has been completed. Do not apply insulation until the duct has been inspected.
B. Examine areas and conditions under which duct insulation will be installed. Do not proceed with work until unsatisfactory conditions have been corrected.

3.02 PREPARATION
A. Clean and dry surface to be insulated.

3.03 INSTALLATION
A. Install insulation in conformance with the manufacturer’s recommendations to completely cover the duct.
B. Butt insulation joints firmly together and install jackets and tapes smoothly and securely.
C. Apply duct insulation continuously through sleeves and prepared openings, except as otherwise specified. Apply vapor barrier materials to form a complete unbroken vapor seal over the insulation.
D. Coat staples and seals with vapor barrier coating.
E. Cover breaks in the jacket material with patches of the same material as the vapor barrier. Extend the patches not less than 2 inches beyond the break or penetration in all directions and secure with adhesive and staples. Seal staples and joints with brush coat of vapor barrier coating.

F. Fill jacket penetrations, i.e., hangers, thermometers and damper operating rods, and other voids in the insulation with vapor barrier coating. Seal the penetration with a brush coat of vapor barrier coating.

G. Seal and flash insulation terminations and pin punctures with a reinforced vapor barrier coating.

H. Duct Liners: Install mat finish surface on air stream side. Secure insulation to cleaned sheet metal duct with a continuous 100 percent coat of adhesive. For widths over 20 inches, additionally secure the liner with mechanical fasteners 15 inches on center. Accurately cut liner and thoroughly coat ends with adhesive. Butt joints tightly. Top and bottom sections of insulation overlap sides. Keep duct liner clean and free from dust. At completion of project, vacuum duct liner if it is dirty or dusty. Cut studs off near washers. Do not use small pieces. If insulation is installed without horizontal, longitudinal, and end joints butted together, installation will be rejected and work removed and replaced with work that conforms to this Specification.

I. Duct Wrap: Cover supply air ducts except ducts internally lined. Wrap tightly with circumferential joints butted and longitudinal joints overlapped minimum of 2 inches. Adhere insulation with 4-inch strips of insulating bending adhesive at 8 inches on center. On ducts over 24 inches wide, additionally secure insulation with suitable mechanical fasteners at 18 inches on center. Circumferential and longitudinal joints stapled with flare staples 6 inches on center and covered with 3-inch-wide, foil reinforced tape.

3.04 PROTECTION AND REPLACEMENT

A. Protect installed insulation during construction. Replace damaged insulation which cannot be repaired satisfactorily, including units with vapor barrier damage and moisture saturated units.

3.05 DUCTWORK SURFACES TO BE INSULATED

<table>
<thead>
<tr>
<th>ITEM TO BE INSULATED:</th>
<th>SYSTEM INSULATION TYPE:</th>
<th>DUCT SIZE:</th>
<th>INSULATION THICKNESS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUPPLY DUCTWORK (WHERE DUCT IS NOT SPECIFIED TO BE LINED).</td>
<td>A</td>
<td>ALL</td>
<td>1&quot;</td>
</tr>
<tr>
<td>SUPPLY AND RETURN DUCTWORK (EXPOSED TO WEATHER, IN CRAWL SPACES, AND IN UNHEATED ATTICS).</td>
<td>A</td>
<td>ALL</td>
<td>2&quot;</td>
</tr>
<tr>
<td>HVAC PLENUMS AND UNIT HOUSINGS NOT PREINSULATED.</td>
<td>B</td>
<td>ALL</td>
<td>2&quot;</td>
</tr>
</tbody>
</table>

A. NOTE: INSULATION THICKNESS SHOWN IN A MINIMUM. DUCTWORK EXPOSED TO WEATHER, CRAWL SPACES, OR UNHEATED ATTICS SHALL BE INSULATED TO A MINIMUM INSTALLED LEVEL OF R-8. ALL OTHER PORTIONS OF DUCTWORK SHALL BE INSULATED TO A MINIMUM INSTALLED LEVEL OF R-4.2 PER THE 2013 BUILDING ENERGY EFFICIENCY STANDARDS, TITLE 24.

END OF SECTION
SECTION 23 07 19
HVAC PIPEING AND EQUIPMENT INSULATION

PART 1 GENERAL

1.01 SUMMARY
A. Piping and Equipment Insulation: Materials and installation of insulation, jackets and
accessories for the following applications:
B. Cold domestic water piping systems.
C. Chilled water piping systems.
D. Heating water piping systems.
E. Hot and cold surfaces of mechanical equipment.

1.02 QUALITY ASSURANCE
A. Qualification of Workers: Use proficient journeyman insulators and supervisors in the execution
of this portion of the work to ensure proper and adequate installation of insulation throughout. A
firm with at least 5 years successful installation experience on projects with installations similar
to that required for this project.
B. Compliance with Specifications:
   1. Whenever required during progress of the work, furnish proof acceptable to the District
      that items installed are equal to or exceed requirements specified for this work.
   2. In the event such proof is not available, or is not acceptable to the District, the District may
      require the Contractor to remove the item or items and replace with material meeting the
      specified requirements and to repair damage caused in the removal and replacement, at
      no additional cost to the District.
   3. Install per manufacturer’s written instructions.
   4. As a minimum, comply with appropriate state energy code or other applicable codes.
   5. Piping insulation products to contain less than 0.1 percent by weight PBDE in all insulating
      materials.

1.03 SUBMITTALS
A. Product Data: Submit manufacturer’s technical data and installation instructions for each type
   of insulation, jacket, glue, paint, fitting cover, and accessory. Submit schedule showing
   manufacturer’s product number, thickness, and furnished accessories for each pipe and
   equipment requiring insulation.

1.04 PRODUCT HANDLING
A. Protection: Use all means necessary to protect insulation materials before, during and after
   installation.
B. Replacements: In the event of damage, immediately make repairs and replacements
   necessary.

1.05 FIRE HAZARD CLASSIFICATION
A. Maximum fire hazard classification of the composite insulation construction as installed to be
   not more than flame spread of 25, fuel contributed of 50 and smoke developed of 50 as tested
   by ASTM E84 (NFPA 255) method.
B. Test pipe insulation in accordance with the requirements of UL "Pipe and Equipment Coverings
   R5583 400 8.15."

PART 2 PRODUCTS

2.01 MANUFACTURERS
A. Armacell LLC Armaflex, Certainteed, Imcoa, Johns Mansville, Knauf, Nomaco, Owens-Corning,
   PPG or approved.

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HVAC PIPEING AND EQUIPMENT INSULATION

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2.02 TYPE 1, FIBERGLASS PIPE INSULATION
A. Glass Fiber: ASTM C547; rigid molded, noncombustible.
   1. Thermal Conductivity Value: 0.27 at 75°F.
   2. Maximum Service Temperature: 850°F.
   3. Vapor Retarder Jacket: White Kraft paper reinforced with glass fiber and bonded to aluminum foil, secure with self sealing longitudinal laps and butt strips or AP Jacket with outward clinch expanding staples or vapor barrier mastic as needed.

2.03 TYPE 2, FLEXIBLE ELASTOMERIC INSULATION
A. Elastomeric Foam: ASTM C534; flexible, cellular elastomeric, molded or sheet.
B. Thermal Conductivity Value: 0.25 BTU*in/(hr*ft°F) at 75 degrees F.
C. Maximum Service Temperature of 220 degrees F.
D. Maximum Flame Spread: 25.
E. Maximum Smoke Developed: 50 (1-inch thick and below).
F. Connection: Waterproof vapor retarder adhesive as needed.
G. UV Protection: UV outdoor protective coating per manufacturers requirements.
H. Glue: Contact adhesive specifically manufactured for cementing flexible elastomeric foam. Armacell LLC Armaflex, Halstead, or approved equivalent.
I. Paint: Nonhardening high elasticity type, specifically manufactured as protective covering of flexible elastomeric foam insulation for prevention of degradation due to exposure to sunlight and weather. Armacell LLC Armaflex, Halstead, or approved equivalent.

2.04 TYPE 4, CELLULAR GLASS
A. Cellular Glass Insulation: Foamglass pipe insulation fabricated in accordance with ASTM C552 and C585. Thermal conductivity of 0.33 BTU*in/(hr*ft°F) at 50 degrees F.

2.05 ACCESSORIES
A. Equipment Insulation Jacketing: Presized glass cloth, not less than 7.8 ounces/sq.yd., except as otherwise indicated. Coat with gypsum based cement.
B. Equipment Insulation Compounds: Provide adhesives, cement, sealers, mastics, and protective finishes as recommended by insulation manufacturer for applications indicated.
C. General: Provide staples, bands, wire, wire netting, tape corner angles, anchors, stud pins and metal covers as recommended by insulation manufacturer for applications indicated. Accessories, i.e., adhesives, mastics, cements and tape to have the same flame and smoke component ratings as the insulation materials with which they are used. Shipping cartons to bear a label indicating that flame and smoke ratings do not exceed those listed above. Provided permanent treatment of jackets or facings to impart flame and smoke safety. Provided nonwater soluble treatments.

2.06 PIPE FITTING INSULATION COVERS
A. PVC preformed molded insulation covers. Zeston, or approved.

2.07 CANVAS JACKET
A. UL listed fabric, 6 ounces/sq.yd. plain weave cotton treated with dilute fire retardant lagging adhesive.

2.08 JACKETING
B. Canvas Jacket: UL listed fabric, 6 oz/sq.yd., plain weave cotton treated with dilute fire retardant lagging adhesive.
C. Aluminum Jacket: 0.016-inch-thick sheet, (smooth/embossed) finish, with longitudinal slip joints and 2-inch laps, die shaped fitting covers with factory attached protective liner.

D. Stainless Steel Jacket: Type 304 stainless steel, 0.010 inch, (smooth/corrugated) finish.

PART 3 EXECUTION

3.01 PREPARATION

A. Clean and dry surfaces to be insulated.

3.02 INSTALLATION

A. Piping and Equipment:

B. Install insulation over clean, dry surfaces with adjoining sections firmly butted together and covering surfaces. Fill voids and holes. Seal raw edges. Install insulation in a manner such that the insulation may be split, removed, and reinstalled with vapor barrier tape on strainer caps and unions. Do not install insulation until the piping has been leak tested and has passed such tests. Do not insulate chiller manholes, equipment manufacturer’s nameplates, handholes, and ASME stamps. Provide beveled edge at such insulation interruptions. Repair voids or tears.

C. Cover insulation on pipes above ground, outside of buildings, with aluminum jacketing. Position seam on bottom of pipe.

3.03 PROTECTION AND REPLACEMENT

A. Protect installed insulation during construction. Replace damaged insulation which cannot be repaired satisfactorily, including units with vapor barrier damage and moisture saturated units.

3.04 FIBERGLASS INSULATION

A. Lap seal insulation with waterproof adhesive. Do not use staples or other methods of attachment which would penetrate the vapor barrier. Apply fitting covers with seated tacks and vapor barrier tape.

B. Apply insulation to pipe and seal with self-sealing lap. Use self-sealing butt strips to seal butt joints. Insulate fittings, valves and unions with single or multiple layers of insulation and cover to match pipe or use preformed PVC molded insulation covers.

3.05 LABELING AND MARKING

A. Provide labels, arrows and color coding on piping. Attach labels and arrows to the jacketing.

3.06 PIPING SURFACES TO BE INSULATED

<table>
<thead>
<tr>
<th>ITEM TO BE INSULATED</th>
<th>SYSTEM INSULATION TYPE:</th>
<th>PIPE SIZE:</th>
<th>INSULATION THICKNESS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Cold Water</td>
<td>1</td>
<td>&lt;=2&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>Aboveground Heating Piping</td>
<td>1, 4</td>
<td>Runouts up to 2&quot; All Others</td>
<td>1&quot;</td>
</tr>
<tr>
<td>Aboveground Chilled Water Piping</td>
<td>1, 4</td>
<td>Runouts up to 2&quot; All Others</td>
<td>1&quot;</td>
</tr>
<tr>
<td>Aboveground Chilled, Heating, Exposed to Weather</td>
<td>1, 4</td>
<td>2-1/4&quot; to 6&quot;</td>
<td>2&quot;</td>
</tr>
</tbody>
</table>

A. NOTE: INSULATION THICKNESS SHOWN IN A MINIMUM. IF STATE CODES REQUIRE ADDITIONAL THICKNESS, THEN PROVIDE INSULATION THICKNESS PER CODE REQUIREMENTS.
3.07 INSULATED PIPE EXPOSED TO WEATHER

A. Where piping is exposed on roof, cover insulation with aluminum jacket. Seal watertight jacket per manufacturer’s recommendations. Provide heat tracing on piping subject to freezing.

END OF SECTION
SECTION 23 09 15
BUILDING AUTOMATION SYSTEM

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. Related Documents: The General Provisions of the Contract, including General, Supplementary, and Special Conditions, and Division 1 - General Requirements, apply to work specified in this section. Subcontractor must familiarize himself with the terms of the above documents.

B. BAS Contractor

1. The Building Automation System (BAS) is to be furnished and installed by a factory authorized Andover distributor with factory warranted Andover parts.
   a. All bidders must be building automation contractors in the business of installing Director Digital Controls (DDC) for a minimum of 3 years.
   b. All bidders must have an office in the San Francisco Bay/Central Valley area.
   c. All bidders must be an authorized distributor or branch office for "Andover Controls".
   d. All bidders must have a trained staff of application engineers, who have been certified by Andover in Administration, Networking, Configuration, Programming and service of the automation system.
   e. All installers must have a factory-trained technician on-site at all times during installation of the DDC controls.

2. Integration of the BAS system to the College's central BAS system shall be coordinated with the Facilities Manager at the work site.

C. Scope of Work

1. The BAS contractor shall review and study all HVAC drawings and the entire specification to familiarize himself with the equipment and system operation and to verify the quantities and types of dampers, operators, alarms, etc. to be provided.

2. The Contractor shall furnish and install all necessary hardware and all operating and applications software necessary to perform the control sequences of operation and points list as shown on the drawings. Interface all equipment with existing control system and update graphics.

3. Provide services and manpower necessary for commissioning of system in coordination with the HVAC Contractor, Balancing Contractor and Districts representative.

4. All work performed under this section of the specifications will comply with all codes, laws and governing bodies. If the drawings and/or specifications are in conflict with governing codes, the Contractor shall submit a proposal with appropriate modifications to the project to meet code restrictions. If this specification and associated drawings exceed governing code requirements, the specification will govern.

D. Training: Provide a minimum of (10) hours of on-site training for (3) system operators. Training will be hands-on type at the owner's office. The training class will use the actual Operator's Manual that will be submitted for this project. In addition, projects over $100,000 will include (2) weeks of classroom training for one individual at the Manufacturer's sponsored training courses.

E. System Description

1. The Building Automation System (BAS) shall consist of PC-based workstation (existing) and microcomputer controllers of modular design providing distributed processing capability, and allowing future expansion of both input/output points and processing/control functions.
   a. For this project the system shall consist of the following (new) components:
      1) Ethernet-based Network Controller.
      2) Stand-alone Digital Control Units.
F. Ethernet-based Network Controller: The BAS Contractor shall furnish Ethernet-based network controller. This controller will connect directly to the campus LAN over the existing Ethernet system. BXC1 (as required) and shall be assigned to an existing Infinet Loop.

G. Provide the necessary quantity and types of SDCUs to meet the requirements of the project for mechanical equipment control including air handlers, return/exhaust fans, and terminal unit control. Each SDCU will operate completely standalone, containing all of the I/O and programs to control its associated equipment; i2920-D, i2800 series and Infinet II.

H. Work by Others
1. The BAS Contractor shall cooperate with other contractors performing work on this project necessary to achieve a complete and neat installation. To that end, each contractor shall consult the drawings and specifications for all trades to determine the nature and extent of others' work.
2. The BAS Contractor shall furnish all control valves, sensor wells, flow meters and other similar equipment for installation by the Mechanical Contractor. The Electrical Contractor shall provide:
   a. Transformer Model Number - Andover ZFTR50VA002.

I. Code Compliance
1. All wiring shall conform to the National Electrical Code.
2. All smoke dampers shall be rated in accordance with UL 555S.
3. Comply with FCC rules, Part 15 regarding Class A radiation for computing devices and low power communication equipment operating in commercial environments.

J. Submittals
1. All shop drawings shall be prepared in Visio Professional or AutoCAD software. In addition to the drawings, the Contractor shall furnish a diskette containing the identical information. Drawings shall be B size or larger.
2. Shop drawings shall include a riser diagram depicting locations of all controllers and workstations, with associated network wiring. Also included shall be individual schematics of each mechanical system showing all connected points with reference to their associated controller. Typically will be allowed where appropriate.
3. Submittal data shall contain manufacturer's data on all hardware and software products required by the specification. Valve, damper and air flow station schedules shall indicate size, configuration, capacity and location of all equipment.
4. Software submittals shall contain narrative descriptions of sequences of operation, program listings, point lists, and a complete description of the graphics, reports, alarms and configuration to be furnished with the workstation software. Information shall be bound or in a three ring binder with an index and tabs.
5. Submit five (5) copies of submittal data and shop drawings to the Engineer and (one) copy to Facilities for review prior to ordering or fabrication of the equipment. The Contractor prior to submitting shall check all documents for accuracy.
6. The Engineer will make corrections, if required, and forward to Facilities prior to returning to the Contractor. The Contractor will then resubmit with the corrected or additional data. This procedure shall be repeated until all corrections are made to the satisfaction of the Engineer and the submittals are fully approved.

K. System Startup & Commissioning
1. Each point in the system shall be tested for both hardware and software functionality. In addition, each mechanical and electrical system under control of the BAS will be tested against the appropriate sequence of operation specified herein. Successful completion of the system test shall constitute the beginning of the warranty period. A written report will be submitted to the owner indicating that the installed system functions in accordance with the plans and specifications.
2. The BAS contractor shall commission and set in operating condition all major equipment and systems, such as the chilled water, hot water and all air handling systems, in the
presence of the equipment manufacturer's representatives, as applicable, and the District's and Architect's representatives.

3. The BAS Contractor shall provide all manpower and engineering services required to assist the HVAC Contractor and Balancing Contractor in testing, adjusting, and balancing all systems in the building. The BAS Contractor shall have a trained technician available on request during the balancing of the systems. The BAS Contractor shall coordinate all requirements to provide a complete air balance with the Balancing Contractor and shall include all labor and materials in his contract.

L. Training

1. The BAS Contractor shall provide both on-site and classroom training to the District's representative and maintenance personnel per the following description:

2. On-site training shall be per section 1.01 D and shall consist of "hands-on" instruction geared at the operation and maintenance of the systems. The curriculum shall include:
   a. System Overview
   b. System Software and Operation
   c. System access
   d. Software features overview
   e. Changing setpoints and other attributes
   f. Scheduling
   g. Editing programmed variables
   h. Displaying color graphics
   i. Running reports
   j. Workstation maintenance
   k. Application programming
   l. Operational sequences including start-up, shutdown, adjusting and balancing.
   m. Equipment maintenance.

M. Operating and Maintenance Manuals

1. The operation and maintenance manuals shall contain all information necessary for the operation, maintenance, replacement, installation, and parts procurement for the entire BAS. This documentation shall include specific part numbers and software versions and dates. A complete list of recommended spare parts shall be included with the leadtime and expected frequency of use of each part clearly identified.

2. Following project completion and testing, the BAS contractor will submit as-built drawings reflecting the exact installation of the system. The as-built documentation shall also include a copy of all application software both in written form and on diskette.

N. Warranty: The BAS contractor shall warrant the system for 12 months after system acceptance and beneficial use by the owner. During the warranty period, the BAS contractor shall be responsible for all necessary revisions to the software as required to provide a complete and workable system consistent with drawings Sequence of Operation and points list.

PART 2 - PRODUCTS

2.01 SYSTEM ARCHITECTURE

A. General

1. The Building Automation System (BAS) shall consist of Network Control Units (NCUs), a family of Standalone Digital Control Units (SDCU's), Input/Output Unit Modules (I/O Modules), Operator Workstations (OWs), and one File Server to support system configurations where more than one operator workstation is required. The BAS shall provide control, alarm detection, scheduling, reporting and information management for the entire facility, and Wide Area Network (WAN) if applicable, from a single ODBC-compliant database.

B. Level 1 Network Description: Level 1, the main backbone of the system, shall be an Ethernet LAN/WAN. Network Control Units, Operator Workstations, and the Central File Server shall connect directly to this network without the need for Gateway devices.
C. Level 2 Network Description
   1. Level 2 of the system shall consist of one or more field buses managed by the Network Control Units. The Level 2 field buses may consist of one or both of the following types:
      a. An RS485, token passing bus that supports up to 127 Standalone Digital Control Units (SDCUs) for operation of HVAC equipment and lighting, or
      b. An RS485 field bus that supports up to 32 devices from a family of plug-in, IOU modules.
   2. These IOU modules may be mounted within the NCU enclosure or remotely mounted via a single, twisted, shielded pair of wires.

D. BAS: The BAS shall be capable of being segmented, through software, into multiple local area networks (LANs) distributed over a wide area network (WAN), sharing a single file server. This enables workstations to manage a single LAN (or building), and/or the entire system with all devices being assured of being updated by and sharing the most current database. In the case of a single workstation system, the workstation shall contain the entire database - with no need for a separate file server.

E. Standard Network Support: All NCUs, Workstation(s) and File Server shall be capable of residing directly on the owner's Ethernet TCP/IP LAN/WAN with no required gateways. Furthermore, the NCU’s, Workstation(s) and File Server shall be capable of using standard, commercially available, off-the-shelf Ethernet infrastructure components such as routers, switches and hubs. With this design the owner may utilize the investment of an existing or new enterprise network or structured cabling system. This also allows the option of the maintenance of the LAN/WAN to be performed by the owner’s Information Systems Department as all devices utilize standard TCP/IP components.

F. System Expansion
   1. The BAS system shall be scalable and expandable at all levels of the system using the same software interface, and the same Level 1 and Level 2 controllers. Systems that require replacement of either the workstation software or field controllers in order to expand the system shall not be acceptable.
   2. The BAS shall be expandable to include Security and Access Control functions at any time in the future with no additional workstations, front-end software or Level 1 controllers required. Standalone Digital Control Units or IOU modules shall be able to be added to the existing Level 1 controller's field bus(es), to perform security and card access applications. In this way, an owner’s existing investment in wiring infrastructure may be leveraged and the cost and inconvenience of adding new field bus wiring will be minimized.
   3. Additionally, an integrated video badging option must be able to be included with no additional workstations required. This photo ID option must share the same database as the BAS in order to eliminate the need for updating multiple databases.
   4. The system shall use the same application programming language for all levels: Operator Workstation, Network Control Unit, Remote Site Control Unit and Standalone Digital Control Unit. Furthermore, this single programming language shall be used for all applications: environmental control, card access control, intrusion detection and security, lighting control, leak detection / underground storage tank monitoring, and digital data communication interfaces to third party microprocessor-based devices.

G. Support For Open Systems Protocols
   1. The BAS design must include solutions for the integration of the following "open systems" protocols: BACnet, LonTalk®, and digital data communication to third party microprocessors such as chiller controllers, fire panels and variable frequency drives (VFDs).
   2. The system shall also provide the ability to program custom ASCII communication drivers, that will reside in the NCU, for communication to third party systems and devices. These drivers will provide real time monitoring and control of the third party systems.

2.02 NETWORK CONTROL UNITS (NCUS)
   A. General
1. Network Control Units shall be microprocessor based, multi-tasking, multi-user, and employ a real time operating system. Each NCU control panel shall consist of modular hardware including power supply, CPU board, and input/output modules. A sufficient number of NCUs shall be supplied to fully meet the requirements of this specification and the attached point list.

2. NCUs for telephone dialup sites shall be of the same design as the Ethernet control units but without the plug-in Ethernet network interface card (NIC), i.e., NCUs, which include a NIC, shall be interchangeable whether used on a LAN/WAN or a dialup site.

B. Websaver Functionality

1. All NCUs on the Ethernet TCP/IP LAN/WAN shall be capable, out-of-the-box, to be set up as a Web Server. The NCU shall have the ability to store HTML code and "serve" pages to a web browser. This provides the ability for any computing device utilizing a TCP/IP Ethernet connection and capable of running a standard Internet browser (Microsoft Internet Explorer, Netscape Navigator, etc.) to access real-time data from the entire BAS via any NCUs.

2. Graphics and text-based web pages shall be constructed using standard HTML code. The interface shall allow the user to choose any of the standard text or graphics-based HTML editors for page creation. It shall also allow the operator to generate custom graphical pages and forms.

3. The WEB server interface shall be capable of password security, including validation of the requesting PC's IP address. The WEB server interface shall allow the sharing of data or information between any controller, or process or network interface (BACnet, LonTalk and TCP/IP) that the RMS has knowledge of, regardless of where the point is connected on the BAS network or where it is acquired from.

4. The BAS network controller must act directly as the WEB server. It must directly generate the HTML code to the requesting user (i.e. WEB browser), eliminating the need for and reliance on any PC-based WEB server hardware or software. To simplify graphic image space allocation, HTML graphic images, if desired, shall be stored on any shared network device. The BAS WEB server shall have the ability to acquire any necessary graphics using standard pathing syntax within the HTML code mounted within the BAS WEB server. External WEB server hardware and software are not acceptable.

C. Hardware Specifications

1. Memory:
   a. A minimum of 4MB of RAM shall be provided for NCUs with expansion up to 8MB. The 8MB versions shall include a floating-point math co-processor.

D. Communication Ports: Each NCU shall provide communication to both the Workstation(s) and the field buses. In addition, each NCU must have at least 3 other communications ports that support a telephone modem, portable service tool, serial printer and connection to third party controllers such as a chiller control panel. On a LAN/WAN system the NCU shall be provided with a 10Mbps plug-in Ethernet TCP/IP network interface card (NIC).

E. Input/Output (I/O):

1. Each NCU shall support the addition of the following types of inputs and outputs:
   a. Digital Inputs for status/alarm contacts
   b. Counter inputs for summing pulses from meters.
   c. Thermistor inputs for measuring temperatures in space, ducts and thermostats.
   d. Analog inputs for pressure, humidity, flow and position measurements.
   e. Digital Outputs for on/off equipment control.
   f. Analog Outputs for valve and damper position control, and capacity control of primary equipment.

F. Modular Expandability: The system shall employ a modular I/O design to allow easy expansion. Input and output capacity is to be provided through plug-in modules of various types or DIN-mountable I/O modules. It shall be possible to combine I/O modules as desired to meet the I/O requirements for individual control applications.

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BUILDING AUTOMATION SYSTEM

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G. Real Time Clock (RTC): Each NCU shall include a battery-backed, real time clock, accurate to 10 seconds per day. The RTC shall provide the following: time of day, day, month, year, and day of week. In normal operation the system clock will be based on the frequency of the AC power. The system shall automatically correct for daylight savings time and leap years and be Year 2000 compliant.

H. Power Supply: The power supply for the NCUs shall be auto sensing, 120-220VAC, 60/50 Hz power, with a tolerance of +/- 20%. Line voltage below the operating range of the system shall be considered outages. The controller shall contain over voltage surge protection, and require no additional AC power signal conditioning. Optionally, if indicated on the drawings, the power supply shall accept an input voltage of (~48 VDC)

I. Automatic Restart After Power Failure: Upon restoration of power after an outage, the ECU shall automatically and without human intervention: update all monitored functions; resume operation based on current, synchronized time and status, and implement special start-up strategies as required.

J. Battery backup: Each NCU with the standard 120-220VAC power supply shall include a programmable DC power backup system rated for a minimum of 72 hours of battery backup to maintain all volatile memory or, a minimum of 2 hours of full UPS including modem power. This power backup system shall be configurable such that at the end of a settable timeframe (such as 1 hour) of running on full UPS, the unit will shut off full UPS and switch to memory retention-only mode for the remainder of the battery power. The system shall allow the simple addition of more batteries to extend the above minimum battery backup times.

K. Software Specifications: User Programming Language: The application software shall be user programmable. This includes all strategies, sequences of operation, control algorithms, parameters, and setpoints. The source program shall be English language-based and programmable by the user. The language shall be structured to allow for the easy configuration of control programs, schedules, alarms, reports, telecommunications, local displays, mathematical calculations, passwords, and histories. The language shall be self-documenting. Users shall be able to place comments anywhere in the body of a program. Program listings shall be configurable by the user in logical groupings.

L. Control Software:
   1. The NCU shall have the ability to perform the following pre-tested control algorithms:
      a. Proportional, Integral plus Derivative Control (PID)
      b. Self Tuning PID
      c. Two Position Control
      d. Digital Filter
      e. Ratio Calculator

M. Mathematical Functions: Each controller shall be capable of performing basic mathematical functions (+, -, *, /), squares, square roots, exponential, logarithms, Boolean logic statements, or combinations of both. The controllers shall be capable of performing complex logical statements including operators such as >, <, =, and, or, exclusive or, etc. These must be able to be used in the same equations with the mathematical operators and nested up to five parentheses deep.

N. Energy Management Applications:
   1. NCUs shall have the ability to perform any or all of the following energy management routines:
      a. Time of Day Scheduling
      b. Calendar Based Scheduling
      c. Holiday Scheduling
      d. Temporary Schedule Overrides
      e. Optimal Start
      f. Optimal Stop
      g. Night Setback Control
      h. Enthalpy Switchover (Economizer)
i. Peak Demand Limiting
j. Temperature Compensated Duty Cycling
k. CFM Tracking
l. Heating/Cooling Interlock
m. Hot/Cold Deck Reset
n. Free Cooling
o. Hot Water Reset
p. Chilled Water Reset

O. History Logging: Each controller shall be capable of logging any system variable over user-defined time intervals ranging from 1 second to 1440 minutes. Any system variables (inputs, outputs, math calculations, flags, etc.) can be logged in history. A maximum of 32767 values can be stored in each log. Each log can record either the instantaneous, average, minimum or maximum value of the point. Logs can be automatic or manual. Logged data shall be downloadable to the Operator Workstation for long term archiving based upon user-defined time intervals, or manual command

P. Alarm Management: For each system point, alarms can be created based on high/low limits or conditional expressions. All alarms will be tested each scan of the NCU and can result in the display of one or more alarm messages or reports

Q. Up to 8 alarms can be configured for each point in the controller.

R. Messages and reports can be sent to a local terminal, to the front-end workstation(s), or via modem to a remote-computing device.

S. Alarms will be generated based on their priority. A minimum of 255 priority levels shall be provided. If communication with the Operator Workstation is temporarily interrupted, the alarm will be buffered in the NCU. When communications return, the alarm will be transmitted to the Operator Workstation if the point is still in the alarm condition

T. Reporting: The NCU shall be able to generate user-definable reports to a locally connected printer or terminal. The reports shall contain any combination of text and system variables. Report templates shall be able to be created by users in a word processing environment. Reports can be displayed based on any logical condition or through a user command

2.03 STANDALONE DIGITAL CONTROL UNITS (SDCUs)

A. General: Standalone Digital Control Units shall provide control of HVAC and lighting. Each controller shall have its own control programs and will continue to operate in the event of a failure or communication loss to its associated NCU

B. Memory: Control programs shall be stored in battery backed-up RAM and EPROM. Each controller shall have a minimum of 32K bytes of user RAM memory and 128K bytes of EPROM

C. Communication Ports: SDCUs shall provide a communication port to the field bus. In addition, a port shall be provided for connection of a portable service tool to support local commissioning and parameter changes with or without the NCU online. It shall be possible from a service port on any SDCU to view, enable/disable, and modify values of any point or program on any controller on the local field bus, any NCU or any SDCU on a different field bus

D. Input/Output:
   1. Each SDCU shall support the addition of the following types of inputs and outputs:
      a. Digital Inputs for status/alarm contacts
      b. Counter Inputs for summing pulses from meters.
      c. Thermistor Inputs for measuring temperatures in space, ducts and thermowells.
      d. Analog inputs for pressure, humidity, flow and position measurements.
      e. Digital Outputs for on/off equipment control.
      f. Analog Outputs for valve and damper position control, and capacity control of primary equipment.
E. Expandability: Input and output capacity shall be expandable through the use of plug-in modules. A minimum of two modules shall be added to the base SDCU before additional power is required.

F. Networking: Each SDCU will be able to exchange information on a peer to peer basis with other Standalone Digital Control Units during each field bus scan. Each SDCU shall be capable of storing and referencing global variables (on the LAN) with or without any workstations online. Each SDCU shall be able to have its program viewed and/or enabled/disabled either locally through a portable service tool or through a workstation connected to an NCU.

G. Indicator Lamps: SDCUs will have as a minimum, LED indication of CPU status, and field bus status.

H. Real Time Clock (RTC): An SDCU shall have a real time clock in either hardware or software. The accuracy shall be within 10 seconds per day. The RTC shall provide the following information: time of day, day, month, year, and day of week. Each SDCU shall receive a signal, every hour, over the network from the NCU which synchronizes all SDCU real time clocks.

I. Automatic Restart After Power Failure: Upon restoration of power, the SDCU shall automatically and without human intervention, update all monitored functions, resume operation based on current, synchronized time and status, and implement special start-up strategies as required.

J. Battery Back Up: Each SDCU shall have at least 3 years of battery back up to maintain all volatile memory.

K. Alarm Management:
   1. For each system point, alarms can be created based on high/low limits or conditional expressions. All alarms will be tested each scan of the SDCU and can result in the display of one or more alarm messages or reports.
   2. Up to 8 alarms can be configured for each point in the controller enabling the escalation of the alarm priority (urgency) based upon which alarm(s) is/are triggered.
   3. Alarm messages can be sent to a local terminal or modem connected to an NCU or to the Operator's Workstation(s).
   4. Alarms will be generated based on their priority. A minimum of 255 priority levels shall be provided.
   5. If communication with the NCU is temporarily interrupted, the alarm will be buffered in the SDCU. When communications return, the alarm will be transmitted to the NCU if the point is still in the alarm condition.

L. Air Handler Controllers (To be used on units with less than 40 points)
   1. AHU Controllers shall be capable of meeting the requirements of the sequence of operation found in the Execution portion of this specification and for future expansion.
   2. AHU Controllers shall support all the necessary point inputs and outputs as required by the sequence and operate in a standalone fashion.
   3. AHU Controllers shall be fully user programmable to allow for modification of the application software.
   4. An LCD display shall be optionally available for readout of point values and to allow operators to change setpoints and system parameters.
   5. A manual override switch shall be provided for all digital and analog outputs on the AHU Controller. The position of the switch shall be monitored in software and available for operator displays and alarm notification.

M. Display Controllers
   1. Display controllers are standalone, touch screen based operator interfaces. The controller shall be designed for flush mounting in a finished space, with a minimum display size of 9 x 9 inches.
   2. Software shall be user programmable allowing for custom graphical images that simulate floor plans, menus, equipment schematics along with associated real time point values coming from any NCU on the network.
3. The touch screen display shall contain a minimum of 64 possible touch cells that permit user interaction for changing screens, modifying setpoints or operating equipment.
4. Systems that do not offer a display controller as specified must provide a panel mounted computer with touch screen capability as an alternative.

2.04 OPERATOR WORKSTATION REQUIREMENTS (EXISTING LAN SYSTEM) WORKSTATION AND SERVER ARE NOT ADDED TO THIS PROJECT. HOWEVER ALL CONTROLLERS WILL BE ADDED TO THE EXISTING INFINET AND LAN SYSTEM.

A. Temperature Sensors
   1. All temperature devices shall use precision thermistors accurate to +/- 1 degree F over a range of -30 to 230 degrees F. Space temperature sensors shall be accurate to +/- .5 degrees F over a range of 40 to 100 degrees F.
      a. Duct Sensors - Andover Model Number: TT-D-9-1
      b. Well Sensors - Andover Model Number: TT-I-6-1
   2. Duct temperature sensors shall incorporate a thermistor bead embedded at the tip of a stainless steel tube. Probe style duct sensors are useable in air handling applications where the coil or duct area is less than 14 square feet.
   3. Averaging sensors shall be employed in ducts, which are larger than 14 square feet. The averaging sensor tube must contain at least one thermistor for every 3 feet, with a minimum tube length of 12 feet.
   4. Immersion sensors shall be employed for measurement of temperature in all chilled and hot water applications as well as refrigerant applications. Thermal wells shall be brass or stainless steel for non-corrosive fluids below 250 degrees F and 300 series stainless steel for all other applications.
   5. A pneumatic signal shall not be allowed for sensing temperature.

B. Current and KW Sensors
   1. Current status switches shall be used to monitor fans, pumps, motors and electrical loads. Current switches shall be available in solid and split core models, and offer either a digital or an analog signal to the automation system. Acceptable manufacturer is Veris or approved equal.
   2. Measurement of three phase power shall be accomplished with a kWkWH transducer. This device shall utilize direct current transformer inputs to calculate the instantaneous value (kW) and a pulsed output proportional to the energy usage (kWH). Provide Veris Model 6000 Power Transducer or approved equal.

C. Electric/Pneumatic Transducers
   1. Electric to pneumatic transducers shall operate from either a PWM or analog signal. E/P transducers shall be rated for 0 - 20 psi operation and accurate to 2% of full scale. E/P transducers shall have a maximum air consumption of 100 SCFM.
   2. E/P transducers may be installed at the end device (damper or valve), or mounted separately in a field interface panel, or as part of the controller. All transducers will be calibrated. Panel mounted transducers shall be Modus or approved equal.

D. Electric/Pneumatic Solenoid Valves
   1. Electric solenoid operated pneumatic valves (EP's) shall have a three port operation: common, normally open and normally closed. They shall be rated for 50 psig when used for 25 psig or less applications, or rated for 150 psig when used for 100 psig or less applications. The coils shall be equipped with transient suppression devices to limit transients to 150 percent of the rated coil voltage.

2.05 CONTROL VALVES

A. Provide automatic control valves suitable for the specified controlled media (Hot and Chilled Water). Provide valves, which mate and match the material of the connected piping. Equip control valves with the actuators of required input power type and control signal type to accurately position the flow control element and provide sufficient force to achieve required leakage specification. Provide control valves as specified on schedule on drawings.
B. Contractor to size valve Cv so that differential pressure at rated flow is between 3 to 5 psig. Valves requiring less than 0.7 gpm to be provided with a Cv = 0.4.

C. Control valves shall meet the heating and cooling loads specified, and close off against the differential pressure conditions within the application. Valves should be sized to operate accurately and with stability from 10 to 100% of the maximum design flow.

D. Electric actuation should be provided on all terminal unit reheat applications.

E. The actuator shall be direct coupled over the shaft, enabling it to be mounted directly to the damper shaft without the need for connecting linkage. The actuator shall have electronic overload circuitry to prevent damage. For power-failure/safety applications, an internal mechanical, spring return mechanism shall be built into the actuator housing. Non-spring return actuators shall have an external manual gear release to allow positioning of the damper when the actuator is not powered.

2.06 SMOKE DETECTORS

A. Smoke Detector - Siemens Model Number: FP-11.

2.07 AIRFLOW MEASURING STATIONS

A. Provide a thermal anemometer using instrument grade self heated thermistor sensors with thermistor temperature sensors.

B. The flow station shall operate over a range of 0 to 5,000 feet/min with an accuracy of +/- 2% over 500 feet/min and +/- 10 ft/min for reading less than 500 feet/min.

C. The output signal shall be linear with field selectable ranges including 0-5 VDC, 0-10VDC and 4-20 mA.

D. Furnish Ebtron Gold Series airflow stations or approved equal.

PART 3 – EXECUTION

3.01 CONTRACTOR RESPONSIBILITIES

A. General: The BAS system is to be furnished and installed by an Andover approved Contractor. The Contractor shall certify all work as proper and complete. Under no circumstances shall the design, scheduling, coordination, programming, training, and warranty requirements for the project are delegated to a subcontractor.

B. Access to Site: Unless notified otherwise, entrance to building is restricted. No one will be permitted to enter the building unless their names have been cleared with the District or the District’s Representative.

C. Code Compliance: All wiring shall be installed in accordance with all applicable electrical codes and will comply with equipment manufacturer’s recommendations.

D. Cleanup: At the completion of the work, all equipment pertinent to this contract shall be checked and thoroughly cleaned, and all other areas shall be cleaned around equipment provided under this contract. Clean the exposed surfaces of tubing, hangers, and other exposed metal of grease, plaster, or other foreign materials.

3.02 WIRING, CONDUIT, AND CABLE

A. All wire will be copper and meet the minimum wire size and insulation class listed below:

B. Power and Class One wiring may be run in the same conduit. Class Two and Three wiring and communications wiring may be run in the same conduit.

C. Where different wiring classes terminate within the same enclosure, maintain clearances and install barriers per the National Electric Code.

D. Where wiring is required to be installed in conduit, EMT shall be used. Conduit shall be minimum 1/2 inch galvanized EMT. Set screw fittings are acceptable for dry interior locations. Watertight compression fittings shall be used for exterior locations and interior locations subject to moisture. Provide conduit sealoff fitting where exterior conduits enter the building or between areas of high temperature/moisture differential.
E. Flexible metallic conduit (max. 3 feet) shall be used for connections to motors, actuators, controllers, and sensors mounted on vibration producing equipment. Liquid-tight flexible conduit shall be used in exterior locations and interior locations subject to moisture.

F. Junction boxes shall be provided at all cable splices, equipment termination, and transitions from EMT to flexible conduit. Interior dry location J-boxes shall be galvanized pressed steel, nominal four-inch square with blank cover. Exterior and damp location JH-boxes shall be cast alloy FS boxes with threaded hubs and gasketed covers.

G. Pneumatic tubing will be FR rated polyethylene instrumentation tubing, type M, hard copper tubing, or soft copper tubing. All pneumatic tubing will be sized for a maximum pressure drop of 2 PSI from the pressure-reducing valve to end device.

H. Coaxial cable shall conform to RG62 or RG59 rating. Provide plenum rated coaxial cable when running in return air plenums.

I. Fiber optic cable shall include the following sizes; 50/125, 62.5/125 or 100/140: Only glass fiber is acceptable, no plastic.

J. Fiber optic cable shall only be installed and terminated by an experienced contractor. The BAS contractor shall submit to the Engineer the name of the intended contractor of the fiber optic cable with his submittal documents.

3.03 HARDWARE INSTALLATION

A. Installation Practices for Wiring
   1. All controllers are to be mounted vertically and per the manufacturer's installation documentation.
   2. A true earth ground must be available in the building. Do not use a corroded or galvanized pipe, or structural steel.
   3. Conduit in finished areas, will be concealed in ceiling cavity spaces, plenums, furred spaces and wall construction. Exception; metallic surface raceway may be used in finished areas on masonry walls. All surface raceway in finished areas must be color matched to the existing finish within the limitations of standard manufactured colors.
   4. Conduit, in non-finished areas where possible, will be concealed in ceiling cavity spaces, plenums, furred spaces, and wall construction. Exposed conduit will run parallel to or at right angles to the building structure.
   5. Wires are to be kept a minimum of three (3) inches from hot water, steam, or condensate piping.
   6. Where sensor wires leave the conduit system, they are to be protected by a plastic insert.
   7. Wire or pneumatic tubing will not be allowed to run across telephone equipment areas.
   8. All wiring running down exposed walls to controls or control panels shall be run in EMT or completely enclosed in metal raceways.
   9. All control wiring in concrete walls or floors shall run in rigid conduit.

B. Installation Practices for Field Devices
   1. Well-mounted sensors will include thermal conducting compound within the well to insure good heat transfer to the sensor.
   2. Actuators will be firmly mounted to give positive movement and linkage will be adjusted to give smooth continuous movement throughout 100 percent of the stroke.
   3. Relay outputs will include transient suppression across all coils. Suppression devices shall limit transients to 150% of the rated coil voltage.
   4. Water line mounted sensors shall be removable without shutting down the system so in which they are installed.
   5. For duct static pressure sensors, the high pressure port shall be connected to a metal static pressure probe inserted into the duct pointing upstream. The low pressure port shall be left open to the plenum area at the point that the high pressure port is tapped into the ductwork.
   6. For building static pressure sensors, the high pressure port shall be inserted into the space via a metal tube. Pipe the low pressure port to the outside of the building.
C. Enclosures
1. For all I/O requiring field interface devices, these devices where practical will be mounted in a field interface panel (FIP). The Contractor shall provide an enclosure which protects the device(s) from dust, moisture, conceals integral wiring and moving parts.
2. FIPs shall contain power supplies for sensors, interface relays and contactors, safety circuits, and I/P transducers.
3. The FIP enclosure shall be of steel construction with baked enamel finish, NEMA 1 rated with a hinged door and keyed lock. The enclosure will be sized for twenty percent spare mounting space. All locks will be keyed identically.
4. All wiring to and from the FIP will be to screw type terminals. Analog or communications wiring may use the FIP as a raceway without terminating. The use of wire nuts within the FIP is prohibited.
5. All outside mounted enclosures shall meet the NEMA-4 rating.
6. The wiring within all enclosures shall be run in plastic track. Wiring within controllers shall be wrapped and secured.

D. Identification
1. Identify all control wires with labeling tape or sleeves using either words, letters, or numbers that can be exactly cross-referenced with as-built drawings.
2. Identify all pneumatic tubing with labeling tape or sleeves using words, letters, or numbers that can be exactly cross-referenced with as-built drawings.
3. All field enclosures, other than controllers, shall be identified with a bakelite nameplate. The lettering shall be in white against a black or blue background.
4. Junction box covers will be marked to indicate that they are a part of the BAS system.
5. All I/O field devices (except space sensors) that are not mounted within FIP's shall be identified with name plates.
6. All I/O field devices inside FIP's shall be labeled.

E. Location
1. The location of sensors is per mechanical and architectural drawings.
2. Space humidity or temperature sensors will be mounted away from machinery generating heat, direct light and diffuser air streams.
3. Outdoor air sensors will be mounted on the north building face directly in the outside air. Install these sensors such that the effects of heat radiated from the building or sunlight is minimized.
4. Field enclosures shall be located immediately adjacent to the controller panel(s) to which it is being interfaced.

3.04 SOFTWARE INSTALLATION
A. General: The software design and implementation is to be facilitated only be an Andover approved Contractor. The Contractor shall provide all labor necessary to install, initialize, start-up and debug all system software as described in this section. This includes any operating system software or other third party software necessary for successful operation of the system.

B. Database Configuration: The Contractor will provide all labor to configure those portions of the database that are required by the points list and sequence of operation

C. Color Graphic Slides:
1. Unless otherwise directed by the owner, the Contractor will provide color graphic displays matching the Campus Standards for each system and floor plan.
2. For each system or floor plan, the display shall contain the associated points identified in the point list and allow for setpoint changes as required by the owner.
   a. Animations and 3D Rendering.
   b. Animations to mimic all moving devised, status and operation.
   c. Animations set to maximum performance, compatible with Version 1.81.
   d. Individual slides: mechanical equipment, VAV/CAV boxes, pumps, motors, fans, dampers, thermostats, and valves.
D. Reports.
1. The Contractor will configure a minimum of 6 reports for the District as listed below:
   a. Air Handler Status Report
   b. Space Temperature Report
   c. Specialty Equipment Status Report

E. Documentation
1. As built software documentation will include the following:
   a. Descriptive point lists
   b. Application program listing
   c. Application programs with comments.
   d. Printouts of all reports.
   e. Alarm list.
   f. Printouts of all graphics

3.05 COMMISSIONING AND SYSTEM STARTUP

A. Point to Point Checkout: Each I/O device (both field mounted as well as those located in FIPs) shall be inspected and verified for proper installation and functionality. A checkout sheet itemizing each device shall be filled out, dated and approved by the Facilities Manager for submission to the Owner’s representative

B. Controller Checkout: A field checkout of all controllers shall be conducted to verify proper operation of both hardware and software. A checkout sheet itemizing each device and a description of the associated tests shall be prepared and submitted to the Owner or Owner’s representative by the completion of the project

C. System Acceptance Testing
1. All application software will be verified and compared against the sequences of operation. Control loops will be exercised by inducing a setpoint shift of at least 10% and observing whether the system successfully returns the process variable to setpoint. Record all test results and attach to the Test Results Sheet.
2. Test each alarm in the system and validate that the system generates the appropriate alarm message, that the message appears at all prescribed destinations (workstations or printers), and that any other related actions occur as defined (i.e. graphic panels are invoked, reports are generated, etc.). Submit a Test Results Sheet to the District.
3. Perform an operational test of each unique graphic display and report to verify that the item exists, that the appearance and content are correct, and that any special features work as intended. Submit a Test Results Sheet to the District.
4. Perform an operational test of each third party interface that has been included as part of the automation system. Verify that all points are properly polled, that alarms have been configured, and that any associated graphics and reports have been completed. If the interface involves a file transfer over Ethernet, test any logic that controls the transmission of the file, and verify the content of the specified information.

3.06 SEQUENCES OF OPERATION

A. See Drawings.

END OF SECTION
SECTION 23 21 13
HYDRONIC PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Heating water piping, above grade.
B. Chilled water piping, above grade.
C. Valves:
   1. Ball valves.
   2. Butterfly valves.
   3. Check valves.

1.02 REFERENCE STANDARDS

A. ASME (BPV IX) - Boiler and Pressure Vessel Code, Section IX - Welding and Brazing Qualifications; The American Society of Mechanical Engineers; 2013.
B. ASME B16.3 - Malleable Iron Threaded Fittings; The American Society of Mechanical Engineers; 1998 (R2006).
C. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; The American Society of Mechanical Engineers; 2012 (ANSI B16.18).
D. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings; 2013.
E. ASME B31.9 - Building Services Piping; 2011 (ANSI/ASME B31.9).
K. AWS A5.8/A5.8M - Specification for Filler Metals for Brazing and Braze Welding; 2011 and errata.

1.03 SUBMITTALS

A. See Division 1 for submittal procedures.
B. Shop Drawings: Submit complete shop drawings for piping system showing all fittings, elevations, pipe accessories, hanger locations and all connected equipment. Submit on reproducible vellum, and compact disk. Drawings shall be produced in AutoCad 2008 or later release.
C. Product Data: Include data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalogue information. Indicate valve data and ratings.
D. Welders Certificate: Include welders certification of compliance with ASME (BPV IX).
E. Manufacturer's Installation Instructions: Indicate hanging and support methods, joining procedures.
F. As-Built Drawings: At project closeout, provide as-built drawings of the piping systems installed. Drawings shall be prepared using AutoCad 2008 or later release. Submit two reproducible copies and two complete sets of drawing files on a compact disc.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with minimum three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified in this section, with minimum three years of experience.

C. Provide all grooved joint couplings, fittings, valves, specialties, and grooving tools from a single manufacturer.

D. Welder Qualifications: Certify in accordance with ASME (BPV IX).
   1. Provide certificate of compliance from authority having jurisdiction, indicating approval of welders.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

B. Provide temporary protective coating on cast iron and steel valves.

C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

PART 2 PRODUCTS

2.01 HYDRONIC SYSTEM REQUIREMENTS

A. Comply with ASME B31.9 and applicable federal, state, and local regulations.

B. Piping: Provide piping, fittings, hangers and supports as required, as indicated, and as follows:
   1. Where more than one piping system material is specified, provide joining fittings that are compatible with piping materials and ensure that the integrity of the system is not jeopardized.
   2. Use non-conducting dielectric connections whenever jointing dissimilar metals.

C. Pipe-to-Valve and Pipe-to-Equipment Connections: Use flanges, unions, or grooved couplings to allow disconnection of components for servicing; do not use direct welded, soldered, or threaded connections.

D. Valves: Provide valves where indicated.

2.02 HEATING WATER PIPING, ABOVE GROUND

A. Steel Pipe: ASTM A53/A53M, Schedule 40, black, using one of the following joint types:
   4. Joints: Threaded, or AWS D1.1 welded.

2.03 CHILLED WATER PIPING, ABOVE GRADE

A. Steel Pipe Sizes 10" and under: ASTM A 53, Grade A or B, electric resistance welded or seamless, Schedule 40, black.
   1. Fittings: ASME B16.3, maleable iron threaded or ASTM A 234/A 234M, forged steel welding type, or 150 lb factory fabricated grooved.
   2. Joints: Threaded (2" and under), Grooved, Victaulic Style 07 - Zero Flex, no known equal, Flanged or Welded.
2.04 PIPE HANGERS AND SUPPORTS
A. Provide hangers and supports that comply with MSS SP-58.
   1. If type of hanger or support for a particular situation is not indicated, select appropriate
      type using MSS SP-58 recommendations.
B. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.
C. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp.
D. Vertical Support: Steel riser clamp.
E. Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded
   connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size
   inserts to suit threaded hanger rods.
F. Rooftop supports: see drawings.

2.05 UNIONS, FLANGES, MECHANICAL COUPLINGS, AND DIELECTRIC CONNECTIONS
A. Unions for Pipe 2 Inches and Under:
   1. Ferrous Piping: 150 psig malleable iron, threaded.
   2. Copper Pipe: Bronze, soldered joints.
B. Flanges for Pipe Over 2 Inches:
   1. Ferrous Piping: 150 psig forged steel, slip-on.
   2. Copper Piping: Bronze.
   3. Gaskets: 1/16 inch thick preformed neoprene.
C. Dielectric Connections: Waterway with electro zinc plated casing, chemically inert, non
   corrosive, self-cleaning NSF/FDA listed dielectric thermoplastic waterway. Thermoplastic liner
   shall meet requirements of ASTM Standard F-492. Threaded ends. Victaulic, ClearFlow, or
   approved equal.

2.06 BALL VALVES
A. Manufacturers:
B. Up To and Including 2 Inches:
   1. Bronze two piece body, stainless steel ball, teflon seats and stuffing box ring, lever
      handle, threaded ends.
C. Over 2 inches:
   1. Cast steel body, chrome plated steel ball, teflon seat and stuffing box seals, lever handle,
      flanged.

2.07 BUTTERFLY VALVES
A. Manufacturers:
   1. Tyco Flow Control: www.tycoflowcontrol.com
   3. Centerline Series 200
B. Body: ANSI Class 150, Cast or ductile iron with resilient replaceable EPDM seat, lug ends,
   extended neck where required for insulation.
C. Shaft: Stainless steel, one piece through disc design
D. Disc (for general duty): Aluminum bronze.
E. Manual Operators: 10 position lever handle up through 4". above 4", provide gear operator and handwheel. Where mounted higher than 7' above floor, provide chain wheel and chain to 3' above floor.

2.08 SWING CHECK VALVES
A. Manufacturers:
   4. Substitutions: See Division 1.
B. Up To and Including 2 Inches:
   1. Class 150 bronze body, bronze trim, renewable seat and disc, with composition disc, threaded ends.
C. Over 2 Inches:
   1. Class 150, iron body, bronze trim, bronze or bronze faced rotating swing disc, renewable disc and seat, flanged ends.

2.09 BALANCING VALVES
A. Manufacturers:
B. Construction:
   1. 1/2" to 2" Pipe Size
      a. Bronze body, brass ball construction with glass and carbon filled TFE seat rings. Valves to have differential pressure read-out ports across valve seat area. Read-out ports shall have integral EPT insert and check valve. Valve bodies shall have 1/4" tapped drain/purge point. Valve to have memory stop feature and integral calibrated nameplate with position indication. 300 psig design pressure, NPT connections. 250 F operating temperature.
   2. 2-1/2" to 12" Pipe Size
      a. Cast iron, flanged construction with 125 psig flanged connections suitable up to 175 psig working pressure at 250 F. Valves 2-1/2" - 3" shall have a brass ball with glass and carbon filled TFE seat rings. Valves 4" - 12" shall be fitted with a bronze seat, replaceable bronze disc with EPDM seal seat, and stainless steel stem. Valves shall have memory stop feature and calibrated nameplate with position indication.

PART 3 EXECUTION
3.01 PREPARATION
A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
B. Remove scale and dirt on inside and outside before assembly.
C. Prepare piping connections to equipment using jointing system specified.
D. Keep open ends of pipe free from scale and dirt. Protect open ends with temporary plugs or caps.
E. After completion, fill, clean, and treat systems. Refer to Section 23 25 00 for additional requirements.

3.02 INSTALLATION
A. Install in accordance with manufacturer's instructions.
B. Route piping in orderly manner, parallel to building structure, and maintain gradient.
C. Install piping to conserve building space and to avoid interference with use of space.
D. Group piping whenever practical at common elevations.
E. Sleeve pipe passing through partitions, walls and floors.
F. Slope piping and arrange to drain at low points.

G. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

H. Grooved Joints:
   1. CHW only
   2. Install in accordance with the manufacturer's latest published installation instructions.
   3. Gaskets to be suitable for the intended service, molded, and produced by the coupling manufacturer.

I. Provide stainless steel escutcheons plates or other trim/flashings wherever pipes penetrate walls above grade, exterior and interior.

J. Inserts:
   1. Provide inserts for placement in concrete formwork.
   2. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.

K. Pipe Hangers and Supports:
   1. Install in accordance with ASME B31.9.
   2. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
   3. Provide copper plated hangers and supports for copper piping.
   4. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

L. Provide clearance in hangers and from structure and other equipment for installation of insulation and access valves and fittings.

M. Prepare unfinished pipe, fittings, supports, and accessories, ready for finish painting.

N. Install valves with stems upright or horizontal, not inverted.

3.03 TESTING

A. Unless otherwise noted, hydrostatically test all piping installed under this contract to 1-1/2 times the normal working pressure or 150 psig, whichever is higher for a period of not less than 4 hours with no visible signs of leakage.

B. Provide necessary caps or blinds to protect equipment not rated for test pressure (safety valves, regulators, etc.).

C. Pneumatic Testing:
   1. Pneumatic testing is expressly prohibited on any non-metallic piping.
   2. Other than as excepted above, pneumatic testing will not be considered without written consent from District or Engineer, and substantiation as to why hydrotesting is inapplicable. Additional testing requirements and measures may be required for a pneumatic test and will be considered on a case-by-case basis.

D. Reports: Submit test reports for all pipeline sections tested per Submittals requirements in Part 1 of this specification.

END OF SECTION
SECTION 23 21 14
HYDRONIC SPECIALTIES

PART 1 GENERAL
1.01 SECTION INCLUDES
A. Air vents.
B. Strainers.
C. Combination pump discharge valves.

1.02 REFERENCE STANDARDS
A. ASME (BPV VIII, 1) - Boiler and Pressure Vessel Code, Section VIII, Division 1 - Rules for Construction of Pressure Vessels; The American Society of Mechanical Engineers; 2007.

1.03 SUBMITTALS
A. See Division 1 for submittal procedures.
B. Product Data: Provide product data for manufactured products and assemblies required for this project. Include component sizes, rough-in requirements, service sizes, and finishes. Include product description, model and dimensions.
C. Manufacturer's Installation Instructions: Indicate hanging and support methods, joining procedures.
D. Maintenance Data: Include installation instructions, assembly views, lubrication instructions, and replacement parts list.

1.04 QUALITY ASSURANCE
A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING
A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
B. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
C. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

PART 2 PRODUCTS
2.01 AIR VENTS
A. Manufacturers:
   4. Substitutions: See Division 1.
B. Manual Type: Short vertical sections of 2 inch diameter pipe to form air chamber, with 1/8 inch brass needle valve at top of chamber.
C. Automatic Float Type:
   1. Standard Duty: Brass or semi-steel body, copper, polypropylene, or solid non-metallic float, stainless steel valve and valve seat; suitable for system operating temperature and pressure; with isolating valve.
   2. High Capacity: Cast iron body and cover, float, bronze pilot valve mechanism suitable for system operating temperature and pressure; with isolating valve.

2.02 STRAINERS
A. Manufacturers:
2. Bell & Gossett: www.bellgossett.com

B. Size 2 inch and Under:
   1. Screwed brass or iron body for 175 psi working pressure, Y pattern with 1/32 inch stainless steel perforated screen.

C. Size 2-1/2 inch to 4 inch:
   1. Flanged iron body for 175 psi working pressure, Y pattern with 3/64 inch stainless steel perforated screen.

D. Size 5 inch and Larger:
   1. Flanged iron body for 175 psi working pressure, basket pattern with 1/8 inch stainless steel perforated screen.

2.03 COMBINATION PUMP DISCHARGE VALVES
   A. Manufacturers:
      1. Bell & Gossett; Model 3DS.
   B. Valves: Straight or angle pattern, flanged cast-iron valve body with bolt-on bonnet for 175 psi operating pressure, non-slam check valve with spring-loaded bronze disc and seat, stainless steel stem, and calibrated adjustment permitting flow regulation.

PART 3 EXECUTION
3.01 INSTALLATION
   A. Install specialties in accordance with manufacturer's instructions.
   B. Provide manual air vents at system high points and as indicated.
   C. For automatic air vents in ceiling spaces or other concealed locations, provide vent tubing to nearest drain.
   D. Provide valved drain and hose connection on strainer blow down connection.

END OF SECTION
SECTION 23 21 23
HYDRONIC PUMPS

PART 1 GENERAL
1.01 SECTION INCLUDES
   A. In-line pumps.

1.02 REFERENCE STANDARDS

1.03 SUBMITTALS
   A. See Division 1 for submittal procedures.
   B. Product Data: Provide certified pump curves showing performance characteristics with pump and system operating point plotted. Include NPSH curve when applicable. Include electrical characteristics and connection requirements.
   C. Manufacturer's Installation Instructions: Indicate hanging and support requirements and recommendations.
   D. Millwright's Certificate: Certify that base mounted pumps have been aligned.
   E. Operation and Maintenance Data: Include installation instructions, assembly views, lubrication instructions, and replacement parts list.

1.04 QUALITY ASSURANCE
   A. Manufacturer Qualifications: Company specializing in manufacture, assembly, and field performance of pumps, with minimum three years of documented experience.

PART 2 PRODUCTS
2.01 MANUFACTURERS
   A. ITT Bell & Gossett; Series 80. www.bellgossett.com.
   B. Substitutions: See Division 1.

2.02 HVAC PUMPS - GENERAL
   A. Provide pumps that operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, and operate within 25 percent of midpoint of published maximum efficiency curve.
   B. Products Requiring Electrical Connection: Listed and classified by UL or testing agency acceptable to authority having jurisdiction as suitable for the purpose specified and indicated.

2.03 IN-LINE PUMPS
   A. Type: Single stage, close coupled, radially split casing, for 175 psi maximum working pressure.
   B. Casing: Cast iron, with suction and discharge gage ports, renewable bronze casing wearing rings, seal flush connection, drain plug, flanged suction and discharge.
   C. Impeller: Bronze, fully enclosed, keyed to motor shaft extension.
   D. Shaft: Stainless steel.
   E. Seal: Manufacturer's standard seal, 225 degrees F maximum continuous operating temperature.
   F. Motor: TEFC with dripproof enclosure.

PART 3 EXECUTION
3.01 PREPARATION
   A. Verify that electric power is available and of the correct characteristics.
3.02 INSTALLATION
A. Install in accordance with manufacturer's instructions.
B. Provide access space around pumps for service. Provide no less than minimum space recommended by manufacturer.
C. Decrease from line size with long radius reducing elbows or reducers. Support piping adjacent to pump such that no weight is carried on pump casings.
D. Provide line sized shut-off valve and strainer on pump suction, and line sized soft seat check valve and balancing valve on pump discharge.
E. Lubricate pumps before start-up.

END OF SECTION
SECTION 23 25 00
HVAC WATER TREATMENT

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Cleaning of piping systems.

1.02 SUBMITTALS
A. See Division 1 for Submittal Procedures.
B. Product Data: Provide chemical treatment materials, chemicals, and equipment including electrical characteristics and connection requirements.
C. Manufacturer's Installation Instructions: Indicate placement of equipment in systems, piping configuration, and connection requirements.
D. Manufacturer's Field Reports: Indicate start-up of treatment systems when completed and operating properly. Indicate analysis of system water after cleaning and after treatment.
E. Project Record Documents: Record actual locations of equipment and piping, including sampling points and location of chemical injectors.
F. Operation and Maintenance Data: Include data on chemical feed pumps, agitators, and other equipment including spare parts lists, procedures, and treatment programs. Include step by step instructions on test procedures including target concentrations.

1.03 QUALITY ASSURANCE
A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience. Company shall have local representatives with water analysis laboratories and full time service personnel.
B. Installer Qualifications: Company specializing in performing the type of work specified in this section, with minimum three years of experience and approved by manufacturer.

1.04 REGULATORY REQUIREMENTS
A. Conform to applicable code for addition of non-potable chemicals to building mechanical systems and to public sewage systems.

1.05 COORDINATION
A. Coordinate with chemical supplier for means and methods of flushing and cleaning operations.
B. Coordinate with Owner for final filling and chemical treatment of the chilled water system. Chilled and heating hot water system may be final filled from the Central Plant to maintain water treatment quality.

PART 2 PRODUCTS

2.01 MANUFACTURERS
B. Substitutions: See Division 1.

2.02 MATERIALS
A. Temporary Materials
1. Pumps: Provide temporary circulating/injection pumps to flush and clean the new piping systems. Pumps shall be of the size and capacity as required for the chemical cleaning operation as recommended by the chemical supplier/cleaning agency.
2. Piping Systems: Provide necessary pipe, valves, fittings, hoses, etc. as required to complete piping loops to provide circulation necessary for cleaning operations.
3. Power: Provide necessary power connections and safety devices to operate temporary pumps.
4. Provide temporary water meters as required for determination of system volumes.
B. System Cleaner:
   1. Manufacturers:
      b. Substitutions: See Division 1.
   2. Liquid alkaline compound with emulsifying agents and detergents to remove grease and petroleum products; sodium tripoly phosphate and sodium molybdate.
   3. Biocide chlorine release agents such as sodium hypochlorite or calcium hypochlorite.
C. Closed System Treatment (Chilled Water & Heating Hot Water - steel):
   1. Manufacturers:
      b. Substitutions: See Division 1.
   2. Sequestering agent to reduce deposits and adjust pH.
   3. Corrosion inhibitors Molybdate based inhibitor. Provide a 15 gallon container of treatment listed above - deliver to the Central Plant. DO NOT treat system, system will be filled from Central Plant treated water. Note that fill rate will be extremely prolonged due to limited make up rate of the Central Plant.

PART 3 EXECUTION
3.01 PREPARATION
   A. Provide taps/nozzles and valves for temporary pump connections.
   B. Do not chemically clean permanent pumps, heat transfer devices or control components. Isolate prior to cleaning.
   C. Verify that electric power is available and of the correct characteristics.
3.02 CLEANING SEQUENCE
   A. Clean the heating hot water and chilled water systems installed under this contract.
   B. Concentration:
      1. As recommended by manufacturer.
   C. Temporary Materials
      1. Pumps: Provide temporary circulating/injection pumps to flush and clean the new piping systems. Pumps shall be of the size and capacity as required for the chemical cleaning operation as recommended by the chemical supplier/cleaning agency.
      2. Piping Systems: Provide necessary pipe, valves, fittings, hoses, etc. as required to complete piping loops to provide circulation necessary for cleaning operations. Provide necessary temporary piping and hoses to drain systems to sanitary sewer.
      3. Power: Provide necessary power connections and safety devices to operate temporary pumps.
   D. Draining: All system draining shall be to sanitary sewer.
   E. Hot Water Heating and Chilled Water Systems:
      1. Provide temporary bypasses, nozzles, valves and crossovers to allow circulation of systems without the use of the permanent pumps (if any).
      2. Fill the system with water and initially circulate and flush the system without cleaner to remove large debris.
      3. After the initial flush is complete, circulate system with temporary pumps while injecting chemical. Test system at remote points to ensure chemical is being distributed throughout the system. Circulate with chemicals for a duration as recommended by the chemical supplier.
      4. Drain and flush system with clean water. Test for residual chemical. Re-flush as required to attain dilution as per supplier's recommendation.
      5. Fill hydronic systems with clean water and treat with final chemicals.
      6. Energize steam systems with plant steam, warming up gradually.
F. Use neutralizer agents on recommendation of system cleaner supplier and approval of Engineer.

G. Remove, clean, and replace strainer screens.

3.03 INSTALLATION
   A. Install in accordance with manufacturer's instructions.

END OF SECTION
SECTION 23 31 00
HVAC DUCTS AND CASINGS

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Metal ductwork.

1.02 REFERENCE STANDARDS
C. SMACNA (DCS) - HVAC Duct Construction Standards; 2005.
D. SMACNA Guidelines for Seismic Restraints of Mechanical Systems

1.03 SUBMITTALS
A. See Division 1 for submittal procedures.
B. Product Data: Provide data for duct materials.
C. Project Record Documents: Record actual locations of ducts and duct fittings. Record changes in fitting location and type. Show additional fittings used.

1.04 FIELD CONDITIONS
A. Do not install duct sealants when temperatures are less than those recommended by sealant manufacturers.
B. Maintain temperatures within acceptable range during and after installation of duct sealants.

PART 2 PRODUCTS

2.01 DUCT ASSEMBLIES

2.02 MATERIALS
A. Double Wall Ducts
   1. All exterior ductwork shall be constructed of double wall, insulated, galvanized sheet metal construction, unless the plans specifically call for a different type of construction. Minimum outer shell metal thickness is 22 ga. Inner and outer shell thicknesses shall both be determined by SMACNA Standards for the size of the duct, and pressure of the system. Insulation thickness shall be 2". Connectors shall be 4 bolt type, with continuous butyl gasket. For more info on insulation and jacketing, see section 23 07 13, 2.04.

2.03 DUCTWORK FABRICATION
A. Fabricate and support in accordance with SMACNA HVAC Duct Construction Standards and as indicated.
B. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.
C. Construct Ts, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows must be used, provide air foil turning vanes of perforated metal with glass fiber insulation.
D. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.
E. Fabricate continuously welded round and oval duct fittings in accordance with SMACNA HVAC Duct Construction Standards.
PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.
B. Duct sizes indicated are inside clear dimensions. For double wall ducts, maintain sizes inside lining.
C. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.
D. Install ductwork in accordance with SMACNA Guidelines for Seismic Restraints of Mechanical Systems.

END OF SECTION
SECTION 23 33 00
AIR DUCT ACCESSORIES

PART 1 GENERAL
1.01 SECTION INCLUDES
   A. Air turning devices/extractors.

1.02 REFERENCE STANDARDS
   A. SMACNA (DCS) - HVAC Duct Construction Standards; 2005.

1.03 SUBMITTALS
   A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
   B. Product Data: Provide for shop fabricated assemblies including hardware used.

PART 2 PRODUCTS
2.01 AIR TURNING DEVICES/EXTRACTORS
   A. Manufacturers:
   B. Turning vanes shall be a true airfoil design; smoothly-rounded entry nose with extended trailing edge. Generated sound power level shall not exceed 54 decibels in band 4 at 2,000 FPM, with a duct size of 24 x 24.
   C. Assemblies shall be fabricated with side rails; vanes installed on design centers across the full diagonal dimension of the elbow.
   D. Multi-blade device with blades aligned in short dimension; steel construction; with individually adjustable blades, mounting straps.
   E. Multi-blade device with radius blades attached to pivoting frame and bracket, steel construction, with push-pull operator strap.

PART 3 EXECUTION
3.01 INSTALLATION
   A. Install accessories in accordance with manufacturer's instructions, NFPA 90A, and follow SMACNA HVAC Duct Construction Standards.

END OF SECTION
SECTION 23 74 13
CUSTOM AIR HANDLING UNITS

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Design, performance criteria, controls and installation requirements for Custom Air Handling Units.

1.02 REFERENCES
B. AMCA/ANSI Standard 204: Balance Quality and Vibration Levels for Fans
C. AMCA Standard 210: Laboratory Methods of Testing Fans for Ratings
D. AMCA Standard 300: Reverberant Room Method for Sound Testing of Fans
E. AMCA Standard 500: Test Method for Louvers, Dampers and Shutters
F. ARI Standard 410: Forced-Circulation Air-Cooling and Air-Heating Coil
G. ASHRAE Standard 52: Gravimetric and Dust Spot Procedures for Testing Air Cleaning Devices Used in General Ventilation for Removing Particulate Matter
J. ASTM A-525: Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process

1.03 SUBMITTALS
A. Submit shop drawings and product data in accordance with Division 1.
B. Submittals shall include the following:
   1. Dimensioned plan and elevation view drawings, including motor starter and control cabinets, required clearances, and location of all field connections.
   2. Summary of all auxiliary utility requirements such as: electricity, water, compressed air, etc. Summary shall indicate quality and quantity of each required utility.
   3. Ladder type schematic drawing of the power and ancillary utility field hookup requirements, indicating all items that are furnished.
   4. Manufacturer's performance of each unit. Selection shall indicate, as a minimum, the following:
      a. Input data used for selection.
      b. Model number of the unit.
      c. Net capacity.
      d. Rated load amp draw.
      e. Noise levels produced by equipment.
      f. Fan curves.
      g. Approximate unit shipping weight.

1.04 OPERATION AND MAINTENANCE DATA
A. Include data on design, inspection and procedures related to preventative maintenance. Operation and Maintenance manuals shall be submitted at the time of unit shipment.

1.05 QUALIFICATIONS
A. Manufacturer shall be a company specializing in the design and manufacture of commercial custom HVAC equipment. Manufacturer shall have been in production of custom HVAC equipment for a minimum of 5 years.
B. Each unit shall bear an ETL or UL label under UL Standard 1995 indicating the complete unit is listed as an assembly. ETL or UL listing of individual components, or control panels only, is not acceptable.

1.06 DELIVERY, STORAGE, AND HANDLING
A. Deliver, store, protect and handle products to site under the supervision of the district.

1.07 WARRANTY
A. The complete unit shall be covered by a parts warranty issued by the manufacturer covering the first year of operation. This warranty period shall start upon receipt of start-up forms for the unit or eighteen months after the date of shipment, whichever occurs first.
B. The installing contractor shall provide labor warranty during the unit's first year of operation.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS
A. Provide custom outdoor air handling units as manufactured by Temtrol as the basis-of-design.

2.02 GENERAL
A. Furnish and install where shown on the plans, mechanical frame style air handling units designed for outdoor application with construction features as specified below. The units shall be provided and installed in strict accordance with the specifications. All units shall be complete with all components and accessories as specified. Any exceptions must be clearly defined. The contractor shall be responsible for any additional expenses that may occur due to any exception made.

2.03 FACTORY TESTING AND QUALITY CONTROL
A. Standard Factory Tests: The fans shall be factory run tested to ensure structural integrity and proper RPM. All electrical circuits shall be tested to ensure correct operation before shipment of unit. Units shall pass quality control and be thoroughly cleaned prior to shipment.

2.04 UNIT CONSTRUCTION DESCRIPTION
A. General: Provide factory-fabricated air handling units with capacity as indicated on the schedule. Units shall have overall dimensions as indicated and fit into the space available with adequate clearance for service as determined by the Engineer. Units shall be completely assembled. Multiple sectioned units shall be shipped as a single factory assembled piece. Units shall be furnished with sufficient gasket and bolts for reassembly in the field by the contractor. Unit manufacturer shall provide certified ratings conforming to the latest edition of AMCA 210, 310, 500 and ARI 410. All electrical components and assemblies shall comply with NEMA standards. Unit internal insulation must have a flame spread rating not over 25 and smoke developed rating no higher than 50 complying with NFPA 90A, "Standard for the Installation of Air Conditioning and Ventilating Systems." Units shall comply with NFPA 70, "National Electrical Code," as applicable for installation and electrical connections of auxiliary electrical components of air handling units. Tags and decals to aid in service or indicate caution areas shall be provided. Electrical wiring diagrams shall be attached to the control panel access doors. Operation and maintenance manuals shall be furnished with each unit. Units shall be UL or ETL listed.
B. Unit Base - Floor: Unit perimeter base shall be completely welded and fabricated using heavy gauge structural steel tubing. (Note: bolted bases are not acceptable) C-Channel cross supports shall be welded to perimeter base steel tubing and located on maximum 24" centers to provide support for internal components. Base rails shall include lifting lugs welded to perimeter base at the corner of the unit or each section if de-mounted. Entire base frame is to be painted with a phenolic coating for long-term corrosion resistance. Internal walk-on floor shall be 18 gauge G90 galvanized steel. The outer sub-floor of the unit shall be made from 20 gauge G90 galvanized steel. The floor cavity shall be spray foam insulated with floor seams gasketed for thermal break and sealed for air-tight/watertight construction. Where access is provided to the unit interior, floor openings shall be covered with metal phenolic coated steel
safety grating. Single wall floors with glued and pinned insulation and no sub floor are not acceptable. Base frame shall be attached to the unit at the factory.

1. **WALK-ON FLOOR inserts:**
   a. Standard floor: Temtrol
   b. Thermal break construction: Mechanically fastened caulk seams.
      1) 16 gauge G90 galvanized steel.

2. **SUB-FLOOR inserts:** Temtrol
   a. Standard subfloor:
      1) 20 gauge G90 galvanized steel

C. Unit Casing - The construction of the air handling unit shall consist of a (1” x 2”) steel frame with formed 16 gauge exterior casing panels. The exterior casing panels shall be attached to the gasketed (1 x 2) steel frame with corrosion resistant fasteners. All casing panels shall be completely removable from the unit exterior without affecting the unit’s structural integrity. The air handling unit casing shall be of the “no-through-metal” design. The casing shall incorporate insulating thermal breaks as required so that, when fully assembled, there’s no path of continuous unbroken metal to metal conduction from inner to outer surfaces. Provide necessary support to limit casing deflection to 1/200 of the narrowest panel dimension. If panels cannot meet this deflection, additional internal reinforcing is required. All panel seams shall be caulked and sealed for an airtight unit. Leakage rates shall be less than 1% at design static pressure or 9" W.C. whichever is greater.

1. "Casing Material" options:
   a. Standard Panel:
      1) 16 gauge galvanized steel with fiberglass insulation

2. The exterior panel finish shall be: STANDARD COLOR "SANDSTONE"
   a. Painted with a polyester resin coating designed for long term corrosion resistance meeting or exceeding (ASTM B-117) Salt Spray Resistance at 95 degrees F. 2500 hrs. and (ASTM D-2247) Humidity Resistance at 95 degrees F. 2500 hrs. The color shall be sandstone.

D. Double Wall Liner - Each unit shall have double wall construction with 16 gauge solid galvanized liner in the exterior section. 20 gauge perforated galvanized liner in the interior section. The double wall interior panel shall be removable from the outside of the unit without affecting the structural integrity of the unit. Perforated sections shall be furnished with BGF 7628/252L fiberglass cloth used to prohibit the erosion of the insulation into the air stream.

E. **Fiberglass Panel ITF = 3” - (R12.5), 4” - (R17)**
   1. Insulation - Cabinet to be insulated with a full 3” (R12.5). The insulation shall have an effective thermal conductivity (C) of 0.024 (BTU in./ sq. ft. F) and a noise reduction coefficient (NRC) of 0.70 / per inch thick (based on a type “A” mounting). The coefficients shall meet or exceed a 3.0 P.C.F. density material rating. Insulation shall meet the erosion requirements of UL 181 facing the air stream and fire hazard classification of 25/50 (per ASTM-84 and UL 723 and CAN/ULC S102-M88) and meet NFPA 90A and 90B. All insulation edges shall be encapsulated within the panel. All perforated sections shall have Micromat or equal insulation with non-woven mat facing 5000 fpm rating and non-hygrosopic fibers as manufactured by Johns Manville or approved equal.

F. **Foam Panel:** Insulation - Base to be insulated with a full (R20) 3” thick closed cell foam insulation. Foam shall be ecomat 0-, 0- (Non VOC) UL 94HF1 rated. All insulation edges shall be encapsulated within the panel. All field penetrations must be completely sealed by installing contractor.
   
   Note: Non UL 94HF1 rated foam is not allowed.

G. Access Doors - The unit shall be equipped with a solid double wall insulated (same as the unit casing), hinged access doors as shown on the plans. The doorframe shall be extruded aluminum, foam filled with a built in thermal break barrier and full perimeter gasket. The door hinge assembly shall be completely adjustable die cast stainless steel. There shall be a minimum of two heavy duty handles per door. Provide ETL, UL 1995, and CAL-OSHA approved tool operated safety latch on all fan section access doors.
1. Access doors shall be provided with a 10 x 10 dual thermal pane safety glass window with the exception of the CW Coil section.

2.05 UNIT COMPONENT DESCRIPTION

A. Unit Fans - All fans shall meet the air flow performance specified and shall not exceed the brake horsepower or sound power levels specified on the mechanical equipment schedule. Fan performance shall be based on testing and be in accordance with AMCA Standards 210 and 300. All fans shall have a steep pressure/volume curve. Fan shafts shall be turned, ground and polished solid steel rated at maximum RPM below critical speed. Fan wheel and sheaves shall be keyed to the shaft. Fan shall be balanced per ANSI / AMCA 204-96 fan application category BV-3 using a digital signal analyzer at the design RPM with belts and drives in place to a vibration velocity less than or equal to 0.157 inches per second measured horizontal and vertical at each bearing pad. Vibration amplitudes are in inches/second-Peak. All values are filter-in at the fan speed. Fans assemblies shall be designed for heavy-duty industrial applications. Fan framing assemblies shall be fabricated from structural steel. Formed load bearing members are not acceptable. The structural steel shall be electrically welded together to form a rigid integral base. Fan assemblies shall be independently isolated with spring-type vibration isolators. Inlet cones shall be precision spun or die formed. Inlet cones shall be aerodynamically matched to the wheel side plate to provide streamlined airflow in the wheel and ensure full loading of the blades.

B. FANWALL TECHNOLOGY (FWT)

1. The multiple fan array systems shall include multiple, direct driven, arrangement 4 plenum fans constructed per AMCA requirements for the duty specified class III as required. Class I fans are not acceptable. Fans shall be rated in accordance with and certified by AMCA for performance. All fans shall be selected to deliver the specified airflow quantity at the specified operating Total Static Pressure and specified fan/motor speed. The fan array shall be selected to operate at a system Total Static Pressure that does not exceed 90% of the specified fan's peak static pressure producing capability at the specified fan/motor speed. Each fan/motor cube or cell shall include a minimum 10 gauge, G 90 Galvanized steel intake wall, 100 aluminum spun fan inlet funnel, and a 7 gauge HR steel (painted) motor support plate rail and structure. All motors shall be standard foot mounted type TEAO selected at the specified operating voltage, RPM, and efficiency as specified or as scheduled elsewhere. Motors shall meet the requirements of NEMA MG-1 Part 30 and 31, section 4.4.2. Motors shall be as manufactured by Baldor, Siemens, or Toshiba for use in multiple fan arrays that operate at varying synchronous speeds as driven by an approved VFD. Motor HP shall not exceed the scheduled HP as indicated in the AHU equipment schedule(s). Steel cased motors and/or ODP motors are not acceptable. All motors shall include permanently sealed (L10-400,000hr) bearings and AEGIS shaft grounding to protect the motor bearings from electrical discharge machining due to stray shaft currents. Each fan/motor assembly shall be dynamically balanced to meet AMCA standard 204-96, exceeding category BV-5, to meet or exceed an equivalent Grade G.55, producing a maximum rotational imbalance of .03" per second peak, filter in (.55 mm per second peak, filter in). Fan and motor assemblies submitted for approval incorporating larger than 22" wheel size and 215 T frames size motors shall be balanced in three orthogonal planes to demonstrate compliance with the G.55 requirement with a maximum rotational imbalance of .03" per second peak filter in (.55 mm per second peak, filter in). Copies of the certified balancing reports shall be provided with the unit O&M manuals at the time of shipment. Submittals that do not include a statement of compliance with this requirement will be returned to the contractor without review.

2. The multiple fan array AHU unit shall provide the specified acoustical performance as scheduled for the unit supply discharge opening(s), RA opening(s), and the OSA and Exhaust air opening(s).

3. The fan array shall consist of multiple fan and motor "cubes" or "cells," spaced in the air way tunnel cross section to provide a uniform air flow and velocity profile across the entire air way tunnel cross section and components contained therein. In order to assure uniform velocity profile in the AHU cross section, the fan cube dimensions must be variable, such
that each fan rests in an identically sized cube or cell, and in a spacing that must be such that the submitted array dimensions fill a minimum of 90% of the cross sectional area of the AHU air way tunnel. There shall be no blank off plates or “spacers” between adjacent fan columns or rows to position the fans across the air way tunnel. The array shall produce a uniform air flow profile and velocity profile within the airway tunnel of the air handling unit to equal the specified cooling coil and/or filter bank face velocity by +/- 10% when measured at a point 36” from the intake side of the fan array intake plenum wall, and a distance of 72” from the discharge side of the fan array intake plenum wall. Submittals for units providing less than the scheduled quantity of fans and/or spacing of the fans for multiple fan arrays shall submit CFD modeling of the air flow profile for pre-bid approval that indicates uniform velocity and flow across all internal components without increasing the length of the AHU unit or changing the aspect ratio of the unit casing as designed.

4. Each individual cube or cell in the multiple fan arrays shall be provided with an integral back flow prevention device that prohibits recirculation of air in the event a fan or multiple fans become disabled. The system effects for the back flow prevention device(s) shall be included in the criteria for the TSP determination for fan selection purposes, and shall be indicated as a separate line item SP loss in the submittals. Submitted AHU performance that does not indicate allowance for system effects for the back flow prevention device(s) and the system effect for the fan and motor enclosure in which each fan is mounted, will be returned to the contractor disapproved and will need to be resubmitted with all of the requested information included for approval. Back Draft Damper performance data that is per AMCA ducted inlet and discharge arrangements will not be accepted. Damper data must be for the specific purpose of preventing back flow in any disabled fan cube and that is mounted directly at the inlet of each fan. Motorized dampers for this purpose are not acceptable. Submitted fan performance data which only reflect published performance for individual fans in AMCA arrangement "A" free inlet and discharge will not be accepted. AHU Manufacturers that do not manufacture the fans being submitted on must provide certified performance data for fans as installed in the AHU unit with Back Draft damper effects included. At the sole discretion of the engineer, such performance testing may be witnessed by the engineer and/or the owner's representative.

5. Each fan motor shall be individually wired to a control panel containing a single VFD. Provide space within panel for the controls to accommodate 11”W X 13”H X 3” thick controller. Each VFD shall be sized for the total connected HP for all fan motors contained in the fan array. Wire sizing shall be determined, and installed, in accordance with applicable NEC standards and local code requirements. The multiple fan array electrical panel shall include system optimization controls to actively control fan speed and to enable and disable fans in the multiple fan array. The number of active fans in the array shall be automatically determined, and the speed of the enabled fans shall be adjusted to produce the required coincidental flow and pressure at the perimeter boundary of the unit at substantially peak efficiency. The system optimization controls shall continuously monitor required flow and pressure and shall automatically optimize the operating array configuration and speed for peak efficiency. The system, optimization controls shall be provided that will interface with, and be compatible with the BAS as specified elsewhere. It is the responsibility of the contractor to assure that the fan system optimization controls are compatible with the BAS system. System optimization controls shall be provided by the AHU unit manufacturer to assure single source responsibility for fan volume controls, and shall require only an input control signal from the controls contractor for SP or flow for proper operation of the system optimization controls. When specified, the AHU unit manufacturer shall provide a single communication interface with the BAS and shall coordinate with the controls contractor to make sure that all necessary data points are communicated.

6. Each fan & motor assembly shall be removable through a 24” wide, free area, access door located on the discharge side of the fan wall array without removing the fan wheel from the motor. All fan/motor access doors shall open against pressure.

MOTOR CIRCUIT PROTECTION:

Contra Costa Community College District
Los Medanos College
L-527 Mechanical Systems Upgrade 23 74 13 - 5

CUSTOM AIR HANDLING UNITS
All motors in the FANWALL Array shall be provided with individual Motor overload protection. All motor circuit protectors can be starting device enclosure or, if required by design, in a separate enclosure. Motor circuit protector enclosure must be located and mounted at a minimal distance from motors in the FANWALL Array. Provide remote indication by means of aux contacts wired in series.

Remote indication: Auxiliary contacts wired in series.

Pilot Lights: Multiple (one per fan) cover mounted pilot lights for local monitoring.

FANWALL TECHNOLOGY (FWT) CONTROL:
FANWALL TECHNOLOGY (FWT) WITH VARIABLE DRIVE:

As required by system design, provide one ABB Variable Frequency Drive for normal operation for each supply fan and return fan array. Intec Solutions shall startup VFD. Provide service disconnect with fuses or circuit breaker.

C. Heat Transfer Coils - Water Coil
1. All coil assemblies shall be leak tested under water at 315 PSIG and PERFORMANCE is to be CERTIFIED under ARI Standard 410. Coils exceeding the range of ARI standard rating conditions shall be noted.
2. Cooling coils shall be mounted on stainless steel support rack to permit coils to slide out individually from the unit. Provide intermediate drain pans on all stacked cooling coils. The intermediate pan shall drain to the main drain pan through a copper downspout. Water coils shall be constructed of seamless copper tubing mechanically expanded into fin collars. All fins shall be continuous within the coil casing to eliminate carryover inherent with a split fin design. Fins are die formed Plate type.
3. Headers are to be seamless copper with die formed tube holes.
4. Connections shall be male pipe thread (MPT) Schedule 40 Red Brass with 1/8" vent and drain provided on coil header for coil drainage. All coil connections shall be extended to the exterior of the unit casing by the manufacturer. Coils shall be suitable for 250 PSIG working pressure. Intermediate tube supports shall be supplied on coils over 44" fin length with an additional support every 42" multiple thereafter.
5. Water coils shall have the following construction:
Standard 5/8":
5/8" o.d. x 0.20" wall copper tube
0.006" Copper fins
16 gauge
with.028 return bends.

Stainless Steel

D. Condensate / Drain Pans - IAQ style drain pans shall be provided under all cooling coils as shown on the drawings. The drain pan shall be fabricated from 16 gauge 304 stainless steel. All pans are to be triple pitched for complete drainage with no standing water in the unit. They shall be insulated minimum 3-inch "Double Bottom" construction with welded corners. Provide stainless steel, 1-1/4" MPT drain connection extended to the exterior of the unit base rail. Units in excess of 159 inches shall have drain connections on both sides. All drain connections shall be piped and trapped separately for proper drainage.
E. Filters - Provide filters of the type indicated on the schedule. Factory fabricated filter sections shall be of the same construction and finish as the unit. Face loaded pre and final filters shall have Type 8 frames as manufactured by BLC, FARR or equal. Filter racks over 72" in length shall require an angle center reinforcement support. Side service filter racks shall be fabricated from no less than 16 gauge galvanized steel and include hinged access doors on both sides of the unit or as indicated on unit drawings. Internal blank-offs shall be provided by the air unit manufacturer as required to prevent air bypass around the filters.
1. Filter Gauge: Each filter bank shall be furnished with Magnethelic 2003, Signal Flag, Hinged Cover.
2. Medium Efficiency MERV 8 Pleated Filters - Provide 2" filters as specified on schedule on drawings. The filters shall be as manufactured by AAF, FARR or equal. Filters shall be in compliance with ANSI/UL 900 - Test Performance of Air Filters.
3. High Efficiency MERV 13 Rigid Filters - Provide (12" deep) filters as specified on schedule on drawings. The filters shall be listed as Class II under UL Standard 900. The filters shall be as manufactured by AAF, FARR or equal. Filters shall be in compliance with ANSI/UL 900 - Test Performance of Air Filters.

F. Dampers - Ruskin CD-60 or approved equal. Provide Class 1 rated, ultra low leak dampers (less than 3 cfm/sq ft. @1" w.c.) as indicated on the unit drawings. Low leakage dampers shall have extruded aluminum airfoil blades. Flat or formed metal blades are not acceptable. The damper blade shall incorporate santoprene rubber edge seals and zinc plated or stainless steel tubular steel shaft for a non-slip operation. Shaft bearings shall be spherical - non corrosive nylon to eliminate friction and any metal to metal contact. Damper jamb seals shall be UV rated, nylon glass reinforced or stainless steel spring arcs designed for a minimum air leakage and smooth operation. Damper linkage shall be concealed within a 16 gauge galvanized steel frame.

G. Rain Hoods - Rain hoods shall be fabricated from same material as unit casing with 1/4" wire mesh inlet screen. Hoods sized to minimize moisture carry over.

H. Louvers:
1. Exhaust Air applications - Provide Temtral DL6 extruded aluminum stationary louvers, drainable type with built in downspouts and birdscreen. Blades shall be housed inside a 16 ga. galvanized steel frame mounted to the unit exterior. Louver finish to match exterior unit finish.
2. Outside Air applications - RUSKIN EME3625. Louvers shall be used at O/A location. Louvers shall be stationary, drainable type with built in downspouts and furnished with birdscreen. Blades shall be vertical and housed inside an aluminum frame mounted to the unit exterior. Louver finish to match exterior unit finish.

2.06 ELECTRICAL POWER AND CONTROLS
A. All electrical and automatic control devices not previously called out or listed below are to be furnished and installed in the field by OTHERS.
B. All wiring shall be (75 degrees C) insulated copper wires.
C. The unit shall feature a mounted permanent nameplate displaying at a minimum the manufacturer, serial number, model number, current, amps and voltage. The unit must have an ETL or UL Listed and bear the appropriate mark.
D. Conduit shall consist of a combination of EMT or flexible metal conduit as required. Liquidtight flexible metal conduit may be used outside the air tunnel for wet locations.
E. The unit shall feature a main non-fused disconnect or the proper amp rating to allow shutoff of all electrical motors and control items.
F. The fan motors shall be wired to a junction box mounted on the unit exterior.
G. Unit Convenience Features
1. Specified sections on schedule shall be equipped with a vapor-proof 100 watt service light with guard.
2. Lights shall be controlled by one light switch mounted adjacent to the supply air fan access door.
3. Furnish a 120 volt GFI duplex convenience outlet on the exterior of AHU-4, 8 and 9 as indicated on the unit drawing.
4. All lights, switches and outlets shall be wired to a fused or non-fused disconnect for a separate 120 volt external source.
5. Specified sections on schedule shall be equipped with a vapor-proof 23W Compact Flr Light.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.
B. Coordinate with roofing contractor for curb installation and flashing.
C. Mount units on factory built roof mounting curb providing watertight enclosure to protect ductwork and utility services. Install roof mounting curb level.
D. Locate remote panels where indicated on drawings.

3.02 SYSTEM STARTUP

A. Provide factory authorized technicians to prepare and start equipment. Adjust for proper operation.
B. Factory authorized technicians shall prepare and submit a start up report for all units installed under this contract.

END OF SECTION
SECTION 23 82 00
CONVECTION HEATING AND COOLING UNITS

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Reheat Coil

1.02 REFERENCE STANDARDS

1.03 SUBMITTALS
A. Shop Drawings: Indicate coil fin height & length and overall height, length and depth, connection sizes & location, flange mounting dimensions, and direction of airflow.
B. Product Data
1. Certification - Acceptable coils are to be certified in accordance with ARI Standard 410 and bear the ARI label. Coils exceeding the scope of the manufacturer's certification and/or the range of the ARI's standard rating conditions will be considered provided the manufacturer is a current member of the ARI Air-Cooling and Air-Heating Coils certification programs and that the coils have been rated in accordance with ARI Standard 410. Manufacturer must be ISO 9002 certified.
2. Identify fin, tube & casing material type and thickness.
3. Show coil weight (shipping & operating).
4. State air and water flow amounts with its associated pressure drops.
5. Indicate entering & leaving air and water temperatures.

1.04 QUALIFICATIONS
A. Manufacturer: Company specializing in manufacturing water cooling and heating coils specified in this section must show a minimum five years experience and issues complete catalog data.

1.05 DELIVERY, STORAGE AND HANDLING
A. Deliver, store, protect and handle products to site.
B. Accept products on site on factory-installed shipping skids. Inspect for damage.
C. Store in a clean dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

PART 2 PRODUCTS

2.01 AIR COILS
A. Acceptable Manufacturers:

B. GENERAL DESCRIPTION
1. Furnish as shown on plans and as described in the specification, Daikin Applied Water Heating Coils.
2. Coils to have extended surface, staggered tube, and plate fin design.

C. HEADERS
1. Made of seamless copper tubing to assure compatibility with primary surface.
2. Headers to have intruded tube holes to provide maximum brazing surface for tube to header joint, strength, and inherent flexibility. Header diameter should vary with fluid flow requirements.
3. Vent and drain plugs shall be provided on the coil header.

D. CONNECTIONS
1. Coil connection should be compatible with the piping to the coil to minimize chance of "galvanic action/electrolysis."
2. Connections shall be a diameter adequate for specified gpm flow.
a. The connections are located to permit right hand mounting of the coil and assure equal pressure through all the circuits.

3. Connection and material type.
   a. Connection material to be carbon steel pipe. Connection type to be threaded.

4. Coils are circuited to provide maximum mean effective temperature difference for heat transfer rates.

5. Coils, greater than 2 rows, must be arranged for counter flow.

E. TESTING AND PRESSURE RATINGS
   1. Completed coils are tested at a minimum of 315 PSIG air pressure while submerged in warm water.
   2. Hydronic tests alone are not acceptable.
   3. Standard coil construction is rated for 250 PSIG working pressure at 300 degrees F.

F. CAPACITY
   1. Coil capacity shall be as outlined on the project schedule and confirmed with computer generated output.
   2. Application.
      a. Heating.
   3. Fluid Type.
      a. Water.

G. PRIMARY SURFACE
   1. Tubes to be 5/8" O.D., staggered in direction of airflow, and must be on 3" tube centers.
   2. Wall thickness to be .020" nominal copper and water pressure drop of coil selection adjusted to wall thickness specified.
   3. Tubes to be mechanically expanded into fin collars to provide a continuous primary to secondary compression bond over entire coil length, assuring maximum heat transfer.
   4. Coil Tube Type.

H. SECONDARY SURFACE
   1. Plate style fins shall be corrugated for high capacity and structural strength.
      a. Fin thickness shall be .0075" copper.
   2. The fins have to have collars to determine fin spacing per inch and support the heat transfer bond to primary surface. Tubing should not be visible between the fins.
      a. Fin Style to be a Hi-F fin type.

I. COIL TYPE & SERPENTINE
   1. 5WB- Half Serpentine with rows on 3.00" tube centers.
   2. Coils available from 12" to 54" fin height on 1.5" tube centers and on 3" increments.

J. CASINGS
   1. Casing Style
      a. Contractor Coil with flanged casing.
   2. Casing Material.
      a. Galvanized Steel.

PART 3 EXECUTION
3.01 INSTALLATION
   A. Install in accordance with manufacturer's recommendations.

3.02 CLEANING
   A. After construction is completed, clean exposed surfaces of units.
   B. Vacuum clean coils and inside of units.
   C. Touch-up marred or scratched surfaces of factory-finished cabinets using finish materials furnished by the manufacturer.
3.03 PROTECTION
   A. Provide finished cabinet units with protective covers during the balance of construction.

END OF SECTION
SECTION 26 05 01
MINOR ELECTRICAL DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Electrical demolition.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT
   A. Materials and equipment for patching and extending work: As specified in individual sections.

PART 3 EXECUTION

3.01 EXAMINATION
   A. Verify field measurements and circuiting arrangements are as shown on Drawings.
   B. Verify that abandoned wiring and equipment serve only abandoned facilities.
   C. Demolition drawings are based on casual field observation and existing record documents.
   D. Report discrepancies to District before disturbing existing installation.
   E. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION
   A. Disconnect electrical systems in walls, floors, and ceilings to be removed.
   B. Coordinate utility service outages with utility company.
   C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
   D. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Minimize outage duration.
      1. Obtain permission from District at least 24 hours before partially or completely disabling system.
      2. Make temporary connections to maintain service in areas adjacent to work area.
   E. Existing Fire Alarm System: Maintain existing system in service until new system is accepted. Disable system only to make switchovers and connections. Minimize outage duration.

3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK
   A. Remove, relocate, and extend existing installations to accommodate new construction.
   B. Remove abandoned wiring to source of supply.
   C. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.
   D. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets that are not removed.
   E. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.
   F. Repair adjacent construction and finishes damaged during demolition and extension work.
   G. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel as appropriate.
   H. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified.
3.04 CLEANING AND REPAIR

A. Clean and repair existing materials and equipment that remain or that are to be reused.

B. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.

C. Luminaires: Remove existing luminaires for cleaning. Use mild detergent to clean all exterior and interior surfaces; rinse with clean water and wipe dry. Replace lamps, ballasts and broken electrical parts.

END OF SECTION
SECTION 26 05 10
ELECTRICAL GENERAL PROVISIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Furnish all labor, materials, apparatus, tools, equipment, transportation, temporary construction and special or occasional services as required to make a complete working electrical installation, as shown on the drawings or described in these specifications.

1.02 REFERENCES

A. Reference to codes, standards, specifications and recommendations of technical societies, trade organizations and governmental agencies shall mean the latest edition of such publications adopted and published prior to submittal of the bid proposed. Such codes or standards shall be considered a part of this specification as though fully repeated herein.

B. When codes, standards, regulations, etc., allow work of lesser quality or extent than is specified under this Division, nothing in said codes shall be construed or inferred as reducing the quality, requirements or extent of the drawings and specifications.

C. California Code of Regulations (CCR) Title 24, Part 3, Basic Electrical Requirements, State Building Standards Electrical Code

D. National Fire Protection Association (NFPA).

E. Equipment and materials specified under this Division shall conform to the following standards where applicable:
   1. UL Underwriters' Laboratories
   2. ASTM American Society for Testing Materials
   3. CBM Certified Ballast Manufacturers
   4. IPCEA Insulated Power Cable Engineer Assoc.
   5. NEMA National Electrical Manufacturer's Assn.
   6. ANSI American National Standards Institute
   7. ETL Electrical Testing Laboratories

F. All base material shall be ASTM and/or ANSI standards.

G. All electrical apparatus furnished under this Section shall conform to National Electrical Manufacturers Association (NEMA) standards and the NEC and bear the Underwriters' Laboratories (UL) label where such label is applicable.

1.03 SUBMITTALS

A. See Division 1 for submittal procedures.

B. Where items are noted as "or equal" a product of equal design, construction and performance will be considered. Contractor must submit all pertinent test data, catalog cuts and product information required to substantiate that the product is in fact equal. Refer to Division 1, General Requirement for additional requirements. Only one substitution will be considered for each product specified.

C. Submittals shall consist of detailed shop drawings, specifications, "catalog cuts" and data sheets containing physical and dimensioned information, performance data, electrical characteristics, material used in fabrication, material finish and shall clearly indicate those optional accessories which are included and those which are excluded. Furnish one reproducible and 4 prints of each shop drawing.

1.04 CUTTING, PAINTING AND PATCHING

A. Structural members shall in no case be drilled, bored or notched in such a manner that will impair their structural value. Cutting of holes, if required, shall be done with core drill and only with the approval of the Engineer.

B. Cutting and digging shall be under the direct supervision of the General Contractor. Include as necessary for the work in this section.
C. The contractor shall be responsible for returning any surface from which he has removed equipment or devices to the condition and finish of the adjacent surfaces.

1.05 SUPERVISION
A. Contractor shall personally or through an authorized and competent representative constantly supervise the work from beginning to completion and, within reason, keep the same workmen and foreman on the project throughout the project duration.

1.06 PROTECTION
A. Keep conduits, junction boxes, and outlet boxes, and other openings closed to prevent entry of foreign matter: cover fixtures, equipment, and apparatus and protect against dirt, paint, water, chemical, or mechanical damage, before and during construction period. Restore to original condition any fixture, apparatus, or equipment damaged prior to final acceptance, including restoration of damaged shop coats of paint, before final acceptance. Protect bright finished surfaces and similar items until in service. No rust or damage will be permitted.

1.07 EXAMINATION OF SITE
A. The Contractor shall visit the site and determine the locale, working conditions, conflicting utilities, and the conditions in which the electrical work will take place. No allowances will be made subsequently for any costs which may be incurred because of any error or omission due to failure to examine the site and to notify the Engineer of any discrepancies between drawings and specifications and actual site conditions. Schedule visits at least 1 week in advance with District's Maintenance staff.

1.08 ENVIRONMENTAL REQUIREMENTS
A. After other work such as sanding, painting etc. has been completed, clean lighting fixtures, panelboards, switchboards, and other electrical equipment to remove dust, dirt, and grease, or other marks, and leave work in clean condition.

1.09 VOLTAGE CHECK
A. At completion of job, check voltage at several points of utilization on the system which has been installed under this contract. During test, energize all loads installed. Measure 3-Phase voltages and note percentage differences. Submit report to Engineer. Include copy in O&M Manual.

1.10 TESTS
A. Perform tests as specified to prove installation is in accordance with contract requirements. Perform tests in the presence of the Engineer and furnish test equipment, facilities, and technical personnel required to perform tests. Tests shall be conducted during the construction period and at completion to determine conformity with applicable codes and with these Specifications. Tests, in addition to specific system test described elsewhere, shall include:

1. Insulation Resistance: All 600 volt insulation shall be tested at 1,000 volts D.C for one minute on all feeder and branch circuit conductors including the neutral, and make a typed record of all readings to be included in the maintenance instructions. The direct current amperes shall be recorded at start and at one minute. The value shall be declining and not more than one microampere.

2. Circuit Continuity: Test all feeder and branch circuits for continuity. Test all neutrals for improper ground.

B. Equipment Operations: Test motors for correct operation and rotation.

C. Product Failure: Any products which fail during the tests or are ruled unsatisfactory by the Engineer shall be replaced, repaired, or corrected as prescribed by the Engineer at the expense of the Contractor. Tests shall be performed after repairs, replacements, or corrections until satisfactory performance is demonstrated.

D. Miscellaneous: Include all test results in the maintenance manual. Cost, if any, for all tests shall be paid by the Contractor.
1.11 DRAWINGS
A. Layout: General layout shown on the drawing shall be followed except where other work may conflict with the drawings.
B. Accuracy:
   1. Drawings for the work under this section are diagrammatic.
   2. Contractor shall verify lines, levels, and dimensions shown on the drawings and shall be responsible for the accuracy of the setting out of work and for its strict conformance with existing conditions at the site.
   3. Contractor shall insure reconnection of existing equipment and circuits affected by contract demolition whether or not reconnection is specifically shown on the contract documents.

1.12 PROJECT RECORD DRAWINGS
A. Refer to General Conditions for contractual requirements. Provide project record drawings as required by the General Provisions of the specifications and as required herein. Such drawings shall fully represent installed conditions including actual locations of outlets, true panelboard connections following phase balancing routines, correct conduit and wire sizing as well as routing, revised fixture schedule listing the manufacturer and products actually installed and revised panel schedule. All changes to drawings shall be made by qualified draftspersons to match existing linework and lettering as close as possible. When all the changes have been made to the trade drawings, contractor shall produce one (1) full size (E-Size) updated set of trade drawing(s) utilizing AutoCad 2008 or newer and supply one (1) set of Compact Discs (CD'S) reflecting same.

1.13 MAINTENANCE AND OPERATING INSTRUCTIONS
A. Furnish to the Engineer four (4) hard back 3-ring binders containing all bulletins, operating and maintenance instructions and part lists and other pertinent information for each and every piece of equipment furnished under this specification. Include service telephone numbers. Each binder shall be indexed into sections and labeled for easy reference. Bulletins containing more information than the equipment concerned shall be properly stripped and assembled.
B. At the time of completion, a period of not less than eight hours shall be allotted by the Contractor for instruction of building operating and maintenance personnel in the use of all systems. All personnel shall be instructed at one time, the Contractor making all necessary arrangements with manufacturer's representative. The equipment manufacturer shall be requested to provide product literature and application guides for the user's reference. Costs, if any for the above services shall be paid by the Contractor.

1.14 WARRANTIES
A. Furnish to the Engineer four (4) hard back 3-ring binders containing all warranties of every piece of equipment furnished under this specification. Include terms and limitations of warranties, contact names, addresses, and telephone numbers of manufacturer. Each binder shall be indexed into sections and labeled for easy reference for each equipment warranty.

1.15 EXTRA MATERIALS
A. See Division 1 - Product Requirements, for additional provisions.
B. All special tools for proper operation and maintenance of the equipment provided under this Section shall be delivered to the District's representative

PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION
3.01 WORKMANSHIP
A. Preparation, handling, and installation shall be in accordance with manufacturer's written instructions and technical data particular to the product specified and/or accepted equal except as otherwise specified. Coordinate work and cooperate with others in furnishing and placing
this work. Work to reviewed shop drawings for work done by others and to field measurements as necessary to properly fit the work.

B. Conform to the National Electrical Contractor's Association "Standard of Installation" for general installation practice.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

END OF SECTION
SECTION 26 05 12
BASIC MATERIAL AND METHODS

PART 1 GENERAL
1.01 SECTION INCLUDES
A. Conduit, raceways and fittings.
B. Wires and Cables for 600 Volts and less.
C. Wire connections.
D. Wire devices.
E. Outlet boxes.
F. Pull and junction boxes.
G. Disconnect Switches.
H. Fuses.
I. Supporting Devices.
J. Identifying Devices.
K. Grounding and Bonding

PART 2 PRODUCTS
2.01 CONDUIT, RACEWAYS AND FITTINGS
A. Rigid Steel Conduit
   1. Rigid steel conduit shall be full weight, pipe size, finished inside and out by hot-dip galvanizing after fabrication, and shall conform with ANSI C80.1 and UL.
   2. Couplings shall be electroplated steel.
   3. Insulating Bushings: Threaded polypropylene or thermo-setting phenolic rated 150°C minimum.
   4. Insulated grounding Bushings: Threaded cast malleable iron body with insulated throat and steel "lay-in" ground lug with compression screw.
   5. Insulated Metallic Bushings: Threaded cast malleable iron body with plastic insulated throat rated 150°C.
   6. Running threads are not acceptable.
B. Electrical Metallic Tubing (EMT):
   1. Conduit: Conduit shall be formed of cold rolled strip steel, and shall comply with ANSI C80.3 and UL requirements.
   2. Couplings: Electroplated steel, UL listed rain and concrete tight through 1-1/4" trade size. All EMT fittings shall be compression type.
   3. Connectors: Steel, gland compression type with insulated plastic throat, 150°C temperature rated. All EMT fittings shall be compression type.
C. Liquid Tight Flexible Metal Conduit:
   1. Conduit: Conduit shall be fabricated in continuous lengths from galvanized steel strip, spirally wound. Flexible conduit, except where installed in concealed dry locations, shall be liquid tight with plastic jacket extruded over the outer zinc coating. No aluminum substitute will be accepted.
   2. Fittings: Connectors shall be the screw clamp on screw-in (Jake) variety with cast malleable iron bodies and threaded male hubs with insulated throat or insulated bushings. Set screw type connectors are not acceptable. Liquid tight fittings shall be of cadmium plated cast malleable iron, with insulated throat.
D. Rigid Non-Metallic Conduit:
   1. Conduit and fittings shall be homogeneous plastic material free from visible cracks, holes or foreign inclusions. The conduit bore shall be smooth and free of blisters, nicks or other imperfections which could damage conductors or cables.

2.02 WIRING AND CABLES

A. Acceptable manufacturers: Southwire, or approved equal.

B. Conductor material: All wire and cable shall be insulated, stranded copper conductors. Soft drawn annealed copper wire 95% conductivity, bearing the UL label.

C. Minimum conductor size: AWG No. 12 for all power and lighting branch circuits. AWG No. 14 for all signal and control circuits.

D. Color Coding: System conductors shall be identified as to voltage and phase connections by means of color impregnated insulation or approved colored marking tape as follows:

E. For 120/240 volt, single phase, 3 wire system.
   1. Phase A - Black
   2. Phase B - Red
   3. Phase C - Orange for High Leg (208volt to neutral)
   4. Neutral - White
   5. Ground - Green

F. For 120/208 volt, 3 phase, 4 wire systems.
   1. Phase A - Black
   2. Phase B - Red
   3. Phase C - Blue
   4. Neutral - White
   5. Ground - Green

G. For 277/480 Volt, 3 phase, 4 wire system
   1. Phase A - Brown
   2. Phase B - Orange
   3. Phase C - Yellow
   4. Neutral - Grey
   5. Ground - Green

H. Secondary Wire and Cable, 0 to 600 Volts;
   1. NEC Type THW, or Type XHHW for feeders and branch circuits in wet or dry locations.
   2. NEC type THHN for branch circuits in dry locations.

2.03 WIRE CONNECTION

A. Wire Joints: Wires in sizes from #18 to #8 AWG, stranded conductor, with insulation rated 105 degrees C. or less shall be joined with electrical spring connectors of three part construction incorporating a non-restricted, zinc coated steel spring enclosed in a steel shell with an outer jacket of vinyl plastic with a flexible insulating skirt.

B. Mechanical Compression Connectors and Taps: Stranded conductors from #6 AWG to 750 Kcmil shall be joined or tapped using bolted pressure connectors having cast bronze compression bolts. Fittings shall be wide range-taking and designed to facilitate the making of parallel taps, tees, crosses or end-to-end connections. Split-bolt connectors will not be acceptable.

C. Fixture Connections: Splice fixture wire to circuit wiring with soldersless connectors as specified above in paragraph A.

D. Terminating Lugs: Conductors from size No. 6 AWG to 750 Kcmil, copper, shall be terminated using tin plated hydraulically operated crimping tools and dies as stipulated by the lug manufacturer. Lugs shall be 3M "Scotchlok" series 30000, Burndy Type Ya-L series, or equal.

E. Splicing and Insulating Tape (500 volts and below): General purpose electrical tape shall be suitable for temperatures from minus 18 degrees C to 105 degrees C, shall be black, ultraviolet proof, self-extinguishing, 7 mil thick vinyl with a dielectric strength of 10,000 volts. Apply 4 layers half-lap with 2" over-lay on each conductor.
F. Insulating Putty (600 volts and below): Pads or rolls of non-corrosive, self-fusing, one eight inch thick rubber putty with PVC backing sheet. Putty shall be suitable for temperatures from minus 17.8 degrees C to 37.8 degrees C and shall have a dielectric strength of 570 volts/mil minimum.

G. Insulating Resin: Two Part liquid epoxy resin with resin and catalyst in pre measured, sealed mixing pouch. Resin shall have a set up time of approximately 30 minutes at 21.1 degrees C, and shall have thermal and dielectric properties equal to the insulation properties of the cables immersed in the resin.

H. Terminal Strip Connectors: Terminate wire in locking tongue style, pressure type, solderless lug where applicable.

2.04 WIRING DEVICES

A. Switches: Specification grade, flush mounting, quiet operating AC type, with toggle operator, heat resistant plastic housing and self grounding metal strap. Silver or silver alloy contact. Rated 20A at 120-277V and capable of full capacity on tungsten or fluorescent lamp load. Design for up to #10 wire. Use single pole, double pole, three-way, four-way, lighted, pilot, or keyed type, as indicated on drawings or required. Provide white color unless otherwise noted. Manufacturer: Leviton, Arrow Hart, or Hubbell.

B. Receptacles: Specification grade, flush mounting receptacles with nylon face. High grade brass allow triple wipe contacts. Provide 2 pole, 3 wire grounding type with a green colored brass hexagonal equipment grounding screw. Grounding shall be rivetless, single piece brass with no mechanical connections in the primary path between point of ground wire termination and ground blades. Use 20A rated receptacles, white in color, unless otherwise noted. Manufacturer: Leviton, Arrow Hart, or Hubbell.

1. Isolated Ground - Provide separate path to ground, with orange faceplate or triangle to indicated isolated ground
2. GFCI - Equipped with diagnostic indicator for miswiring.
3. Weatherproof - GFCI type, outdoor rated, with metal lockable while in use cover

C. Faceplates: Provide nylon cover faceplates for wall receptacles, outlets, and switches. Include thermal mounting screws that match plate and device color. Manufacturer: Leviton, Arrow Hart, or Hubbell.

2.05 OUTLET BOXES

A. Standard outlet boxes: Galvanized, die formed or drawn steel, knock-out type of size and configuration best suited to the application indicated on the plans. Minimum box size, 4 inch square by 1-1/2 inch deep, indoor use. FS cast boxes are required for outdoor use.

B. Cast Metal Outlet Boxes: FS/FD cast boxes are required for outdoor use. Malleable iron alloy with threaded hubs and mounting lugs as required. Boxes shall be furnished with cast cover plates of the same material as the box and neoprene cover gaskets. Thomas and Betts, Crouse-Hinds, Appleton or equal.

C. Conduit Outlet Bodies: Cadmium plated, cast iron alloy. Obounds conduit outlet bodies with threaded conduit hubs and neoprene gasketed, cast iron covers. Outlet bodies shall be used to facilitate pulling of conductors or to make changes in conduit direction only. Splices are not permitted in conduit outlet bodies. Thomas and Betts, Crouse Hinds Form 8 Condulets, Appleton form 35 Unilets, or equal.

2.06 PULL AND JUNCTION

A. Sheet Metal Boxes: Use standard outlet or concrete ring boxes wherever possible; otherwise use minimum 15 gauge get metal, NEMA 1 boxes, sized to code requirements with covers secured by cadmium plated machine screws located 6 inches on centers. Circle AW Products, Hoffman Engineering Co., or equal.

B. Cast Metal Boxes: Use standard cast malleable iron outlet or device boxes wherever possible; otherwise use cadmium plated, cast malleable iron junction boxes with bolt-on, interchangeable conduit hub plates with neoprene gaskets. Appleton FS/FD series; Crouse Hinds FS/FD series, or equal.
2.07 DISCONNECT SWITCHES

A. All disconnect switches shall be heavy-duty type and have the number of poles, voltage rating, and horsepower rating as required by the motor or equipment. Disconnect switches shall be in enclosures to suit conditions, NEMA 3R for outdoor and NEMA 1 for indoor. Disconnect switches shall be fused unless otherwise noted on the drawings. As manufactured by: Square D - Class 3110, ITE Seimens, or equal.

2.08 FUSES

A. Dual Element, Time Delay, UL Class RK5. Rejection type. Size and Voltage as indicated on equipment. Bussman, Little Fuse, or approved equal.

2.09 ELECTRICAL SUPPORTING DEVICES

A. Concrete Fasteners: Hilti Kwik Bolt TZ or equal, self drilling expansion type concrete anchor.
B. Conduit Straps: Hot-dip galvanized, cast malleable iron, two hole type strap with cast clamp-backs and spacers as required. OZ/Gedney, Thomas & Betts, or equal.
C. Construction Channel: 1-1/2 inch by 1-1/2 inch 12 gauge galvanized steel channel with 17/32 inch diameter bolt holes, 1-1/2 inch on center, in the base of the channel. Kindorf 905 series, Unistrut P-1000-HS or equal.
D. Cable Ties and Clamps: Thomas and Betts Co. "Ty-Raps" Panduit "Pan-Ty" or equal one piece, nylon, reusable type lashing ties.
E. Fasteners (General): Wood screws for fastening to wood. Machine screws for fastening to steel. Toggle bolts for fastening to hollow concrete block, gypsum board, or plaster walls. Expansion anchors for attachments to pre-poured concrete.

2.10 IDENTIFYING DEVICES

A. Nameplates: Type NP: Engraved black bakelite, 1 inch by 3-1/2 inch, 1/8 inch high white letters, machine screw retained. For permanent identification of all switchboards, panelboards, circuit breakers in separate enclosures, motor starters, relays, time switches, disconnect switches and other cabinet-enclosed apparatus including terminal cabinets or match existing as closely as possible.
B. Legend Plates: Type LP: Die-stamped metal legend plate with mounting hole and positioning key for attachment to panel mounted operators' devices. Engraved paint-filled characters as specified.
C. Wire & Terminal Markers: Self-adhering, pre-printed vinyl with self-laminating wrap around strip. Markers shall be legible after termination. Brady B191 series, Thomas & Betts WSL series or equal.
D. Conductor Phase Markers: Thomas & Betts WCPHAS series or similar in addition to colored marking as specified under this section of the specifications.

2.11 GROUNDING AND BONDING

A. Ground Rods
   1. Manufacturer: Blackburn, Erico, or approved Equal
   2. Size: 3/4" x 10' Ground Rods
B. Grounding Electrode Conductor, 2/0 for foundation foots, and per NEC.
C. Grounding Well - Christy Box, G5 Traffic Valve Box.

PART 3 EXECUTION

3.01 CONDUIT AND RACEWAY APPLICATIONS

A. Rigid Steel Conduit: Use rigid steel conduit for the following locations or conditions:
   1. All exterior applications
   2. All conduits larger than 2" trade diameter.
   3. All conduits indoor below eight (8) feet above finished floor.
B. Electrical Metallic Tubing (EMT): EMT is allowed for the following conditions:
1. Interior only and above eight (8) feet from finished floor.
2. Interior only and when entering a panel from above.

C. Liquidtight Flexible Metallic Conduit: Use Liquidtight for the following conditions:
1. In damp and wet locations for connections to motors, transformers, vibrating equipment and machinery.
2. Connections to all pump motors, flow switches, and similar devices.

D. Rigid Non-Metallic Conduit, Polyvinyl Chloride (PVC) Schedule 40:
1. Underground installation.

3.02 CONDUIT INSTALLATION

A. General
1. All conduit runs shown on the plans are sized based on the use of rigid steel conduit and THWN copper conductors. If conductor type is changed the contractor shall be responsible for resizing conduits to meet code. In no case is conduit to be sized smaller than 3/4" trade diameter.
2. Low voltage wiring shall be installed in conduit, minimum 3/4" trade diameter.
3. Conduits shall be tightly covered and well protected during construction using metallic bushings and bushing "pennies" to seal open ends.
4. In making joints in rigid steel conduit, ream conduit smooth after cutting and threading.
5. Clean any conduit in which moisture or any foreign matter has collected before pulling in conductors. Paint all field threaded joints to prevent corrosion.
6. In all empty conduits or ducts, install an 1100 pound tensile strength polyethylene pulling rope.
7. Conduit systems shall be electrically continuous throughout. Install code size, uninsulated, copper grounding conductors in all conduit runs, grounding conductor shall be bonded to conduit, equipment frames and properly grounded.

B. Layout:
1. All new conduits shall be concealed. Any field conditions that does not allow concealment of conduits shall be reviewed with the Engineer prior to rough-in.
2. Locations of conduit runs shall be planned in advance of the installation and coordinated with concrete work, plumbing and framing.
3. Where practical install conduits in groups in parallel vertical or horizontal runs and at elevations that avoid unnecessary off-sets.
4. Low voltage conduit shall be grouped separately and labelled every 10 ft interval as to system (i.e. fire, control, etc)
5. Exposed conduit shall be run parallel or at right angles to the centerlines of the columns and beams.
6. Conduits shall not be placed closer than 12 inches from a parallel hot water or steam line or three inches from such lines crossing perpendicular to the runs.
7. In long runs of conduit, provide sufficient pull boxes per NEC inside buildings to facilitate pulling wires and cables. Support pull boxes from structure independent of conduit supports. These pull boxes are not shown on the plans.

C. Supports:
1. All raceway systems shall be secured to building structures using specified fasteners, clamps and hangers spaced according to Code.
2. Support single runs of conduit using two hole pipe straps. Where run horizontally on walls in damp or wet locations, install "clamp blocks" to space conduit off the surface.
3. Multiple conduit runs shall be supported using "trapeze" hangers fabricated from 3/8 inch diameter, threaded steel rods secured to building structures. Fasten conduit to construction channel with standard two hole pipe clamps. Provide lateral seismic bracing for hangers.
4. Installation
   a. Locate and install anchors, fasteners, and supports in accordance with NECA "Standard of Installation".
1) Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.
2) Do not drill or cut structural members.
   b. Rigidly weld support members or use hexagon-head bolts to present neat
      appearance with adequate strength and rigidity. Use spring lock washers under all
      nuts.
   c. Install surface-mounted cabinets and panelboards with minimum of four anchors.
   d. In wet and damp locations use steel channel supports to stand cabinets and
      panelboards 1 inch off wall.
   e. Use sheet metal channel to bridge studs above and below cabinets and panelboards
      recessed in hollow partitions.

D. Terminations and Joints:
   1. Raceways shall be joined using specified couplings or transition couplings where
      dissimilar raceway systems are joined.
   2. Rigid conduit connection to enclosures shall be made by Myers type grounding hubs only.
      EMT connections to enclosures shall be made with compression connector with grounding
      lock-nuts or bushings.
   3. Conduit terminations exposed at weatherproof enclosures and cast outlet boxes shall be
      made watertight using appropriate connectors and hubs.
   4. Install expansion couplings where any conduit crosses a building separation or expansion
      joint.
   5. Install cable sealing bushings on all conduits originating outside the building walls and
      terminating in switchgear, cabinets or gutters inside the building. Install cable sealing
      bushings or caulk conduit terminations in all grade level or below grade exterior pull,
      junction or outlet boxes.

E. Penetrations:
   1. Furnish and install metal sleeves for all exposed interior conduit runs passing through
      concrete floors or walls. Following conduit installation, seal all penetrations using non-iron
      bearing, chloride free, non-shrinking, dry-pack, grouting compound.
   2. Install specified watertight conduit entrance seals and membrane clamps at all below
      grade wall and floor penetrations. Conduits penetrating exterior building walls and building
      floor slab shall be insulated rigid steel.
   3. Conduits penetrating rated walls, floors, etc. shall be fireproofed.

3.03 CABLE AND WIRE INSTALLATION

A. Examination
   1. Verify that interior of building has been protected from weather.
   2. Verify that mechanical work likely to damage wire and cable has been completed.
   3. Verify that raceway installation is complete and supported.
   4. Verify that field measurements are as indicated.

B. Preparation
   1. In existing conduits that will be reused, pull out existing conductors.
   2. Completely and thoroughly swab raceway before installing wire.
   3. Use 50/50 solution of Simple Green. Use CO2 to blow water and soap into conduit - let
      soak to break up dried out pulling compounds, then pull conductors. Pull one conductor at
      a time if will not pull all out together.

C. General:
   1. Conductors shall not be in conduit until all work of any nature that may cause injury is
      completed. Care should be taken in pulling conductors that insulation is not damaged.
      U.L. approved non-petroleum base and insulating type pulling compound shall be used as
      needed.
   2. All cables shall be installed and tested in accordance with manufacturer's requirements
      and warranty.
   3. Block and tackle, power driven winch or other mechanical means shall not be used in
      pulling conductors of size smaller than AWG # 1.
D. Splicing and Terminating:
   1. All aspects of splicing and terminating shall be in accordance with cable manufacturer's published procedures.
   2. Make up all splices in outlet boxes with connectors as specified herein with separate tails of correct color to be made up to splice. Provide at least six (6) inches of tails packed in box after splice is made up.
   3. All wire and cable in panels, control centers and equipment enclosures shall be bundled and clamped.
   4. Encapsulate splices in exterior outlet, junction and pull boxes using insulating resin kits. All splices for exterior equipment in pump rooms shall be made up watertight.
   5. Insulate mechanical compression taps AWG #1/0 and larger using pre-molded, snap-on insulating boots or specified conformable insulating putty overwrapped with two half-lapped layers of insulating tape.

E. Identification:
   1. Securely tag all branch circuits, noting the purpose of each. Mark conductors with vinyl wrap-around markers. Where more than two conductors run through a single outlet, mark each circuit with the corresponding circuit number at the panelboard.
   2. Color code conductors size #6 and larger using specified phase color markers and identification tags.
   3. All terminal strips are to have each individual terminal identified with specified vinyl markers.
   4. All identification shall be legible and readable after completion of installation.
   5. Provide labeling for all switches and receptacle outlets. Self-adhering machine clear tape with black letters.

3.04 INSTALLATION:

A. Route wire and cable as required to meet project conditions.
   1. Wire and cable routing indicated is approximate unless dimensioned.
   2. Where wire and cable destination is indicated and routing is not shown, determine exact routing and lengths required.
   3. Include wire and cable of lengths required to install connected devices within 10 ft of location shown.

B. Install wire and cable in accordance with the NECA "Standard of Installation."

C. Use wiring methods indicated.

D. Pull all conductors into raceway at same time.

E. Use suitable wire pulling lubricant for building wire 4 AWG and larger.

F. Protect exposed cable from damage.

G. Support cables above accessible ceiling, using spring metal clips or metal cable ties to support cables from structure or ceiling suspension system. Do not rest cable on ceiling panels.

H. Use suitable cable fittings and connectors.

I. Neatly train and lace wiring inside boxes, equipment, and panelboards.

J. Clean conductor surfaces before installing lugs and connectors.

K. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.

L. Terminate aluminum conductors with tin-plated aluminum-bodied compression connectors only. Fill with anti-oxidant compound before installing conductor.

M. Use suitable reducing connectors or mechanical connector adaptors for connecting aluminum conductors to copper conductors.

N. Use split bolt connectors for copper conductor splices and taps, 6 AWG and larger. Tape uninsulated conductors and connector with electrical tape to 150 percent of insulation rating of conductor.
O. Use solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.

P. Use insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.

Q. Trench and backfill for direct burial cable installation as specified in Underground Structure Section. Install warning tape along entire length of direct burial cable.

R. Identify and color code wire and cable. Identify each conductor with its circuit number or other designation indicated.

**3.05 ELECTRICAL CONNECTIONS**

A. Make electrical connections in accordance with equipment manufacturer’s instructions.

B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.

C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.

D. Provide receptacle outlet to accommodate connection with attachment plug.

E. Provide cord and cap where field-supplied attachment plug is required.

F. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.

G. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.

H. Install terminal block jumpers to complete equipment wiring requirements.

I. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

**3.06 INSTALLATION OF BOXES**

A. General:

1. Leave no un-used openings in any box. Install close-up plugs as required to seal openings.

2. Exposed outlet boxes and boxes in damp or wet locations shall be cast metal with gasketed cast metal cover plates.

B. Box Layout:

1. Outlet boxes shall be installed at the locations and elevations shown on the drawings or specified herein. Make adjustments to locations as required by structural conditions and to suit coordination requirements of other trades.

2. Install junction or pullboxes where required to limit bends in conduit runs to not more than 360 degrees or where pulling tension achieved would exceed the maximum allowable for the cable to be installed. Consult wire and cable manufacturer.

**3.07 INSTALLATION OF WIRING DEVICES**

A. General

1. Install all devices flushmounted unless otherwise noted on the drawings. Comply with layout drawings for general locations. Consult Engineer or District’s Representative for locations that have conflict with other devices or manner not suitable for installation. Avoid placing devices behind open doors.

2. Align devices horizontally and vertically. Device plates shall be aligned vertically with tolerance of 1/16". All four edges of device plates shall be in contact with the wall surface.

3. Mounting height as indicated on the drawings and according to ADA requirements.

4. Install device plates on all outlet boxes. Provide blank plates for all empty, spare, and boxes for future use.

5. Securely fasten devices into boxes and attach appropriate cover plates.
6. Caulk around edges or outdoor device plates and boxes when rough wall surfaces prevent raintight seal. Use caulking materials approved by Engineer. Fireproof around opening of devices located or penetrating firerated construction assemblies.

7. Fireproof around opening of devices located or penetrating firerated construction assemblies.

B. Switches
1. Where switches are indicated to be installed near doors, corner walls, etc. mount not less than 2 inches and not more than 18” from trim. Verify exact location with Architect or Engineer prior to rough-in.
2. Coordinate the location of switches to insure locations at the strike side of doors.
3. Furnish and install engraved legend of each switch that controls exhaust fans, motors, equipment systems, etc. not located within sight of the controlling switch.
4. Ganging of Switches - provide barriers for switches of difference phases and voltages. Otherwise switches shall be gauged in one faceplate.

C. Receptacles
1. Mount receptacles vertically with U-shaped ground position on bottom.
2. Do not combine GFCI protected circuits with other circuits in the same raceway. Limit number of GFI protect circuits in any one raceway to a maximum of one (1) circuit.

D. Identification
1. Label all outlets and switches. Mark each wiring device where circuits and panel supply is derived from.
2. All identification shall be legible and readable after completion of installation.

3.08 INSTALLATION OF FUSES AND DISCONNECT SWITCHES
A. Fuses shall be installed where noted on plans. Sizes are based on design data provided by equipment mfg. Listed or labeled equipment must be in accordance with instructions included in the listing or labeling. Be sure to observe maximum branch circuit fuse size labels.

B. Disconnect switches shall be mounted on the equipment, where possible. Coordinate with mechanical contractor to ensure switches are not mounted on a removable access panel.

C. Label each disconnect fuse with equipment tag as indicated in the single line diagram, or as directed.

3.09 ELECTRICAL EQUIPMENT GROUNDING
A. Ground non-current carrying metal parts of electrical equipment enclosures, frames, conductor raceways or cable trays to provide a low impedance path for line-to-ground fault current and to bond all non-current carrying metal parts together. Install a ground conductor in each raceway system in addition to conductors shown. Equipment ground conductor shall be electrically and mechanically continuous from the electrical circuit source to the equipment to be grounded. Size ground conductors per NEC 250 unless larger conductors are shown on the drawings.

B. Grounding conductors shall be identified with green insulation, except where a bare ground conductor is specified. Where green insulation is not available, on larger sizes, black insulation shall be used and suitably identified with green tape at each junction box or device enclosure.

C. Install metal raceway couplings, fittings and terminations secure and tight to insure good ground continuity. Provide insulated grounding bushing and bonding jumper where metal raceway is not directly attached to equipment metal enclosure and at concentric knock-outs.

D. Motors shall be connected to equipment ground conductors with a conduit grounding bushing and with a bolted soldersless lug connection on the metal frame.

E. Conduit terminating in concentric knockouts at panelboards, cabinets and gutters shall have insulated grounding bushings and bonding jumpers installed interconnecting all such conduits and the panelboard cabinet, gutter, etc.

F. Performance:
1. Measure the resistance to ground of each ground rod before connection to the other ground rods. The resistance shall not exceed 25 ohms.
a. A single electrode which does not have a resistance to ground of 25 ohms or less shall be augmented by additional electrode(s).

2. Measure the resistance to ground of the total ground system with all connections completed. The resistance shall not exceed 2 ohms for primary services or 5 ohms for secondary services.

3. Tests of the resistance to ground shall be made using either the three point method or the fall-of-potential method.

4. Perform a continuity check from equipment ground bus bars and ground lugs to the ground system.

3.10 BONDING

A. Bonding shall be provided to assure electrical continuity and the capacity to conduct safely any fault current likely to be imposed.

B. Bonding shall be in accordance with NEC Article 250, Part V.

3.11 INSTALLATION

A. Install in accordance with manufacturer's instructions.

END OF SECTION
SECTION 26 05 26
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL
1.01 SECTION INCLUDES
   A. Grounding and bonding requirements.
   B. Conductors for grounding and bonding.
   C. Connectors for grounding and bonding.
   D. Grounding and bonding components for 600V and below include:
      1. Metal underground water pipe.
      2. Metal frame of the building.
      3. Rod electrodes.
      4. Grounding Electrode Conductors
      5. Equipment grounding conductors
      6. Bonding Conductors
   E. Grounding and bonding components for 1kV systems and above include:
      1. Metal frame of the building.
      2. Rod electrodes.
      3. Grounding Electrode Conductors
      4. Grounding Well

1.02 REFERENCE STANDARDS
   A. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.
   B. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
   C. UL 467 - Grounding and Bonding Equipment; Current Edition, Including All Revisions.

1.03 PERFORMANCE REQUIREMENTS
   A. Grounding System Resistance: 5 ohms. Switching and Susbtations.

1.04 SUBMITTALS
   A. See Section 01 30 00 - Administrative Requirements for submittals procedures.
   B. Product Data: Provide for grounding electrodes and connections.
   C. Test Reports: Indicate overall resistance to ground and resistance of each electrode.
   D. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
   E. Project Record Documents: Record actual locations of components and grounding electrodes.
   F. Certificate of Compliance: Indicate approval of installation by authority having jurisdiction.

1.05 QUALITY ASSURANCE
   A. Conform to requirements of NFPA 70.

PART 2 PRODUCTS
2.01 GROUNDING AND BONDING REQUIREMENTS
   A. Do not use products for applications other than as permitted by NFPA 70 and product listing.
   B. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.
C. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.02 GROUNDING AND BONDING COMPONENTS

A. General Requirements:
   1. Provide products listed, classified, and labeled by Underwriter's Laboratories Inc. (UL) or testing firm acceptable to authority having jurisdiction as suitable for the purpose indicated.
   2. Provide products listed and labeled as complying with UL 467 where applicable.

B. Conductors for Grounding and Bonding, in addition to requirements of Section 26 05 19:
   1. Use insulated copper conductors unless otherwise indicated.
      a. Exceptions:
         1) Use bare copper conductors where installed underground in direct contact with earth.
         2) Use bare copper conductors where directly encased in concrete (not in raceway).

C. Connectors for Grounding and Bonding:
   1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
   2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.
   3. Unless otherwise indicated, use mechanical connectors, compression connectors, or exothermic welded connections for accessible connections.

D. Manufacturers: Cooper Power Systems, CadWeld, Erico, or approved equal.

E. Rod Electrodes: Copper.
   2. Length: 10 feet.

2.03 CONNECTORS AND ACCESSORIES

A. All electrical connections should be welded with the CADWELD copper-based exothermic welding process.

B. Exothermic Connections: (ERICO Cadweld)
   1. Cable to Ground Rod: Type NC
   2. Cable to Cable: Type XA, TA, PT
   3. Cable to Building Steel: Type DF (Column Bonding Bar), VV
   4. Cable to Rebar: Type RD, RC
   5. Cable to Equipment: Type LA, NEMA Lugs Connections
   6. Cable to Steel Pipes: Type HA
   7. Cable to Metallic Conduit: Pipe Clamp with Flexible Grounding Braids and Lug Connection

C. Grounding Electrode Conductor: Bare, stranded copper. Size as per drawings. Minimum size to meet NFPA 70 requirements.

D. Grounding Well:
   1. Well Box: Christy G3 Traffic Valve Box with hold down bolts

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that work likely to damage grounding and bonding system components has been completed.

B. Verify that field measurements are as shown on the drawings.

C. Verify that conditions are satisfactory for installation prior to starting work.

D. Verify existing conditions and resistivity prior to beginning work.

E. Verify that final backfill and compaction has been completed before driving rod electrodes.
3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install grounding and bonding system components in a neat and workmanlike manner in accordance with NECA 1.

C. Make grounding and bonding connections using specified connectors.
   1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
   2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.
   3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer's recommendations.
   4. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
   5. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.

D. Identify grounding and bonding system components in accordance with Section 26.05.53.

E. Provide grounding well at power transformer, main switchboard, and at rod locations where indicated. Install well pipe top flush with finished grade.

F. Install 2/0 AWG bare copper wire in foundation footing.

G. For distribution transformers located away from main service entrance, provide and connect to grounding electrode conductor to a ground rod and building steel.

H. Provide isolated grounding conductor for specified circuits.

I. Equipment Grounding Conductor: Provide separate, insulated conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus, or bushing.

J. Ground all non-current carrying hardwares and metals. Include racks, supports, mounting hardwares, cable metallic shield, ladder, underfloor raceways, metal siding, metallic conduits, etc. Bond to grounding electrode.

K. Provide ground connection at all signal and data enclosures, lines, and data/telcom room.

L. Interface with site grounding system installed under Section 33.79.00.

M. Interface with lightning protection system installed under Section 26.41.13.

3.03 FIELD QUALITY CONTROL

A. District will provide field inspection in accordance with Section 01.40.00.

B. Perform inspection, testing, and adjusting in accordance with Section 01.40.00.

C. Perform inspections and tests listed in NETA STD ATS.

D. Perform ground electrode resistance tests under normally dry conditions. Precipitation within the previous 48 hours does not constitute normally dry conditions.

E. Investigate and correct deficiencies where measured ground resistances do not comply with specified requirements.

END OF SECTION
SECTION 26 05 29
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL
1.01 SECTION INCLUDES
A. Support and attachment components for equipment, conduit, cable, boxes, and other electrical work.

PART 2 PRODUCTS
2.01 SUPPORT AND ATTACHMENT COMPONENTS
A. General Requirements:
1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of electrical work.
2. Provide products listed, classified, and labeled by Underwriter's Laboratories Inc. (UL) or testing firm acceptable to authority having jurisdiction as suitable for the purpose indicated, where applicable.
3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported with a minimum safety factor of (2) time the maximum allowable tension loads as provided in the ICC-ES report. Include consideration for vibration, equipment operation, and shock loads where applicable.
4. Do not use products for applications other than as permitted by NFPA 70 and product listing.
5. Steel Components: Use corrosion resistant materials suitable for the environment where installed.
   a. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
   b. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.
B. Conduit and Cable Supports: Straps, clamps, etc. suitable for the conduit or cable to be supported.
   1. Conduit Straps: One-hole or two-hole type; steel or malleable iron.
   2. Conduit Clamps: Bolted type unless otherwise indicated.
C. Outlet Box Supports: Hangers, brackets, etc. suitable for the boxes to be supported.
D. Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for field-assembly of supports.
E. Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.
F. Anchors and Fasteners:
   1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.

2.02 MANUFACTURERS
A. HILTI; Model HILTI KWIK BOLT TZ: www.hilti.com.
   1. Do not use powder-actuated anchors, spring clips, or beam clamps.
   2. Obtain permission from Engineer before using powder-actuated anchors.
   3. Concrete Structural Elements: Use precast inserts, expansion anchors, powder-actuated anchors, or preset inserts.
   4. Concrete Surfaces: Use self-drilling anchors or expansion anchors.
   5. Hollow Masonry, Plaster, and Gypsum Board Partitions: Use toggle bolts or hollow wall fasteners.
   7. Sheet Metal: Use sheet metal screws.
B. Formed Steel Channel:
   1. Product: HS manufactured by HILTI, or approved equal.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install products in accordance with manufacturer’s instructions.

B. Install support and attachment components in a neat and workmanlike manner in accordance with NECA 1.

C. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.

D. Unless specifically indicated or approved by Engineer, do not provide support from suspended ceiling support system or ceiling grid.

E. Unless specifically indicated or approved by Engineer, do not provide support from roof deck.

F. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.

G. Equipment Support and Attachment:
   1. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
   2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
   3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
   4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.

H. Secure fasteners according to manufacturer’s recommended torque settings. See M-5.3.

I. Remove temporary supports.

END OF SECTION
SECTION 26 05 73
POWER SYSTEM STUDY

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Performance requirements for overcurrent protective devices.
B. Arc flash hazard study.

1.02 SCOPE OF STUDIES
A. Arc Flash Study: The study shall include all new electrical distribution equipment shown on the single line diagram. This includes all switchgear, switchboards, panelboards, motor control centers, ATS's, and transformers. The ARC Flash Hazard Analysis shall be as per NFPA 70E.
B. Studies shall be performed by a California, registered professional electrical engineer skilled in performing power system studies.

1.03 SUBMITTALS
A. Study Report:
   1. Submit arc flash hazard study and with a list of arc flash warning labels at least 30 days prior to energizing the electrical equipment.
   a. Evaluation of product data submittals by Engineer will not commence until acceptable preliminary studies in sufficient detail to ensure that device selection will be adequate have been submitted.
B. Study Report: Submit arc flash hazard study and with a list of arc flash warning labels at least 30 days prior to energizing the electrical equipment.

1.04 ARC FLASH STUDY
A. Provide an Arc Flash Hazard Study for all new electrical distribution system shown on the single line drawings. The intent of the Arc Flash Hazard Study is to determine hazards that exist at each major piece of equipment shown on the single line drawing. This includes switchgear, switchboards, panelboards, motor control centers, PDUs, UPS, ATS's, and transformers. The study shall include creation of Arc Flash Hazard Warning Labels.
B. The arc flash hazard study shall include the electrical distribution system equipment shown on the single line drawing. Use the data from the Fault/Coordination Study to perform the Arc Flash Study. The arc flash hazard study shall consider operation during normal conditions, alternate operations, emergency power conditions, and other operations that could result in maximum arc flash hazard.
C. Arc flash hazard study shall be performed in accordance with NFPA - 70E, NEC 110.16, and IEEE 1584. Study shall include the following:
   1. Indicate arc flash boundaries.
   2. Incident energies.
   3. PPE (Personal Protective Equipment) requirements.
   4. Shock hazard voltage level.
   5. Approach distances; limited, restricted, and prohibited.
D. Produce an Arc Flash Warning label stating "DANGER, ARC FLASH HAZARD" and shall list the above items. Also include the bus name and voltage. Labels shall be printed in color on 3 inch x 5 inch, self adhesive backed Avery or DuraLabel labels. Electrical contractor shall furnish install the labels based on the study.
E. Produce an Arc Flash Evaluation Summary Sheet listing the following additional items:
   1. Bus name.
   2. Upstream Protective Device Name, Type, and Settings.
   5. Protective Device Bolted Fault Current.
9. Equipment Type.
11. Arc Flash Boundary.
12. Working Distance.
13. Incident Energy.
14. Required Protective Fire Rated Clothing Type and Class.

PART 3 EXECUTION

2.01 ARC FLASH TRAINING

A. The testing agency shall train personnel of potential arc flash hazards associated with working on energized equipment (minimum 4 hours). Maintenance procedures in accordance with the requirements on NFPA 70E, Standard for Electrical Safety Requirements for Employee Workplaces, shall be provided by the testing company.

END OF SECTION
SECTION 26 08 02
ELECTRICAL ACCEPTANCE TESTING

PART 1 - GENERAL

1.01 OVERVIEW
A. The purpose of these specifications is to assure that all tested electrical equipment and systems are operational and within applicable standards and manufacturer's tolerances and that the equipment and systems are installed in accordance with design specifications.
B. The work specified in these specifications may involve hazardous voltages, materials, operations, and equipment. These specifications do not purport to address all of the safety problems associated with their use. It is the responsibility of the independent testing agency to review all applicable regulatory limitations prior to the use of these specifications.
C. Perform the visual inspections, manual operations and tests on systems and equipment as described in Part 3, "Execution".
D. Tests shall be performed and documented by an independent testing agency.
E. Perform these tests in addition to other electrical tests delineated in other Sections.

1.02 REFERENCES
A. All inspections and field tests shall be in accordance with the latest edition of the following codes, standards, and specifications except as provided otherwise herein.
   1. American National Standards Institute - ANSI
   3. Institute of Electrical and Electronic Engineers - IEEE
   4. Insulated Cable Engineers Association - ICEA
   5. InterNational Electrical Testing Association - NETA
   6. National Electrical Manufacturer's Association - NEMA
   7. National Fire Protection Association - NFPA
   8. Occupational Safety and Health Administration - OSHA
   9. State and local codes and ordinances
   10. Underwriters Laboratories, Inc. - UL

1.03 SUBMITTAL
A. The testing organization shall submit appropriate documentation to demonstrate that it satisfactorily complies with the following. An organization having a "Full Membership" classification issued by the InterNational Electrical Testing Association meets this criteria.
   1. The testing organization shall be an independent, third party, testing organization which can function as an unbiased testing authority, professionally independent of the manufacturers, suppliers, and installers of equipment or systems evaluated by the testing organization.
   2. The testing organization shall be regularly engaged in the testing of electrical equipment devices, installations, and systems.
B. The testing organization shall utilize technicians who are regularly employed for testing services.
C. Each on-site crew leader shall hold a current registered certification in electrical testing applicable to each type of apparatus to be inspected or tested. The certification in electrical testing shall be issued by an independent, nationally-recognized, technician certification agency. The following entities shall qualify as independent, nationally-recognized, technician certification agencies:
   1. InterNational Electrical Testing Association (NETA)
   2. Accepted certifications:
   3. Certified Technician/Level III
   4. Certified Senior Technician/Level IV

Contra Costa Community College District
Los Medano College
L-527 Mechanical Systems Upgrade 26 08 02 - 1
ELECTRICAL ACCEPTANCE TESTING
1.04 TEST REPORTS
   A. Provide written test reports, signed and dated, for all tests prior to acceptance of the tested equipment by the Owner. Test reports on megger, dielectric absorption and high potential tests shall include the ambient temperature and relative humidity existing at the time of the tests.

PART 2 - PART 2 -PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 VISUAL INSpections
   A. Prior to any testing, perform visual inspections to verify the following:
      1. The equipment is completely and properly installed
      2. The equipment is free from damage and defects
      3. Shipping blocks and restraints have been removed
      4. Electrical terminations have been properly tightened
      5. The equipment has been properly aligned
      6. The equipment has been properly lubricated
      7. The ventilation louvers are open and unobstructed
      8. The equipment is ready to be tested

3.02 MANUAL OPERATION
   A. Prior to any testing, mechanical devices shall be exercised or rotated manually to verify that they operate properly and freely.

3.03 PRIMARY CABLE TESTS
   A. Perform a continuity test, 2,500-volt DC megger test, AC high potential test, and a second 2,500-volt DC megger test on primary cables. The high potential test shall be performed at 45kV for new cable installations, and at 30kV when new cable has been spliced to existing cable.

3.04 POWER CABLE TESTS
   A. Perform a continuity check and a 1,000 volt DC megger test on 600 volt power cables No. 4 AWG and larger.
      1. The megger test shall be performed between each pair of conductors and from each conductor to ground.
      2. The megger test shall be performed for 15 seconds or until the insulation resistance value stabilizes.
      3. The insulation resistance between conductors and from each conductor to ground shall be 100 megohms minimum in one minute or less. In addition, the lowest insulation resistance value shall not differ from the highest value by more than 20 percent.

3.05 CONTROL CABLE TESTS
   A. Perform a continuity check on control and instrumentation wiring.

3.06 SECONDARY SWITCHGEAR AND SWITCHBOARD TESTS
   A. Perform a continuity check and 1,000 volt DC megger test on buses, and on main and feeder breakers.
   B. Perform a primary current injection test and a ‘Ducter’ (contact resistance) test on main breakers.
   C. Perform a 1,000-volt DC megger test and a turns-ratio test on CT's and PT's.
   D. Calibrate the metering.

3.07 SERVICE, DISTRIBUTION AND MOTOR CONTROL EQUIPMENT TESTS
   A. Perform a 1,000-volt megger test on buses, motor starters and disconnect switches. This test may be combined with the feeder cable megger test by testing the devices and terminated cables together.
   B. Perform a continuity check on motor control circuits and control panel internal wiring.

Contra Costa Community College District
Los Medanos College
L-527 Mechanical Systems Upgrade

ELECTRICAL ACCEPTANCE TESTING

26 08 02 - 2
C. Perform an operational test on the controls.
D. Perform a continuity check and a 1,000-volt DC megger test on 3 phase distribution and isolation transformers.

3.08 MOTOR TESTS
A. Perform a 1,000-volt megger test on 460 volt, 3 phase motors, and a 500 volt megger test on 200 volt, 3 phase motors.
B. “Bump” motors to verify proper direction of rotation.
C. Run motors and check for vibration.

3.09 GROUNDING TESTS
A. Measure the resistance to ground of each ground rod before connection to the other ground rods. The resistance shall not exceed 25 ohms.
   1. A single electrode which does not have a resistance to ground of 25 ohms or less shall be augmented by additional electrode(s).
B. Measure the resistance to ground of the total ground system with all connections completed. The resistance shall not exceed 2 ohms for primary services or 5 ohms for secondary services.
C. Tests of the resistance to ground shall be made using either the three point method or the fall-of-potential method.
D. Perform a continuity check from equipment ground bus bars and ground lugs to the ground system.

END OF SECTION
Asbestos and Lead Survey

HVAC Equipment Replacement
Roof Sectors 10, 13, and 14
Los Medanos College
Pittsburg, California
March 4, 2016
RGA-Terracon Project No. R1167276

Prepared for:
Contra Costa Community College District
Martinez, California

Prepared by:
RGA-Terracon Consultants, Inc.
Emeryville, CA
March 4, 2016

Contra Costa Community College District
500 Court Street
Martinez, California 94553

Attn: Kelly Johnson
Critical Solutions, Inc.
E: kellyj@csipm.com

Re: Asbestos and Lead Survey
HVAC Equipment Replacement
Roof Sectors 10, 13, & 14 College Complex
Los Medanos College
Pittsburg, California
Terracon Project No. R1167276

Dear District:

Terracon Consultants, Inc. (Terracon), formerly RGA Environmental, Inc, is pleased to submit the attached report for the above referenced site. The purpose of this report is to summarize the results of the Pre-replacement Asbestos and Lead Survey of HVAC equipment conducted on February 29, 2016. This survey was conducted in general accordance with our proposal dated February 24, 2016. We understand that this survey was requested due to planned replacement of the subject HVAC equipment on portions of the roof system of the College Complex.

Terracon appreciates the opportunity to provide this service to the District. If you have any questions regarding this report please contact the undersigned at 510-547-7771.

Sincerely,
Terracon Consultants, Inc.

Michael Harrington, CSST, DHS Lead Technician III (Env)
Marlin V. Bryant, CAC, DHS Lead, CIEC Senior Project Manager
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APPENDIX B ASBESTOS SURVEY SAMPLE LOCATION SUMMARY
APPENDIX C ASBESTOS ANALYTICAL LABORATORY DATA
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APPENDIX F PHOTOGRAPHS
APPENDIX G SAMPLE LOCATION DRAWINGS
EXECUTIVE SUMMARY

Terracon Consultants, Inc. (Terracon) conducted an asbestos and lead survey of HVAC equipment located on HVAC Roof Sectors 10, 13, and 14 of the College Complex at Los Medanos College in Pittsburg, California. Terracon understands that this survey was requested due to the planned replacement of the described HVAC equipment. The purpose of this survey was to sample and identify suspected hazardous materials including asbestos-containing materials (ACM) and lead in paint that may require special handling if disturbed and/or may require special packaging and documentation prior to disposal as waste. The survey was performed on February 29, 2016 by Michael Harrington, a California certified asbestos and lead inspector with Terracon, in accordance with our proposal dated February 24, 2016 and the industry standard asbestos and lead sampling protocols.

During the asbestos portion of the survey, Terracon collected a total of 60 bulk samples from among 24 homogeneous materials (HMs) suspected to be asbestos containing material (ACM). The analytical laboratory reported six (6) of the HMs analyzed as containing detectable asbestos content.

The following asbestos containing materials were identified as a result of laboratory analysis:

<table>
<thead>
<tr>
<th>Material Description</th>
<th>Material Location</th>
<th>Estimated Quantity*</th>
</tr>
</thead>
<tbody>
<tr>
<td>HA 05 Black Wrap</td>
<td>Sector 10 – North – 2-inch OD fiberglass insulated pipe</td>
<td>100 square feet</td>
</tr>
<tr>
<td>HA 06 Silver/Black Wrap</td>
<td>Sector 10 – Northeast – Elbows, Tees, and Valves</td>
<td>100 square feet</td>
</tr>
<tr>
<td>HA 16 Black/White Cloth Wrap</td>
<td>Sector 14 – North – Valves insulated with foam</td>
<td>100 square feet</td>
</tr>
<tr>
<td>HA 18 Black/Gray Coating</td>
<td>Sector 14</td>
<td>100 square feet</td>
</tr>
<tr>
<td>HA 19 Asphalt Roofing</td>
<td>Sector 14 – Northwest – Curb at base of HVAC Unit</td>
<td>100 square feet</td>
</tr>
<tr>
<td>HA 20 Black/Gray Mastic</td>
<td>Sector 14 – North Roof penetrations at base of pipes</td>
<td>100 square feet</td>
</tr>
</tbody>
</table>

HA – Homogeneous Area

During the lead in paint portion of the survey, Terracon collected a total of five (5) samples of suspected lead containing paint from building components. The analytical laboratory reported quantifiable amounts of lead in all samples submitted and analyzed. Two (2) of the paint samples were reported to have greater than 0.50% (equal to 5000 parts per million) by weight which is the threshold established by the US EPA Housing and Urban Development (HUD) for defining “Lead-Based Paint.” The two (2) “Lead Based Paints” present include pink paint on a steel beam in Sector 10 (10,600 ppm) and grey paint on metal ducting in Sector 14 (6,930 ppm).
1.0 INTRODUCTION
Terracon Consultants, Inc. (Terracon), formerly RGA Environmental, Inc, conducted an asbestos and lead survey of Roof HVAC Sectors 10, 13, and 14 of the College Complex of Los Medanos College in Pittsburg, California. The survey was conducted on February 29, 2016 by Terracon personnel in accordance with Terracon proposal dated February 24, 2016. The HVAC equipment, piping and roof penetrations in the specified Sectors 10, 13, and 14 were surveyed, for homogeneous areas of suspect asbestos-containing materials (ACM) and suspected lead containing paint. Although reasonable effort was made to survey accessible suspect materials, additional suspect but un-sampled materials could be located in walls, in voids, or in other concealed areas. Suspect asbestos and lead containing materials were collected in general accordance with the industry standard protocols and California regulations. All samples were delivered to accredited laboratories for analysis.

1.1 Project Objective
We understand this asbestos and lead survey was requested due to planned replacement of HVAC equipment in the specified roof sectors of the College Complex.

1.2 Reliance
This report is for the exclusive use of the Contra Costa Community College District (District) or the project being discussed. Reliance by any other party on this report is prohibited without written authorization of Terracon and the District. Reliance on this report by the District and all authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, this report, and Terracon’s Agreement for Services. The limitations of liability defined in Terracon’s Agreement for Services is the aggregate limit of Terracon’s liability to the District.

2.0 BUILDING DESCRIPTION
The survey area included the HVAC equipment located in Roof HVAC Sectors 10, 13, and 14 of the College Complex as described in drawings provided to Terracon by the District. The main roof fields of the College Complex were surveyed in 2015 and were reported to contain 15% asbestos in roofing felts and miscellaneous asbestos containing concrete residue in pea gravel aggregate. These materials were not re-sampled as part of this survey.
3.0 FIELD ACTIVITIES

The survey was conducted by Mr. Michael Harrington, a California certified asbestos and lead inspector with Terracon. Copies of the Terracon personnel credentials are provided in Appendix D. The survey was conducted in general accordance with applicable industry standards and regulations regarding sample collection of the respective suspected hazardous materials.

3.1 Visual Assessment

Survey activities were initiated with review of available mechanical drawings of site equipment followed by a visual inspection to identify homogeneous areas of suspect asbestos and lead containing materials. A homogeneous area (HA) for asbestos or lead containing paint consists of building materials or coatings that appear similar throughout in terms of color and texture with consideration given to the date of application. Interior assessment was conducted in visually accessible areas of the building.

3.2 Physical Assessment

A physical assessment of each HA of suspect ACM and painted surface were conducted to assess the friability and/or condition of the materials. A friable material is defined by the USEPA as a material which can be crumbled, pulverized, or reduced to powder by hand pressure when dry. Friability was assessed by physically touching suspect materials. The condition of painted surfaces are generally described as Intact, Fair, or Poor.

3.3 Sample Collection

Based on results of the visual observation, bulk samples of suspect ACM were collected in general accordance with USEPA AHERA sampling protocols. Samples of suspect materials were collected from randomly selected locations in each homogeneous area. Bulk samples were collected using wet methods as applicable to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker.

The selection of sample locations and frequency of sampling were based on Terracon's observations and the assumption that like materials in the same area are homogeneous in content.

3.4 Sample Analysis
Asbestos - Bulk samples were analyzed by Quantem Laboratories (Quantem) of Oklahoma City, Oklahoma. Quantem is accredited under the National Institute of Standards and Technology’s National Voluntary Laboratory Accreditation Program (NVLAP). When None Detected (ND) appears in this report, it should be interpreted as meaning no asbestos was observed in the sample material above the reliable limit of detection for the PLM method. Note that under EPA assessment criteria, if a single sample of a homogeneous material test positive for asbestos, all areas of that homogeneous material are considered to be asbestos containing.

Lead - Paint chip samples of predominant paints and coating were collected using a hand scraper or chisel and were placed into individual plastic sampling containers. Each sample was provided a discrete sample number, which was recorded on a chain of custody form. The samples were transported under chain of custody procedures to Quantem Laboratories of Oklahoma City, Oklahoma. All paint samples were analyzed for lead content using the Flame Atomic Absorption spectroscopy in accordance to EPA Method SW846-7420.

4.0 ASBESTOS SURVEY RESULTS

During the asbestos portion of the survey, Terracon collected a total of 60 bulk samples from among 24 homogeneous materials (HMs) suspected to be asbestos containing material (ACM). The analytical laboratory reported six (6) of the HMs analyzed as containing detectable asbestos content. Any additional suspect ACM discovered during future construction activities that are not clearly identified in this survey report should be assumed to be ACM until they can be appropriately tested. The following asbestos containing materials were identified as a result of laboratory analysis or assumed to be asbestos containing:

<table>
<thead>
<tr>
<th>Material Description</th>
<th>Material Location</th>
<th>Estimated Quantity*</th>
</tr>
</thead>
<tbody>
<tr>
<td>HA 05 Black Wrap</td>
<td>Sector 10 – North – 2-inch OD fiberglass insulated pipe</td>
<td>100 square feet</td>
</tr>
<tr>
<td>HA 06 Silver/Black Wrap</td>
<td>Sector 10 – Northeast – Elbows, Tees, and Valves</td>
<td>100 square feet</td>
</tr>
<tr>
<td>HA 16 Black/White Cloth Wrap</td>
<td>Sector 14 – North – Valves insulated with foam</td>
<td>100 square feet</td>
</tr>
<tr>
<td>HA 18 Black/Gray Coating</td>
<td>Sector 14 – Piping and Fittings</td>
<td>100 square feet</td>
</tr>
<tr>
<td>HA 19 Asphalt Roofing</td>
<td>Sector 14 – Northwest – Curb at base of HVAC Unit</td>
<td>100 square feet</td>
</tr>
<tr>
<td>HA 20 Black/Gray Mastic</td>
<td>Sector 14 – North Roof penetrations at base of pipes</td>
<td>100 square feet</td>
</tr>
</tbody>
</table>

A summary of the classification, condition and approximate quantity of identified ACM is presented in Appendix A. The summary of sample locations is presented in Appendix B. Laboratory analytical reports are included in Appendix C.

Terracon can provide the Client with a proposal for developing asbestos abatement specifications (project design) and for performing abatement oversight and air monitoring upon request.
5.0 LEAD IN PAINT SURVEY RESULTS

During the lead in paint portion of the survey, Terracon collected a total of five (5) samples of suspected lead containing paint from building components. The analytical laboratory reported quantifiable amounts of lead in all samples submitted and analyzed. Two (2) of the paint samples were reported to have greater than 0.50% (equal to 5000 parts per million) by weight which is the threshold established by the US EPA Housing and Urban Development (HUD) for defining “Lead-Based Paint.” In the following Table III, lead in paint samples reported at greater than 5,000 ppm are marked with yellow highlight.

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Material Description and Location</th>
<th>Condition</th>
<th>Lead % (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-1</td>
<td>Yellow paint on metal pipe – Sector 10</td>
<td>Fair</td>
<td>&lt;49.1</td>
</tr>
<tr>
<td>L-2</td>
<td>Pink paint on metal beam – Sector 10</td>
<td>Fair</td>
<td>10,600</td>
</tr>
<tr>
<td>L-3</td>
<td>Grey Paint on rubber – Sector 10</td>
<td>Fair</td>
<td>1,120</td>
</tr>
<tr>
<td>L-4</td>
<td>Grey paint on metal – Sector 14</td>
<td>Fair</td>
<td>6,930</td>
</tr>
<tr>
<td>L-5</td>
<td>Silver coating – Sector 13</td>
<td>Fair</td>
<td>155</td>
</tr>
</tbody>
</table>

Ppm – Parts per million

6.0 LIMITATIONS/GENERAL COMMENTS

Terracon did not perform sampling which required demolition or destructive activities such as knocking holes in walls, dismantling of equipment or removal of protective coverings. Reasonable efforts to access suspect materials within known areas of restricted access (e.g., crawl spaces) were made; however, confined spaces or areas which may pose a health or safety risk to Terracon personnel were not sampled.

This survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions, and recommendations expressed in this report are based on conditions observed during our survey of the HVAC equipment. The information contained in this report is relevant to the date on which this survey was performed, and should not be relied upon to represent conditions at a later date. This report has been prepared on behalf of and exclusively for use by the Contra Costa Community College District for specific application to their project as discussed. This report is not a bidding document. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation.
or remediation deemed necessary. Terracon does not warrant the work of regulatory agencies, laboratories, or other third parties supplying information which may have been used in the preparation of this report. No warranty, express or implied is made.
APPENDIX A
College Complex – HVAC Sectors 10, 13, 14
Asbestos and Lead Survey
Los Medanos College, Pittsburg, California

IDENTIFIED ASBESTOS CONTAINING MATERIALS BY HOMOGENEOUS AREA (HA)

<table>
<thead>
<tr>
<th>HA No.</th>
<th>Material Description</th>
<th>Material Location</th>
<th>% and Type Asbestos**</th>
<th>NESHAP Classification</th>
<th>Condition</th>
<th>Estimated Quantity*</th>
</tr>
</thead>
<tbody>
<tr>
<td>05</td>
<td>Black Wrap</td>
<td>Sector 10 – North - 2-inch OD pipe insulated with fiberglass</td>
<td>40% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good</td>
<td>Sq. Ft.</td>
</tr>
<tr>
<td>06</td>
<td>Silver/Black Wrap</td>
<td>Sector 10 – Northeast – Elbows, Tees, and Valve</td>
<td>15% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good</td>
<td>Sq. Ft.</td>
</tr>
<tr>
<td>16</td>
<td>Black/White Cloth Wrap</td>
<td>Sector 14 – North – Valves insulated with foam</td>
<td>30% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good</td>
<td>Sq. Ft.</td>
</tr>
<tr>
<td>18</td>
<td>Black/Gray Coating</td>
<td>Sector 14 -</td>
<td>30% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good</td>
<td>Sq. Ft.</td>
</tr>
<tr>
<td>19</td>
<td>Asphalt Roofing</td>
<td>Sector 14 – Northwest - Curb at base of HVAC unit</td>
<td>20% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good</td>
<td>Sq. Ft.</td>
</tr>
<tr>
<td>20</td>
<td>Black/Gray Mastic</td>
<td>Sector 14 – North – Roof penetrations at base of pipes</td>
<td>20% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good</td>
<td>Sq. Ft.</td>
</tr>
</tbody>
</table>

*Estimated quantities are based on a cursory field evaluation. Actual quantities may vary significantly, especially if asbestos containing materials are present in hidden and/or inaccessible areas not evaluated as part of this survey.

**% & Type Asbestos – this column contains both the analytical result of the sample with the highest concentration of asbestos detected in the samples that make up the HA and the types of asbestos identified.

The materials listed in this table have been sampled and determined to contain asbestos in concentrations greater than 1%. When disturbed, various federal, state and local regulations may apply. These materials should be monitored for damage over time and repaired as necessary by appropriately trained personnel. Removal may be necessary before renovations and in most cases before a demolition. See Appendix B for a summary of samples collected. See Appendix C for copies of the laboratory analytical reports.
# APPENDIX B

## College Complex – HVAC Sectors 10, 13, 14

### Asbestos and Lead Survey

Los Medanos College, Pittsburg, California

## ASBESTOS SURVEY SAMPLE LOCATION SUMMARY

<table>
<thead>
<tr>
<th>HA No./Sample No.</th>
<th>Material Description</th>
<th>Material Location</th>
<th>% and Type Asbestos**</th>
<th>NESHAP Classification</th>
<th>Condition</th>
<th>Estimated Quantity*</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/1, 2, 3</td>
<td>Roof Mastic</td>
<td>Sector 10 – W/SW/N – Pitch Pot-Large Black</td>
<td>ND</td>
<td>NA</td>
<td>Good</td>
<td>NA</td>
</tr>
<tr>
<td>02/4, 5, 6</td>
<td>Roof Mastic</td>
<td>Sector 10 – W/S/N – Pitch Pot – Small Grey</td>
<td>ND</td>
<td>NA</td>
<td>Good</td>
<td>NA</td>
</tr>
<tr>
<td>03/7, 8, 9</td>
<td>HVAC Tape</td>
<td>Sector 10 – S/SW/N</td>
<td>ND</td>
<td>NA</td>
<td>Good</td>
<td>NA</td>
</tr>
<tr>
<td>04/10, 11, 12</td>
<td>HVAC Cloth</td>
<td>Sector 10 - East</td>
<td>ND</td>
<td>NA</td>
<td>Good</td>
<td>NA</td>
</tr>
<tr>
<td>05/13,14, 15</td>
<td>Black Wrap</td>
<td>Sector 10 – North - 2-inch OD pipe insulated with fiberglass (ND)</td>
<td>40% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good</td>
<td>100 Sq. Ft.</td>
</tr>
<tr>
<td>06/16, 17, 18</td>
<td>Silver/Black Wrap</td>
<td>Sector 10 – Northeast – Elbows, Tees, and Valve with white insulation (ND)</td>
<td>15% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good</td>
<td>100 Sq. Ft.</td>
</tr>
<tr>
<td>07/19, 20, 21</td>
<td>HVAC Tape</td>
<td>Sector 10 – N/E/W</td>
<td>ND</td>
<td>NA</td>
<td>Good</td>
<td>NA</td>
</tr>
<tr>
<td>08/22, 23, 24</td>
<td>Black/white Coating</td>
<td>Sector 10 – North Valve – over black foam insulation</td>
<td>ND</td>
<td>NA</td>
<td>Good</td>
<td>NA</td>
</tr>
<tr>
<td>09/25, 26, 27</td>
<td>Roof Mastic</td>
<td>Sector 14 – Large Pitch Pot</td>
<td>ND</td>
<td>NA</td>
<td>Good</td>
<td>NA</td>
</tr>
<tr>
<td>10/28, 29, 30</td>
<td>Roof Mastic</td>
<td>Sector 14 – Small Pitch Pot</td>
<td>ND</td>
<td>NA</td>
<td>Good</td>
<td>NA</td>
</tr>
<tr>
<td>11/31, 32, 33</td>
<td>White Cloth/Tape</td>
<td>Sector 14 – Center White cloth over silver tape on HVAC unit</td>
<td>ND</td>
<td>NA</td>
<td>Good</td>
<td>NA</td>
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<tr>
<td>12/34, 35, 36</td>
<td>Black Cloth</td>
<td>Sector 14 – North – Black cloth on HVAC Unit</td>
<td>ND</td>
<td>NA</td>
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<td>NA</td>
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<tr>
<td>13/37, 38, 39</td>
<td>Yellow Insulation</td>
<td>Sector 14 – W/E/E – Fiberglass on Pipes</td>
<td>Not Submitted</td>
<td>NA</td>
<td>Good</td>
<td>NA</td>
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<td>14/40, 41, 42</td>
<td>Yellow Insulation</td>
<td>Sector 14 – W/W/W Fiberglass on Fittings</td>
<td>Not Submitted</td>
<td>NA</td>
<td>Good</td>
<td>NA</td>
</tr>
<tr>
<td>15/43, 44, 45</td>
<td>Black Foam</td>
<td>Sector 14 – W/W/W Black Foam</td>
<td>Not Submitted</td>
<td>NA</td>
<td>Good</td>
<td>NA</td>
</tr>
<tr>
<td>16/46, 47, 48</td>
<td>Black/White Cloth Wrap</td>
<td>Sector 14 – North – Valves insulated with foam</td>
<td>30% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good</td>
<td>100 Sq. Ft.</td>
</tr>
<tr>
<td>17/49, 50, 51</td>
<td>Black Cloth</td>
<td>Sector 14 – East – Patch on mechanical unit</td>
<td>ND</td>
<td>NA</td>
<td>Good</td>
<td>NA</td>
</tr>
<tr>
<td>18/52, 53, 54</td>
<td>Black/Gray Coating</td>
<td>Sector 14 – Piping and Fittings</td>
<td>30% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good</td>
<td>100 Sq. Ft.</td>
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<tr>
<td>HA No./Sample No.</td>
<td>Material Description</td>
<td>Material Location</td>
<td>% and Type Asbestos**</td>
<td>NESHAP Classification</td>
<td>Condition</td>
<td>Estimated Quantity*</td>
</tr>
<tr>
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<tr>
<td>19/55, 56, 57</td>
<td>Asphalt Roofing</td>
<td>Sector 14 – Northwest - Curb at base of HVAC unit</td>
<td>20% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good</td>
<td>100 Sq. Ft.</td>
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<tr>
<td>20/58, 59, 60</td>
<td>Black/Gray Mastic</td>
<td>Sector 14 – North – Roof penetrations at base of pipes</td>
<td>20% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good</td>
<td>100 Sq. Ft.</td>
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<td>21/61, 62, 63</td>
<td>Roof Mastic</td>
<td>Sector 13 – Base of HVAC Supports Pitch Pots</td>
<td>ND</td>
<td>NA</td>
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<td>NA</td>
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<td>22/64, 65, 66</td>
<td>HVAC Tape</td>
<td>Sector 13 – N/S/W – Metal HVAC Ducting</td>
<td>ND</td>
<td>NA</td>
<td>Good</td>
<td>NA</td>
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<tr>
<td>23/67, 68, 69</td>
<td>Black Coating</td>
<td>Sector 13 – Black paint on Foam Insulation</td>
<td>ND</td>
<td>NA</td>
<td>Good</td>
<td>NA</td>
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<td>24/70, 71, 72</td>
<td>White Insulation</td>
<td>Sector 13 – Pipe Elbows - Fiberglass</td>
<td>ND</td>
<td>NA</td>
<td>Good</td>
<td>NA</td>
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</tbody>
</table>

ND = None Detected
APPENDIX C

ASBESTOS ANALYTICAL LABORATORY DATA
Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 260460
Account Number: C018
Date Received: 03/02/2016
Received By: Rachel Brooks
Date Analyzed: 03/03/2016
Analyzed By: Gayle Ooten
Methodology: EPA/600/R-93/116

Client: RGA Environmental
M. Bryant
1466 66th Street
Emeryville, CA 94608

Project: Critical Solutions- Los Medanos College
Project Location: Sector 10-13-14
Project Number: R1167276

<table>
<thead>
<tr>
<th>QuanTEM Sample ID</th>
<th>Client Sample ID</th>
<th>Composition</th>
<th>Color / Description</th>
<th>Asbestos (%)</th>
<th>Non-Asbestos Fiber (%)</th>
<th>Non Fibrous</th>
</tr>
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<tbody>
<tr>
<td>001 01-MG5-01</td>
<td>Homogeneous</td>
<td>Black</td>
<td>Asbestos Not Present</td>
<td>Cellulose 10</td>
<td>Tar</td>
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<td></td>
<td></td>
<td>Roof Mastic</td>
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<tr>
<td>002 01-MG5-02</td>
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<td>Asbestos Not Present</td>
<td>Cellulose 15</td>
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<td></td>
<td></td>
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<td>003 01-MG5-03</td>
<td>Homogeneous</td>
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<td>Asbestos Not Present</td>
<td>Cellulose 15</td>
<td>Tar</td>
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<td></td>
<td>Roof Mastic</td>
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<td>004 02-MG5-04</td>
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<td>Cellulose 8</td>
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<tr>
<td></td>
<td></td>
<td>Roof Mastic</td>
<td></td>
<td></td>
<td>Glass Fiber</td>
<td></td>
</tr>
<tr>
<td>005 02-MG5-05</td>
<td>Homogeneous</td>
<td>Black</td>
<td>Asbestos Not Present</td>
<td>Cellulose 10</td>
<td>Tar 10</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Roof Mastic</td>
<td></td>
<td></td>
<td>Wollastonite</td>
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<tr>
<td>006 02-MG5-06</td>
<td>Homogeneous</td>
<td>Black</td>
<td>Asbestos Not Present</td>
<td>NA</td>
<td>Tar</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Roof Mastic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>007 03-SC5-07</td>
<td>Homogeneous</td>
<td>Silver/Tan</td>
<td>Asbestos Not Present</td>
<td>Cellulose 75</td>
<td>Paint Binder</td>
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<tr>
<td></td>
<td></td>
<td>Duct Tape</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

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# Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 260460  
Account Number: C018  
Date Received: 03/02/2016  
Received By: Rachel Brooks  
Date Analyzed: 03/03/2016  
Analyzed By: Gayle Ooten  
Methodology: EPA/600/R-93/116  
Client: RGA Environmental  
M. Bryant  
1466 66th Street  
Emeryville, CA 94608  
Project: Critical Solutions- Los Medanos College  
Project Location: Sector 10-13-14  
Project Number: R1167276  

<table>
<thead>
<tr>
<th>QuanTEM Sample ID</th>
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<th>Composition</th>
<th>Color / Description</th>
<th>Asbestos (%)</th>
<th>Non-Asbestos Fiber (%)</th>
<th>Non Fibrous</th>
</tr>
</thead>
<tbody>
<tr>
<td>008</td>
<td>03-SC5-08</td>
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<td>Silver/Tan Duct Tape</td>
<td>Asbestos Not Present</td>
<td>Cellulose 75 Paint Binder</td>
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<tr>
<td>009</td>
<td>03-SC5-09</td>
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<td>Silver/Tan Duct Tape</td>
<td>Asbestos Not Present</td>
<td>Cellulose 75 Paint Binder</td>
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<tr>
<td>010</td>
<td>04-WP1-10</td>
<td>Homogeneous</td>
<td>Gray Cloth</td>
<td>Asbestos Not Present</td>
<td>Glass Fiber 100</td>
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<tr>
<td>011</td>
<td>04-WP1-11</td>
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<td>Glass Fiber 100</td>
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<td>04-WP1-12</td>
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<td>Gray Cloth</td>
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<tr>
<td>013</td>
<td>05-PI4-13</td>
<td>Layered</td>
<td>Black Wrap</td>
<td>Asbestos Present Chrysotile</td>
<td>Glass Fiber 10 Tar</td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
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<th>Asbestos (%)</th>
<th>Non-Asbestos Fiber (%)</th>
<th>Non Fibrous</th>
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</thead>
<tbody>
<tr>
<td>013a</td>
<td>Layered</td>
<td>Yellow Insulation</td>
<td>Asbestos Not Present</td>
<td>Glass Fiber</td>
<td>100</td>
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<td>014</td>
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<td>Layered</td>
<td>White Insulation</td>
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<td>Cellulose 100</td>
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</tr>
<tr>
<td>014a</td>
<td>Layered</td>
<td>Yellow Insulation</td>
<td>Asbestos Not Present</td>
<td>Glass Fiber</td>
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<td>015</td>
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<tr>
<td>016</td>
<td>06-PI5-16</td>
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<td>Silver/Black Wrap</td>
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<td>Tar Silicone Binder</td>
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<tr>
<td>016a</td>
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<td>Gray Insulation</td>
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<td>017</td>
<td>06-PI5-17</td>
<td>Layered</td>
<td>White Wrap</td>
<td>Asbestos Not Present</td>
<td>Glass Fiber 40</td>
<td>Binder</td>
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</table>

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**Polarized Light Microscopy Asbestos Analysis Report**

QuanTEM Lab No. 260460  
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Date Received: 03/02/2016  
Received By: Rachel Brooks

Date Analyzed: 03/03/2016  
Received By: Gayle Ooten

Methodology: EPA/600/R-93/116

Client: RGA Environmental  
M. Bryant  
1466 66th Street  
Emeryville, CA 94608

Project: Critical Solutions- Los Medanos College  
Project Location: Sector 10-13-14  
Project Number: R1167276

<table>
<thead>
<tr>
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<th>Composition</th>
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<th>Asbestos (%)</th>
<th>Non-Asbestos Fiber (%)</th>
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</thead>
<tbody>
<tr>
<td>017a</td>
<td></td>
<td>Layered</td>
<td>White Insulation</td>
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<td>018</td>
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<td>Silver Sealant</td>
<td>Asbestos Not Present</td>
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</tbody>
</table>

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**Account Number:** C018
**Date Received:** 03/02/2016
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**Date Analyzed:** 03/03/2016
**Analyzed By:** Gayle Ooten
**Methodology:** EPA/600/R-93/116

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<th>Asbestos (%)</th>
<th>Non-Asbestos Fiber (%)</th>
<th>Non Fibrous</th>
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<td>024</td>
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<td>Black Insulation</td>
<td>Asbestos Not Present</td>
<td>NA</td>
<td>Foam</td>
</tr>
</tbody>
</table>

**Client:** RGA Environmental
**M. Bryant**
**1466 66th Street**
**Emeryville, CA 94608**

**Project:** Critical Solutions- Los Medanos College
**Project Location:** Sector 10-13-14
**Project Number:** R1167276

**Date of Report:** 3/3/2016

Gayle Ooten, Analyst

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### ACM BULK SAMPLE DATA SHEET

- **PLM Analysis (Analyze all samples)**
- **Step Analysis at First Positive**
- **Point Count Analysis (1000-point)**

---

**Project Name/Address/Building No.**

- **CRITICAL SOLUTIONS - Los Medanos College-Sector 10-13-14**

**Project #**

- **R1167276**

**Sampled By:**

- **M. Harrington**

**Sampling Date:**

- **2-29-16**

**Sample(s) sent to:**

- □ MAL
- □ EMSL
- ☒ Other
- **Quantum**
- **TAT**
- □ Rush
- □ 24HRS
- □ 48 HRS

---

*****FAX OR E-MAIL REPORT TO: SEE ABOVE PROJECT MANAGER (PM)***

*****ADDITIONAL REPORT RECIPIENT(S):***

---

<table>
<thead>
<tr>
<th>HM#</th>
<th>Material Description</th>
<th>Sample ID</th>
<th>Sample Location &amp; Material Location</th>
<th>Quantity</th>
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<td>01-MG5-01</td>
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<td>01-MG5-02</td>
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<td>SW</td>
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<td>01-MG5-03</td>
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<td>02-MG5-04</td>
<td>Roof Mastic Pitch Pot-Small-Gray</td>
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<td>02-MG5-05</td>
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<td>02-MG5-06</td>
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<tr>
<td>03-SC5-07</td>
<td>HVAC TAPE</td>
<td>03-SC5-07</td>
<td>Sector 10- South</td>
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<tr>
<td>03-SC5-08</td>
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<td>04-WP1-12</td>
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<td>East</td>
<td></td>
</tr>
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</table>

---

**Relinquished By:**

- Michael Harrington

**Signature:**

- [Signature]

**Date/Time:**

- 2-29-16

**Relinquished By:**

- [Signature]

**Received By:**

- [Signature]

**Date/Time:**

- 3/12 10:00am

---

1466 66th Street Emeryville CA 94608 Tel: (510) 547-7771 Fax: (510) 547-1983
### ACM BULK SAMPLE DATA SHEET

- **PM – S. Steiner**  
  steiner@terracon.com
- **PM – K. Schroeter**  
  kmschroeter@terracon.com
- **PM – K. Pilgrim**  
  kmpilgrim@terracon.com
- **PM – M. Bryant**  
  mbryant@terracon.com
- **PM – T. Kattchee**  
  tkaatchee@terracon.com
- **PM – B. Gilson**  
  regilson@terracon.com
- **PM – D. Urferflige**  
  dufferflige@terracon.com
- **PM – M. Bishop**  
  mrbishop@terracon.com
- **PM – W. Frieszell**  
  wfrieszell@terracon.com

---

**Project Name/ Address/ Building No.**  
CRITICAL SOLUTIONS- Los Medanos College-Sector 10-13-14

- **Project#** R1167276  
  Sampled By: M. Harrington  
  Sampling Date: 2-29-16

---

**Sample(s) sent to:**  
- MAL  
- EMSL  
- **Other**  
- Quantum TAT  
- Rush  
- 24HRS  
- 48 HRS

---

*****FAX OR E-MAIL REPORT TO: SEE ABOVE PROJECT MANAGER (PM)***

---

*****ADDITIONAL REPORT RECIPIENT(S):***

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<tr>
<th>HM#</th>
<th>Material Description</th>
<th>Sample ID</th>
<th>Sample Location &amp; Material Location</th>
<th>Quantity</th>
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**Relinquished By:** Michael Harrington  
**Signature:**  
**Date/Time:** 2-29-16

---

**Received By:**  
**Signature:**  
**Date/Time:** 3/2 10:00am
## Polarized Light Microscopy Asbestos Analysis Report

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<thead>
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<th>QuanTEM Sample ID</th>
<th>Client Sample ID</th>
<th>Composition</th>
<th>Color / Description</th>
<th>Asbestos (%)</th>
<th>Non-Asbestos Fiber (%)</th>
<th>Non Fibrous</th>
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<tbody>
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<td>001</td>
<td>9-MG5-25</td>
<td>Homogeneous</td>
<td>Black/Gray Roof Mastic</td>
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<td>Cellulose 15 Tar</td>
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<td>Asbestos Not Present</td>
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<td>Asbestos Not Present</td>
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<td>Black/Gray Roof Mastic</td>
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<td>Gray Duct Tape</td>
<td>Asbestos Not Present</td>
<td>Cellulose 40 CaCO3 Paint</td>
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</table>

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

QuanTEM is a NVLAP accredited PLM laboratory (Lab Code: 101959-0). This report relates only to the specific items tested. NVLAP accreditation applies only to analysis performed utilizing EPA/600/M4-82-020 and EPA/600/R-93/116 methods. This report may not be used to claim product endorsement by NVLAP or any agency of the US Government. This report may not be reproduced except in full, without the written approval of the laboratory.
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<thead>
<tr>
<th>QuanTEM Sample ID</th>
<th>Client Sample ID</th>
<th>Composition</th>
<th>Color / Description</th>
<th>Asbestos (%)</th>
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<td>008 11-SC5-32</td>
<td>Homogeneous</td>
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<td>CaCO3 Paint</td>
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<td>009 11-SC5-33</td>
<td>Homogeneous</td>
<td>Gray</td>
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<td>010 12-SC5-34</td>
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<td>Asbestos Not Present</td>
<td>Synthetic 30</td>
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<td>Pipe Wrap</td>
<td>Asbestos Present Chrysotile</td>
<td>NA 30</td>
<td>Binder</td>
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</table>

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### Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No.: 260472  
Account Number: C018  
Date Received: 03/02/2016  
Received By: Rachel Brooks  
Date Analyzed: 03/02/2016  
Analyzed By: Gayle Ooten  
Methodology: EPA/600/R-93/116  
Client: RGA Environmental  
M. Bryant  
1466 66th Street  
Emeryville, CA 94608  
Project: Critical Solutions-Los Medanos College  
Project Location: N/A  
Project Number: R1167276

<table>
<thead>
<tr>
<th>QuanTEM Sample ID</th>
<th>Client Sample ID</th>
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<th>Asbestos (%)</th>
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<td>Coating</td>
<td>Asbestos Present Chrysotile 30</td>
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**Polarized Light Microscopy Asbestos Analysis Report**

**QuanTEM Lab No.** 260472  
**Account Number:** C018  
**Date Received:** 03/02/2016  
**Received By:** Rachel Brooks  
**Date Analyzed:** 03/02/2016  
**Analyzed By:** Gayle Ooten  
**Methodology:** EPA/600/R-93/116

<table>
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<th>QuanTEM Sample ID</th>
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<td>19-RF5-55</td>
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<td>Black/Gray Pipe Mastic</td>
<td>Asbestos Present Chrysotile 20</td>
<td>NA</td>
<td>Tar</td>
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</tbody>
</table>

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Polarized Light Microscopy Asbestos Analysis Report

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Received By: Rachel Brooks  
Date Analyzed: 03/02/2016  
Analyzed By: Gayle Ooten  
Methodology: EPA/600/R-93/116

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<td>Pipe Mastic</td>
<td>Chrysotile</td>
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Gayle Ooten, Analyst  
3/2/2016  
Date of Report

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### Critical Solutions - Los Medanos College - Sector 10-15-19

**Project #: R1167276**  
Sampled By: **M. Harrington**  
Sampling Date: **2-29-16**

**Sample(s) sent to:**  
- [ ] RGA  
- [ ] EMSL  
- [ ] Other  
  - [ ] Quantum  
  - [ ] TAT  
  - [ ] Rush  
  - [ ] 24HRS  
  - [ ] 3-5 days

***FAX OR E-MAIL REPORT TO: SEE ABOVE PROJECT MANAGER (PM)***  
***ADDITIONAL REPORT RECIPIENT(S):***

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<th>Material Description</th>
<th>Roof Mastic</th>
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<td>9</td>
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**Relinquished By:**  
**Received By:**  
**Relinquished By:**  
**Received By:**  
**Signature:**  
**Signature:**  
**Date/Time:**  
**Date/Time:**  
**Date/Time:**

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1466 66th Street Emeryville CA 94608 Tel: (510) 547-7771 Fax: (510) 547-1983
<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Material Description</th>
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1466 66th Street Emeryville CA 94608 Tel: (510) 547-7771 Fax: (510) 547-1983
**Project Name/ Address/ Building No.** Critical Solutions - Los Medanos College

**Project#** R1167276  **Sampled By:** MH  **Sampling Date:** 2-29-16

Sample(s) sent to: [ ] RGA  [ ] EMSL  [ ] Other  Quantum  TAT  [ ] Rush  [ ] 24HRS  [ ] 3-5 days

***FAX OR E-MAIL REPORT TO: SEE ABOVE PROJECT MANAGER (PM)***

***ADDITIONAL REPORT RECIPIENT(S):***

<table>
<thead>
<tr>
<th>HM#</th>
<th>Material Description</th>
<th>Sample Description</th>
<th>Sample Location &amp; Material Location</th>
<th>Quantity</th>
</tr>
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<td>17 M15</td>
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<td>1/1 M15 50</td>
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<td>Pipe Point mastic</td>
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<td>20 RF</td>
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Relinquished By:  
Received By:  
Relinquished By:  
Received By:  

**Date/Time:** 2-29-16 10:00

1466 66th Street Emeryville CA 94608 Tel: (510) 547-7771 Fax: (510) 547-1983
### Polarized Light Microscopy Asbestos Analysis Report

**QuanTEM Lab No.:** 260485  
**Account Number:** C018  
**Date Received:** 03/02/2016  
**Received By:** Rachel Brooks  
**Date Analyzed:** 03/02/2016  
**Analyzed By:** Gayle Ooten  
**Methodology:** EPA/600/R-93/116  
**Client:** RGA Environmental  
**M. Bryant**  
1466 66th Street  
Emeryville, CA 94608  
**Project:** Critical Solutions-Los Medanos College  
**Project Location:** Sec 10-13-14  
**Project Number:** R1167276

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<th>Non-Asbestos Fiber (%)</th>
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<tr>
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<td>Black Insulation</td>
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<td>Foam Paint</td>
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Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

QuanTEM is a NVLAP accredited PLM laboratory (Lab Code: 101959-0). This report relates only to the specific items tested. NVLAP accreditation applies only to analysis performed utilizing EPA/600/M4-82-020 and EPA/600/R-93/116 methods. This report may not be used to claim product endorsement by NVLAP or any agency of the US Government. This report may not be reproduced except in full, without the written approval of the laboratory.
### Polarized Light Microscopy Asbestos Analysis Report

**QuanTEM Lab No.:** 260485  
**Account Number:** C018  
**Date Received:** 03/02/2016  
**Received By:** Rachel Brooks  
**Date Analyzed:** 03/02/2016  
**Analyzed By:** Gayle Ooten  
**Methodology:** EPA/600/R-93/116  
**Project:** Critical Solutions-Los Medanos College  
**Project Location:** Sec 10-13-14  
**Project Number:** R1167276  
**Client:** RGA Environmental  
**M. Bryant**  
**1466 66th Street**  
**Emeryville, CA 94608**

#### Sample Table

<table>
<thead>
<tr>
<th>QuanTEM Sample ID</th>
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Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

QuanTEM is a NVLAP accredited PLM laboratory (Lab Code: 101959-0). This report relates only to the specific items tested. NVLAP accreditation applies only to analysis performed utilizing EPA/600/M4-82-020 and EPA/600/R-93/116 methods. This report may not be used to claim product endorsement by NVLAP or any agency of the US Government. This report may not be reproduced except in full, without the written approval of the laboratory.
Project Name/ Address/ Building No. Critical Solutions, Las Medanos College, Sec 10-13-14

Project#: R1167276 Sampled By: Sampling Date: 2-29-16

Sample(s) sent to: ☐ RGA ☐ EMSL ☑ Other Quantum TAT ☐ Rush ☐ 24HRS ☐ 3-5 days

*** FAX OR E-MAIL REPORT TO: SEE ABOVE PROJECT MANAGER (PM) ***

*** ADDITIONAL REPORT RECIPIENT(S): ***

<table>
<thead>
<tr>
<th>HM# 21</th>
<th>Material Description</th>
<th>Roof Mastic</th>
<th>Pitch</th>
<th>P.O.</th>
</tr>
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<tr>
<td>Sample ID</td>
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<td></td>
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<tr>
<td>21</td>
<td>61 Sector 13</td>
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<tr>
<td>62</td>
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<tr>
<td>63</td>
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| HM# 22 | Material Description: HVAC Tape Silver | |
| Sample ID | Sample Location & Material Location | Quantity: |
| 22Scs64 | Sector 13 N | |
| 65 | S | |
| 66 | W | |

| HM# 23 | Material Description: Mech Insulation Black White Coating | |
| Sample ID | Sample Location & Material Location | Quantity: |
| 23M1567 | Sector 13 - East | |
| 68 | | |
| 69 | | |

| HM# 24 | Material Description: Insulation Elbow | |
| Sample ID | Sample Location & Material Location | Quantity: |
| 24P1570 | Sector 13 | |
| 71 | | |
| 72 | | |

Relinquished By: [Signature]
Received By: [Signature]
Relinquished By: [Signature]
Received By: [Signature]
APPENDIX D

LEAD IN PAINT ANALYTICAL LABORATORY DATA
# Environmental Chemistry Analysis Report

**QuanTEM Set ID:** 260467  
**Date Received:** 03/02/16  
**Received By:** Rachel Brooks  
**Acct. No.:** C018

**Client:** RGA Environmental  
**M. Bryant**  
**1466 66th Street**  
**Emeryville, CA 94608**  
**Project:** Critical Solutions - Los Medanos College  
**Location:** N/A  
**Project No.:** R1167276  
**Date of Report:** 3/3/2016  
**AIHA ID:** 101352

**Analyst:** CR

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<td>ppm</td>
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<td>P EPA 7000B (1)</td>
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</table>

Authorized Signature:  
Cherry Rossen, Technical Manager

---

**Note:** Sample results have not been corrected for blank values.  
This report applies only to the standards or procedures indicated and to the specific samples tested. It is not indicative of the qualities of apparently identical or similar products or procedures, nor does it represent an ongoing assurance program unless so noted. These reports are for the exclusive use of the client and are not to be reproduced without specific written permission. QuanTEM is not responsible for user-supplied data used in calculations.

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

Wipe materials must meet ASTM E1792 criteria. Method detection limits and resultant reporting limits may not be valid for non-ASTM E1792 wipe material.

**EPA Method 7000B (1) = EPA 600/R-93/200 Preparation Modified.** EPA 7000B Analysis Modified  
**EPA Method 7082 (2) = EPA 600/R-93/200 Preparation Modified.** EPA 7082 Analysis Modified
Supplemental Report
QAQC Results

QA ID: 13818  Date: 3/3/2016  Lab Number: 260467
Test: Lead  Matrix: Paint  Approved By: Cherry Rossen

Date Approved: 3/3/2016

Notes:

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<tr>
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| RLVS     | 0.08      | 0.102    | 0.12       |

Duplicate Data:

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<th>% Dup. Recovery</th>
<th>% Spike RPD</th>
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<td>LCS-P2</td>
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<td>2.580</td>
<td>125.0</td>
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Authorized Signature: ____________________________
Cherry Rossen, Technical Manager

Page 1 of 1
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<thead>
<tr>
<th>Sample ID</th>
<th>Paint Description and Sample Location</th>
<th>Condition (U/F/P)</th>
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<td>L-1</td>
<td>Paint Color: Yellow, Substrate: Pipe</td>
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<td></td>
<td>Sample Location: Bldg # 10, Unit # 1, Room</td>
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<td>L-2</td>
<td>Paint Color: Pink, Substrate: Beam</td>
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<td>Sample Location: Bldg # 10, Unit # 1, Room</td>
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<tr>
<td>L-3</td>
<td>Paint Color: Grey, Substrate: Rubber</td>
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<td>Sample Location: Bldg # 10, Unit # 1, Room</td>
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<td>L-4</td>
<td>Paint Color: Grey, Substrate: Metal</td>
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<td>Sample Location: Bldg # 14, Unit # 1, Room</td>
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<td>L-5</td>
<td>Paint Color: Silver, Substrate: Coating</td>
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<tr>
<td></td>
<td>Sample Location: Bldg # 13, Unit # 1, Room</td>
<td></td>
</tr>
</tbody>
</table>

Relinquished By: M. Harrington  
Received By: R. Brooks  

Signature: M. Harrington  
Date/Time: 2-29-16  
Signature: R. Brooks  
Date/Time: 3-21-16 8:00
APPENDIX E

TERRACON PERSONNEL CREDENTIALS
hereby certifies that

Marlin V. Bryant

has met all the specific standards and qualifications of the re-certification process, including continued professional development, and is hereby re-certified as a

CIEC

Council-certified Indoor Environmental Consultant

This certificate expires on December 31, 2016.

Charles F. Wiles, Executive Director

0612064

Certificate Number

This certificate remains the property of the American Council for Accredited Certification.
APPENDIX F

SITE PHOTOGRAPHS
Asbestos & Lead Survey
HVAC Replacement ■ Los Medanos College
Photos taken: February 29, 2016 ■ Terracon Project No. R1167276
Asbestos & Lead Survey
HVAC Replacement ■ Los Medanos College
Photos taken: February 29, 2016 ■ Terracon Project No. R1167276

Photo #13 Sector 10

Photo #14 Sector 10

Photo #15 Sector 10

Photo #16 Sector 10

Photo #17 Sector 14

Photo #6 Sector 14
Asbestos & Lead Survey
HVAC Replacement ◆ Los Medanos College
Photos taken: February 29, 2016 ◆ Terracon Project No. R1167276

Photo #31 Sector 13

Photo #32 Sector 13

Photo #33 Sector 13

Photo #34 Sector 13

Photo #35 Sector 13

Photo #6 Sector 13
APPENDIX G

SAMPLE LOCATION DIAGRAMS
Asbestos Survey

Los Medanos College Roof surveys
2700 East Leland Rd.
Pittsburg, California
August 28, 2015
Terracon Project No. R1157811

Prepared for:
Contra Costa Community College District
Walnut Creek, California

Prepared by:
Terracon Consultants, Inc.
Emeryville, CA
Terracon Consultants, Inc. is pleased to submit the attached report for the above referenced site to Contra Costa Community College District. The purpose of this report is to present the results of an asbestos survey performed on August 10-10, 2015. This survey was conducted in general accordance with our proposal dated Proposal Date. We understand that this survey was requested due to planned renovation activities within the above referenced building.

Terracon appreciates the opportunity to provide this service to Contra Costa Community College District. If you have any questions regarding this report please contact the undersigned at 510-547-7771.

Sincerely,

Terracon Consultants, Inc.

Marlin V Bryant
Author Title

Michael S. Benefield
Asbestos & Lead Department Manager
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**APPENDIX A** IDENTIFIED ASBESTOS CONTAINING MATERIALS BY HOMOGENEOUS AREA (HA)  
**APPENDIX B** ASBESTOS SURVEY SAMPLE LOCATION SUMMARY  
**APPENDIX C** ASBESTOS ANALYTICAL LABORATORY DATA  
**APPENDIX D** LICENSES AND CERTIFICATIONS  
**APPENDIX E** SITE PHOTOGRAPHS  
**APPENDIX F** SAMPLE LOCATION DIAGRAM
EXECUTIVE SUMMARY

Terracon Consultants, Inc. (Terracon) conducted an asbestos survey at the building located at 2700 East Leland Rd., Pittsburg, California. We understand this asbestos survey was requested due to the planned renovation of the on-site building(s). The purpose of this survey was to sample and identify suspect asbestos-containing materials (ACM) and provide information regarding the identity, location, condition and approximate quantities of ACM in exterior building components. The survey was performed on August 10, 2015 in accordance with our proposal dated 7 July, 2015 and the sampling protocols established in United State Environmental Protection Agency (USEPA) 40 Code of Federal Regulations (CFR) Part 763 Subpart E 763, known as the Asbestos Hazard Emergency Response Act, (AHERA). Terracon collected 72 bulk samples from 22 homogeneous areas of suspect ACM.

Based on site observations and a review of the laboratory analytical results, Terracon recommends that all layers of black felt roofing material and associated mastics of all surveyed roofs be removed as Category I non-friable, non-hazardous asbestos containing material (ACM) with 15% asbestos content. In addition, Terracon recommends that all pea gravel present on all roofs surveyed be removed separately from the roofing felt as Category II ACM due to the presence of fragments of cementitious material dispersed randomly throughout the gravel with 50% asbestos content.

Based on previous roof removal work on adjacent buildings (Nursing Department), Terracon assumes the possibility that light weight ACM concrete may be present between the bottom layer of roofing felt and the metal roof deck as part of some roofing systems. During this roof survey, Terracon was unable to access beneath the bottom layer of roofing felt to inspect for or sample light weight concrete in any of the roofing systems due to the depth of sample required. Terracon recommends a special effort be made prior to finalizing roof replacement specifications to core through existing roofing felts to assess the potential presence of ACM concrete and that ACM roofing felt and pea gravel quantities be calculated for use in soliciting competitive bids.

The following asbestos containing materials were identified as a result of laboratory analysis or assumed to be asbestos containing:

<table>
<thead>
<tr>
<th>Material Description</th>
<th>Material Location</th>
<th>Estimated Quantity*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Felt</td>
<td>Roof A - Penthouses - Upper Level Base Flashing at Parapet</td>
<td>800 Sq. Ft.</td>
</tr>
<tr>
<td>Roofing Membrane</td>
<td>Roof A - Penthouses - Upper Level Base Flashing at Parapet</td>
<td>4,000 Sq. Ft.</td>
</tr>
<tr>
<td>Multi-Layer Black Felt under pea gravel Roofing Membrane</td>
<td>Roof A - Main Level Field Membrane</td>
<td>22,000 Sq. Ft.</td>
</tr>
<tr>
<td>Black Roofing Felt</td>
<td>Roof A - Perimeter of Main Level base flashing on Parapet</td>
<td>1,000 Sq. Ft.</td>
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</table>
### Material Description

<table>
<thead>
<tr>
<th>Material Description</th>
<th>Material Location</th>
<th>Estimated Quantity*</th>
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</thead>
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<tr>
<td>Gray debris mixed with pea gravel</td>
<td>Roof A – Randomly scattered over entire main field of roof</td>
<td>22,000 Sq. Ft.</td>
</tr>
<tr>
<td>Multilayers of black felt - 5-inch depth under pea gravel Roofing Membrane</td>
<td>Roof B - Main Roof Field Membrane</td>
<td>18,000 Sq. Ft.</td>
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<tr>
<td>Black Felt</td>
<td>Roof B - Perimeter Wall Base Flashing at Parapet</td>
<td>3,500 Sq. Ft.</td>
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<tr>
<td>Black Mastic Roofing Patch</td>
<td>Roof B - Patches on Main Roof</td>
<td>250 Sq. Ft.</td>
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<tr>
<td>Gray cementitious (like rocks) mixed with pea gravel</td>
<td>Roof B - Scattered among pea gravel (less than 2% of gravel) across Main Field of Roof</td>
<td>18,000 Sq. Ft.</td>
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<tr>
<td>Multi-layers of black roof felt under pea gravel Roofing Membrane</td>
<td>Roof C - Main Field of Roof</td>
<td>6,500 Sq. Ft.</td>
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<tr>
<td>Black Felt</td>
<td>Roof C - Perimeter walls of Parapet Base Flashing</td>
<td>1,000 Sq. Ft.</td>
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<tr>
<td>Gray debris mixed with pea gravel</td>
<td>Roof C - Randomly scattered over entire main field of roof</td>
<td>6,500 Sq. Ft.</td>
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<td>Gray debris mixed with pea gravel</td>
<td>Roof D - Randomly scattered throughout pea gravel on main field of roof</td>
<td>22,000 Sq. Ft.</td>
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<tr>
<td>Multi-layers of black roofing felt up to 5-inches thick under pea gravel Roofing Membrane</td>
<td>Roof D - Main Field of roof</td>
<td>22,000 Sq. Ft.</td>
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<tr>
<td>Black Felt</td>
<td>Roof D - Base Flashing of Parapet Walls of Main Field and Penthouse</td>
<td>2,000 Sq. Ft.</td>
</tr>
</tbody>
</table>

At your request, Terracon can provide a proposal for developing asbestos abatement specifications (project design) and for performing abatement oversight and air monitoring.
1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon), formerly RGA Environmental Inc, conducted an asbestos survey of four (4) sections of multi-level roofing scheduled for replacement over the next two (2) years on adjacent buildings of Los Medanos College located at 2700 East Leland Rd., Pittsburg, California. The survey was conducted on August 10, 2015 by Terracon inspector, Michael Reed, in general accordance with Terracon Proposal Number PR1150920 dated 27 July 2015. The exterior building components were surveyed, and homogeneous areas of suspect asbestos-containing materials (ACM) were visually identified and documented. Although reasonable effort was made to survey accessible suspect materials, additional suspect but unsampled materials could be located beneath the layers of roofing material and the respective building roof decks. Suspect ACM samples were collected in general accordance with the sampling protocols outlined in United States Environmental Protection Agency (USEPA) 40 Code of Federal Regulations (CFR) Part 763 Subpart E 763, known as the Asbestos Hazard Emergency Response Act (AHERA). Samples were delivered to an accredited laboratory for analysis by Polarized Light Microscopy (PLM).

Terracon understand this asbestos survey was requested due to the planned replacement of the respective roof systems and compliance with requirements of the USEPA 40 CFR Part 61, Subpart M, the National Emission Standards for Hazardous Air Pollutants (NESHAP).

1.1 Reliance

This report is for the exclusive use of Contra Costa Community College District for the project being discussed. Reliance by any other party on this report is prohibited without written authorization of Terracon and Contra Costa Community College District. Reliance on this report by Contra Costa Community College District and all authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, this report and Terracon’s Agreement for Services. The limitations of liability defined in Terracon’s Agreement for Services is the aggregate limit of Terracon’s liability to Contra Costa Community College District.
2.0 BUILDING DESCRIPTION

Each of the four (4) roofs were covered with pea gravel over multiple layers (up to 5-inches thick) of black felt sealed with black roof penetration mastic as depicted on the Sample Location Diagram provided in Appendix B and including:

Roof A  26,000 sf  
Roof B  18,000 sf  
Roof C  6,500 sf  
Roof D  22,000 sf

3.0 FIELD ACTIVITIES

The survey was conducted by Michael H Reed, Inspector Requirements asbestos inspector. A copy of Michael H Reed’s asbestos inspector Certificate or License is attached as Appendix D. The survey was conducted in general accordance with the sample collection protocols established in USEPA 40 CFR Part 763 Subpart E 763.86, AHERA. A summary of survey activities is provided below.

3.1 Visual Assessment

Survey activities were initiated with visual observation of the exterior of the building to identify homogeneous areas of suspect ACM. A homogeneous area (HA) consists of building materials that appear similar throughout in terms of color and texture with consideration given to the date of application. Interior assessment was conducted in visually accessible areas of the building proposed for renovation.

The four (4) roofing systems were sampled separately as parts of this survey. Suspect materials in the roofing system observed during the visual assessment include: black roof tar at seams and penetrations, multi-layers of felt paper on the main fields and parapets, and pieces of cementitious gray debris mixed with the pea gravel scattered randomly on the main fields of each roof section. Terracon visually inspected all roof layers in multiple places and observed multiple layers of roofing felt, up to 5-inches thick, on most roof fields. Some roof areas were observed to have a bottom layer of foam which was 1-2 inches thick. Penthouse roofs were observed to have roofing felt under pea gravel roofing similar to main fields. Terracon was unable to access the roofing substrate light weight concrete due to the depth of the roofing layers. Access for sampling would have required a larger inspection hole that would have been very difficult to patch. In addition, sampling substrate concrete may have caused the concrete to crack, thus promoting leakage in the event of rain. Unfortunately,
3.2 Physical Assessment

A physical assessment of each homogeneous area (HA) of suspect ACM was conducted to assess the friability and condition of the materials. A friable material is defined by the USEPA as a material which can be crumbled, pulverized or reduced to powder by hand pressure when dry. Friability was assessed by physically touching suspect materials.

USEPA’s interpretation is that when manual methods such as axes, hatchets, knives, spud bars, pry bars, and shovels, but not saws or methods that slice, shear, or punch such as a power slicer or power plow to remove roofing materials, that when such methods are used, assuming the roof material is not friable, that the removal operation is not subject to the asbestos NEHSAP regulation.

3.3 Sample Collection

Based on results of the visual observation, bulk samples of suspect ACM were collected in general accordance with USEPA AHERA sampling protocols. Samples of suspect materials were collected from randomly selected locations in each homogeneous area. Bulk samples were collected using wet methods as applicable to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker.

The selection of sample locations and frequency of sampling were based on Terracon’s observations and the assumption that like materials in the same area are homogeneous in content.

Terracon collected 72 bulk samples from 22 homogeneous areas of suspect ACM. A summary of suspect ACM samples collected during the survey is included as Appendix B.

3.4 Sample Analysis

Bulk samples were submitted under chain of custody to RGA Laboratory of Seattle, Washington for analysis by polarized light microscopy with dispersion staining techniques per USEPA methodology 600/R-93/116. The percentage of asbestos, where applicable, was determined by microscopic visual estimation. RGA Laboratory is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP) Accreditation No. 102056-0.

4.0 REGULATORY OVERVIEW

Asbestos-containing materials in concentrations greater than one tenth of one percent (0.1%) but less than one percent (1%) are present at the subject site. Impacting materials containing greater
than 0.1% asbestos either through repair, maintenance, or demolition activities triggers numerous regulations enforced by agencies such as OSHA (worker protection) and EPA (environmental exposure, transportation and disposal).

Listed below are primary regulations that apply to the asbestos containing materials:

- Any individual who contracts to provide health and safety services relating to ACMs must be certified by Cal/OSHA as either a Certified Asbestos Consultant or a Site Surveillance Technician. The activities they are certified to provide include: conducting asbestos surveys; writing work plans or specifications for abatement; monitoring the work of abatement contractors; collecting air samples; and determining if the work area is safe for re-occupancy by non-asbestos workers. Regulation: Cal/OSHA 8 CCR 1529 (q)(1).

- Building owners must notify employees, tenants and contractors who perform work in the building of the presence, locations and quantities of asbestos in accordance with California Health and Safety Code Section 25915 and Proposition 65, California (8 CCR 1529 (k)) and Federal OSHA (1926.1101) regulations.

- If more than 100 square feet of materials that contain greater than 0.1% asbestos will be abated, they must be abated by a Cal/OSHA registered asbestos abatement contractor. Regulation: Cal/OSHA 8 CCR 1529 (R).

- ACMs that are classified by OSHA as other/miscellaneous materials are present. Removal of these materials is considered a Class II activity, respectively according to Cal/OSHA regulations. Work practices and engineering controls for Class II work is specified in Cal/OSHA 8 CCR 1529 (g) (4-8).

- Friable ACMs greater than 1% asbestos must be manifested, transported, and disposed of as hazardous waste in accordance with the Department of Toxic and Substances Control (DTSC), a division of Cal-EPA. DTSC regulates disposal of asbestos waste. DTSC issues U.S. EPA hazardous waste generator identification numbers.

- Non-hazardous construction debris containing <1% asbestos, confirmed by Point Count laboratory analysis, should be properly packaged to minimize airborne dust emissions and disposed of at an EPA approved landfill authorized to receive construction debris with asbestos content of <1%. DTSC regulates disposal of asbestos waste.

- The asbestos NESHAP (40 CFR Part 61, Subpart M) regulates asbestos fiber emissions and asbestos waste disposal practices. The asbestos NESHAP regulation also requires the identification and classification of existing ACM according to friability prior to demolition or renovation activity. Friable ACM is a material containing more than 1% asbestos that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure. All friable ACM is considered regulated asbestos containing material (RACM).
The asbestos NESHAP regulation classifies ACM as either RACM, Category I non-friable ACM or Category II non-friable ACM. RACM includes all friable ACM, along with Category I and Category II non-friable ACM that has become friable, will be or has been subjected to sanding, grinding, cutting or abrading, or ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder in the course of renovation or demolition activity. Category I non-friable ACM are exclusively asbestos-containing packing, gaskets, resilient floor coverings, resilient floor covering mastics and asphalt roofing products that contain more than 1% asbestos. Category II non-friable ACM are all other non-friable materials other than Category I non-friable ACM that contain more than 1% asbestos. Category II non-friable ACM generally includes but is not limited to cementitious material such as: cement pipes, cement siding, cement panels, glazing, mortar and grouts.

The United States Occupational Safety and Heal Administration (USOSHA) asbestos standard for construction (29 CFR 1926.1101) regulates workplace exposure to asbestos. The USOSHA standard requires that employee exposure to airborne asbestos must not exceed 0.1 fibers per cubic centimeter of air (0.1 f/cc) as an eight hour time weighted average (TWA) and not exceed 1.0 fibers per cubic centimeter of air (1.0 f/cc) over a 30 minute time period known as an excursion limit (EL). The TWA and EL are known as USOSHA’s asbestos permissible exposure limits (PELs). The USOSHA standard classifies construction and maintenance activities which could disturb ACM, and specifies work practices and precautions which employers must follow when engaging in each class of regulated work.

5.0 FINDINGS AND RECOMMENDATIONS

The following asbestos containing materials were identified as a result of laboratory analysis or assumed to be asbestos containing:

<table>
<thead>
<tr>
<th>Material Description</th>
<th>Material Location</th>
<th>Estimated Quantity*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Felt</td>
<td>Roof A - Penthouses - Upper Level Base Flashing at Parapet</td>
<td>800 Sq. Ft.</td>
</tr>
<tr>
<td>Roofing Membrane</td>
<td>Roof A - Penthouses - Upper Level Base Flashing at Parapet</td>
<td>4,000 Sq. Ft.</td>
</tr>
<tr>
<td>Multi-Layer Black Felt under pea gravel Roofing Membrane</td>
<td>Roof A - Main Level Field Membrane</td>
<td>22,000 Sq. Ft.</td>
</tr>
<tr>
<td>Black Roofing Felt</td>
<td>Roof A - Perimeter of Main Level base flashing on Parapet</td>
<td>1,000 Sq. Ft.</td>
</tr>
</tbody>
</table>
Material Description | Material Location | Estimated Quantity*
---|---|---
Gray debris mixed with pea gravel | Roof A – Randomly scattered over entire main field of roof | 22,000 Sq. Ft.
Multilayers of black felt - 5-inch depth under pea gravel Roofing Membrane | Roof B - Main Roof Field Membrane | 18,000 Sq. Ft.
Black Felt | Roof B - Perimeter Wall Base Flashing at Parapet | 3,500 Sq. Ft.
Black Mastic Roofing Patch | Roof B - Patches on Main Roof | 250 Sq. Ft.
Gray cementitious (like rocks) mixed with pea gravel | Roof B - Scattered among pea gravel (less than 2% of gravel) across Main Field of Roof | 18,000 Sq. Ft.
Multi-layers of black roof felt under pea gravel Roofing Membrane | Roof C - Main Field of Roof | 6,500 Sq. Ft.
Black Felt | Roof C - Perimeter walls of Parapet Base Flashing | 1,000 Sq. Ft.
Gray debris mixed with pea gravel | Roof C - Randomly scattered over entire main field of roof. | 6,500 Sq. Ft.
Gray debris mixed with pea gravel | Roof D - Randomly scattered throughout pea gravel on main field of roof | 22,000 Sq. Ft.
Multi-layers of black roofing felt up to 5-inches thick under pea gravel Roofing Membrane | Roof D - Main Field of roof | 22,000 Sq. Ft.

A summary of the classification, condition and approximate quantity of identified ACM is presented in Appendix A. The summary of sample locations is presented in Appendix B. Laboratory analytical reports are included in Appendix C.

Terracon can provide the Client with a proposal for developing asbestos abatement specifications (project design) and for performing abatement oversight and air monitoring upon request.

6.0 LIMITATIONS/GENERAL COMMENTS

Terracon did not perform sampling which required demolition or destructive activities such as knocking holes in walls, dismantling of equipment or removal of protective coverings. Reasonable efforts to access suspect materials within known areas of restricted access (e.g., crawl spaces) were made; however, confined spaces or areas which may pose a health or safety risk to Terracon personnel were not sampled. Sampling did not include suspect materials which could not be safely reached with available ladders/man-lifts.

This asbestos survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions and recommendations expressed in this report are based on conditions observed during our survey of the building. The information contained in this report is relevant to the date on which this survey was performed, and should not be relied...
upon to represent conditions at a later date. This report has been prepared on behalf of and exclusively for use by Contra Costa Community College District for specific application to their project as discussed. This report is not a bidding document. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary. Terracon does not warrant the work of regulatory agencies, laboratories or other third parties supplying information which may have been used in the preparation of this report. No warranty, express or implied is made.
# APPENDIX A

Los Medanos College roof surveys  
2700 East Leland Rd., Pittsburg California

## IDENTIFIED ASBESTOS CONTAINING MATERIALS BY HOMOGENEOUS AREA (HA)

<table>
<thead>
<tr>
<th>HA No.</th>
<th>Material Description</th>
<th>Material Location</th>
<th>% and Type Asbestos**</th>
<th>NESHAP Classification</th>
<th>Condition</th>
<th>Estimated Quantity*</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Black Felt</td>
<td>Penthouses - Upper Level Base Flashing at Parapet</td>
<td>15.00% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good (No Damage)</td>
<td>800 Sq. Ft.</td>
</tr>
<tr>
<td>A2</td>
<td>Roofing Membrane</td>
<td>Penthouses - Upper Level Base Flashing at Parapet</td>
<td>15.00% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good (No Damage)</td>
<td>4,000 Sq. Ft.</td>
</tr>
<tr>
<td>A3</td>
<td>Multi-Layer Black Felt under pea gravel Roofing Membrane</td>
<td>Main Level Field Membrane</td>
<td>15.00% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good (No Damage)</td>
<td>22,000 Sq. Ft.</td>
</tr>
<tr>
<td>A4</td>
<td>Black Roofing Felt</td>
<td>Perimeter of Main Level base flashing on Parapet</td>
<td>15.00% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good (No Damage)</td>
<td>1,000 Sq. Ft.</td>
</tr>
<tr>
<td>B1</td>
<td>Multilayers of black felt - 5-inch depth under pea gravel Roofing Membrane</td>
<td>Main Roof Field Membrane</td>
<td>15.00% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good (No Damage)</td>
<td>18,000 Sq. Ft.</td>
</tr>
<tr>
<td>B3</td>
<td>Black Felt</td>
<td>Perimeter Wall Base Flashing at Parapet</td>
<td>15.00% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good (No Damage)</td>
<td>3,500 Sq. Ft.</td>
</tr>
<tr>
<td>B4</td>
<td>Black Mastic Roofing Patch</td>
<td>Patches on Main Roof</td>
<td>15.00% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good (No Damage)</td>
<td>250 Sq. Ft.</td>
</tr>
<tr>
<td>B5</td>
<td>Gray cementitious (like rocks) mixed with pea gravel</td>
<td>Scattered among pea gravel (less than 2% of gravel) across Main Field of Roof</td>
<td>20.00% Chrysotile</td>
<td>Cat. II Non Friable</td>
<td>Potential for Damage</td>
<td>18,000 Sq. Ft.</td>
</tr>
<tr>
<td>C1</td>
<td>Multi-layers of black roof felt under pea gravel Roofing Membrane</td>
<td>Main Field of Roof</td>
<td>15.00% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good (No Damage)</td>
<td>6,500 Sq. Ft.</td>
</tr>
<tr>
<td>C2</td>
<td>Black Felt</td>
<td>Perimeter walls of Parapet Base Flashing</td>
<td>3.00% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good (No Damage)</td>
<td>1,000 Sq. Ft.</td>
</tr>
<tr>
<td>HA No.</td>
<td>Material Description</td>
<td>Material Location</td>
<td>% and Type Asbestos**</td>
<td>NESHAP Classification</td>
<td>Condition</td>
<td>Estimated Quantity*</td>
</tr>
<tr>
<td>--------</td>
<td>----------------------</td>
<td>-------------------</td>
<td>-----------------------</td>
<td>-----------------------</td>
<td>-----------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>C4</td>
<td>Gray debris mixed with pea gravel</td>
<td>Randomly scattered over entire main field of roof.</td>
<td>20.00% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Damaged</td>
<td>6,500 Sq. Ft.</td>
</tr>
<tr>
<td>D2</td>
<td>Gray Roof Debris</td>
<td>Randomly scattered throughout pea gravel on main field of roof</td>
<td>50.00% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Damaged</td>
<td>22,000 Sq. Ft.</td>
</tr>
<tr>
<td>D4</td>
<td>Multi-layers of black roofing felt up to 5-inches thick under pea gravel Roofing Membrane</td>
<td>Main Field of roof</td>
<td>30.00% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good (No Damage)</td>
<td>22,000 Sq. Ft.</td>
</tr>
<tr>
<td>D5</td>
<td>Black Felt</td>
<td>Base Flashing of Parapet Walls of Main Field and Penthouse</td>
<td>20.00% Chrysotile</td>
<td>Cat. I Non Friable</td>
<td>Good (No Damage)</td>
<td>2,000 Sq. Ft.</td>
</tr>
</tbody>
</table>

*Estimated quantities* are based on a cursory field evaluation, and actual quantities may vary significantly, especially if asbestos containing materials are present in hidden and/or inaccessible areas not evaluated as part of this survey.

**% and Type Asbestos** = this column contains both the analytical result of the sample with the highest concentration of asbestos detected in the samples that make up the HA and the types of asbestos identified.

The materials listed in this table have been sampled and determined to contain asbestos in concentrations greater than 1%. When disturbed, various federal, state and local regulations may apply. These materials should be monitored for damage over time and repaired as necessary by appropriately trained personnel. Removal may be necessary before renovations and in most cases before a demolition. See Appendix B for a summary of samples collected. See Appendix C for detailed analytical results.
### APPENDIX B

Los Medanos College roof surveys  
2700 East Leland Rd., Pittsburg California

**ASBESTOS SURVEY SAMPLE LOCATION SUMMARY**

<table>
<thead>
<tr>
<th>HA No.</th>
<th>Material Description</th>
<th>Sample Number</th>
<th>Sample Location</th>
<th>Lab Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Black Felt</td>
<td>A1-RF5-1</td>
<td>Roof A</td>
<td>15.00% Chrysotile - Upper level base flashing (parapet)</td>
</tr>
<tr>
<td>A1</td>
<td>Black Felt</td>
<td>A1-RF5-2</td>
<td>Roof A</td>
<td>15.00% Chrysotile - Upper level base flashing (parapet)</td>
</tr>
<tr>
<td>A1</td>
<td>Black Felt</td>
<td>A1-RF5-3</td>
<td>Roof A</td>
<td>15.00% Chrysotile - Upper level base flashing (parapet)</td>
</tr>
<tr>
<td>A2</td>
<td>Roofing Membrane</td>
<td>A2-RF6-4</td>
<td>Roof A</td>
<td>15.00% Chrysotile - Upper level membrane</td>
</tr>
<tr>
<td>A2</td>
<td>Roofing Membrane</td>
<td>A2-RF6-5</td>
<td>Roof A</td>
<td>15.00% Chrysotile - Upper level membrane</td>
</tr>
<tr>
<td>A2</td>
<td>Roofing Membrane</td>
<td>A2-RF6-6</td>
<td>Roof A</td>
<td>15.00% Chrysotile - Upper level membrane</td>
</tr>
<tr>
<td>A3</td>
<td>Multi-Layer Black Felt under pea gravel Roofing Membrane</td>
<td>A3-RF6-7</td>
<td>Roof A</td>
<td>15.00% Chrysotile - Main level membrane</td>
</tr>
<tr>
<td>A3</td>
<td>Multi-Layer Black Felt under pea gravel Roofing Membrane</td>
<td>A3-RF6-8</td>
<td>Roof A</td>
<td>15.00% Chrysotile - Main level membrane</td>
</tr>
<tr>
<td>A3</td>
<td>Multi-Layer Black Felt under pea gravel Roofing Membrane</td>
<td>A3-RF6-9</td>
<td>Roof A</td>
<td>15.00% Chrysotile - Main level membrane</td>
</tr>
<tr>
<td>A4</td>
<td>Black Roofing Felt</td>
<td>A4-RF5-10</td>
<td>Roof A</td>
<td>15.00% Chrysotile - Perimeter base flashing (parapet)</td>
</tr>
<tr>
<td>A4</td>
<td>Black Roofing Felt</td>
<td>A4-RF5-11</td>
<td>Roof A</td>
<td>15.00% Chrysotile - Perimeter base flashing (parapet)</td>
</tr>
<tr>
<td>A4</td>
<td>Black Roofing Felt</td>
<td>A4-RF5-12</td>
<td>Roof A</td>
<td>15.00% Chrysotile - Perimeter base flashing (parapet)</td>
</tr>
<tr>
<td>A5</td>
<td>White Sealant</td>
<td>A5-SC7-13</td>
<td>Roof A</td>
<td>None Detected - White perimeter coping sealant</td>
</tr>
<tr>
<td>HA No.</td>
<td>Material Description</td>
<td>Sample Number</td>
<td>Sample Location</td>
<td>Lab Results</td>
</tr>
<tr>
<td>--------</td>
<td>----------------------</td>
<td>---------------</td>
<td>-----------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>A5</td>
<td>White Sealant</td>
<td>A5-SC7-14</td>
<td>Roof A</td>
<td>None Detected - White perimeter coping sealant</td>
</tr>
<tr>
<td>A5</td>
<td>White Sealant</td>
<td>A5-SC7-15</td>
<td>Roof A</td>
<td>None Detected - White perimeter coping sealant</td>
</tr>
<tr>
<td>A6</td>
<td>Black mastic Roofing Patch</td>
<td>A6-RF9-16</td>
<td>Roof A</td>
<td>2.00% Chrysotile - Pitch pan-penetration patch</td>
</tr>
<tr>
<td>A6</td>
<td>Black mastic Roofing Patch</td>
<td>A6-RF9-17</td>
<td>Roof A</td>
<td>2.00% Chrysotile - Pitch pan-penetration patch</td>
</tr>
<tr>
<td>A6</td>
<td>Black mastic Roofing Patch</td>
<td>A6-RF9-18</td>
<td>Roof A</td>
<td>None Detected - Pitch pan-penetration patch</td>
</tr>
<tr>
<td>A7</td>
<td>Black Felt</td>
<td>A7-RF5-19</td>
<td>Roof A</td>
<td>None Detected - Equipment curbs</td>
</tr>
<tr>
<td>A7</td>
<td>Black Felt</td>
<td>A7-RF5-19</td>
<td>Roof A</td>
<td>None Detected - Felt</td>
</tr>
<tr>
<td>A7</td>
<td>Black Felt</td>
<td>A7-RF5-20</td>
<td>Roof A</td>
<td>None Detected - Equipment curbs</td>
</tr>
<tr>
<td>A7</td>
<td>Black Felt</td>
<td>A7-RF5-20</td>
<td>Roof A</td>
<td>None Detected - Felt</td>
</tr>
<tr>
<td>B1</td>
<td>Multilayers of black felt - 5-inch depth under pea gravel Roofing Membrane</td>
<td>B1-RF6-22</td>
<td>Roof B</td>
<td>15.00% Chrysotile - Roof membrane</td>
</tr>
<tr>
<td>B1</td>
<td>Multilayers of black felt - 5-inch depth under pea gravel Roofing Membrane</td>
<td>B1-RF6-23</td>
<td>Roof B</td>
<td>15.00% Chrysotile - Roof membrane</td>
</tr>
<tr>
<td>B1</td>
<td>Multilayers of black felt - 5-inch depth under pea gravel Roofing Membrane</td>
<td>B1-RF6-24</td>
<td>Roof B</td>
<td>15.00% Chrysotile - Roof membrane</td>
</tr>
<tr>
<td>B1</td>
<td>Multilayers of black felt - 5-inch depth under pea gravel Roofing Membrane</td>
<td>B1-RF6-25</td>
<td>Roof B</td>
<td>15.00% Chrysotile - Roof membrane</td>
</tr>
<tr>
<td>B2</td>
<td>White Sealant</td>
<td>B2-SC7-26</td>
<td>Roof B</td>
<td>None Detected - White perimeter coping sealant</td>
</tr>
<tr>
<td>B2</td>
<td>White Sealant</td>
<td>B2-SC7-26</td>
<td>Roof B</td>
<td>None Detected - Black asphaltic material</td>
</tr>
<tr>
<td>B2</td>
<td>White Sealant</td>
<td>B2-SC7-27</td>
<td>Roof B</td>
<td>None Detected - White perimeter coping sealant</td>
</tr>
<tr>
<td>B2</td>
<td>White Sealant</td>
<td>B2-SC7-27</td>
<td>Roof B</td>
<td>None Detected - Black asphaltic material</td>
</tr>
<tr>
<td>B2</td>
<td>White Sealant</td>
<td>B2-SC7-28</td>
<td>Roof B</td>
<td>None Detected - White perimeter coping sealant</td>
</tr>
<tr>
<td>B2</td>
<td>White Sealant</td>
<td>B2-SC7-28</td>
<td>Roof B</td>
<td>None Detected - Black asphaltic material</td>
</tr>
<tr>
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<tr>
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APPENDIX C

ASBESTOS LABORATORY ANALYTICAL DATA
**Contra Costa Community College District**  
Project Location: Los Medanos College - Roof (A)

| RGA Batch Number: 15-1466 | RGA Project Number: R1157811 | Number of Samples: 21 |

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Sampled By: Mike Reed
Received By: Rebecca Ferrell
Reviewed By: Cheuk-Wa Angela Ng
Analyzed By: Rebecca Ferrell
Bulk Asbestos Fiber Analysis

Contra Costa Community College District
Project Location: Los Medanos College - Roof (A)

<table>
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<th>Layer Description</th>
<th>Asbestos Components</th>
<th>Non-Asbestos Fibrous Components</th>
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<td>A4-RF5-11</td>
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Sampled By: Mike Reed
Received By: Rebecca Ferrell 8/13/2015
Reviewed By: Cheuk-Wa Angela Ng 8/19/2015
Analyzed By: Rebecca Ferrell 8/19/2015
### Contra Costa Community College District
Project Location: Los Medanos College - Roof (A)

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Sampled By: Mike Reed
Received By: Rebecca Ferrell
Reviewed By: Cheuk-Wa Angela Ng
Analyzed By: Rebecca Ferrell

Page 3 of 3
### ACM BULK SAMPLE DATA SHEET

- **FLM Analysis (Analyze all samples)**
- **Stop Analysis at First Positive**
- **Point Count Analysis (900-point)**

**PAGE 1 OF 2**

**Project Name/Address/Building No.:** Los Medanos College - Roof (A)

**Sample(s) Sent To:** KGA

**Sampled By:** M. Reed 08-14-64

**Sampling Date:** 8-6-15

**TAT:** Rush 24Hrs 48Hrs 3 Days

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### Table: Upper Level Base Flashing (Paragon)

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### Table: Upper Level Membrane

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### Table: Perimeter Base Flashing (Paragon)

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### Table: Perimeter Coping Sealant (White)

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**Relinquished By:** M. Reed

**Received By:**

**Relinquished By:**

**Received By:** Rebecca Finch

**Signature:**

**Date/Time:** 8-12-15

**Signature:**

**Date/Time:** 8-13-15

**Date/Time:** **1305**
### ACM Bulk Sample Data Sheet

**Project Name/Address/Building No.:** Los Medanos College - Roof (A)

**Sample(s) Sent To:** RCA

**Sample #:** R115781

**Sampled By:** M. Reed 08-14-14

**Sampling Date:** 8-6-15

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**Relinquished By:** M. Reed

**Received By:** M. Reed

**Signature:**

**Date/Time:** 8-12-15

**Relinquished By:**

**Received By:**

**Signature:**

**Date/Time:** AUG 1 2 2015

**Relinquished By:**

**Received By:**

**Signature:**

**Date/Time:** 8/13/15 15:05
Sample Log
Chain of Custody

RGA Laboratory Services
INTERNAL

RGA Batch #: 15-1466
RGA Project #: R1157811
Client Job #: 
Number of Samples: 21

TYPE OF ANALYSIS

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<td>Pt. Count (bulk)</td>
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MOLD: P&K 100 101 102 105 117
Other Method:

Turn Around Time (other): 5 day
2 hour / 4 hour Same Day One Day Two Days 3 Days 5 Days

Price per Sample: $ 

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Signature

Sampled by: 
Relinquished by: Mike Reed 8/16/15
Received by: Heidi Santos 8/12/15
Relinquished by:
Received for Laboratory by:
Analyzed by:
Preliminary Results Reported to P.M. by:
Final Report to P.M. by:
Preliminary Considerations to P.M. by:

Special Instructions:
Due by 8/20/2015

CoC016-(Rev.1/07) *Unless requested in writing, all samples will be properly disposed of 30 days after final report date.
# Sample Log
## Chain of Custody

**Client:**

**Company:** Contra Costa Community College District

**Client Address:** 500 Court Street

**Martinez**

**City**

**State**

**Zip**

**RGA Batch #:** 15-1466

**RGA Project #:** R1157811

**Client Job #:**

**Number of Samples:** 21

**Page:** 2 of 2

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### Signature and Date

**Sampled by:**

**M. Reed**

**Date:** 8/6/15

**Time:**

**Relinquished by:**

**M. Santos**

**Date:** 8/12/15

**Received for Laboratory by:**

**Pelec Furdell**

**Date:** 8/13/15

**Time:** 15:05

**Analyzed by:**

**Pelec Furdell**

**Date:** 8/19/15

**Time:** 16:45

**Special Instructions:**

Due by 8/20/2015

---

*Unless requested in writing, all samples will be properly disposed of 30 days after final report date.*
### Contra Costa Community College District

**Project Location:** Los Medanos College - Roof (B)

**RGA Batch Number:** 15-1467  
**RGA Project Number:** R1157811  
**Number of Samples:** 18

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<th>RGA Lab ID</th>
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<th>Layer Description</th>
<th>Asbestos Components</th>
<th>Non-Asbestos Fibrous Components</th>
<th>Non-Fibrous Components</th>
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This report relates only to the items tested. If samples are not collected by RGA Environmental personnel, accuracy of the results is limited by the methodology and expertise of the sample collector. Analyses are cross-checked with other laboratories for quality assurance purposes. This report shall not be reproduced except in full, without written approval of RGA Environmental. It shall not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Sampled By: Mike Reed  
Received By: Rebecca Ferrell  
Reviewed By: Cheuk-Wa Angela Ng  
Analyzed By: Rebecca Ferrell

8/13/2015  
8/20/2015
### Bulk Asbestos Fiber Analysis

**Contra Costa Community College District**  
Project Location: Los Medanos College - Roof (B)

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<tr>
<td>B3-RF5-30</td>
<td>Base flashing-parapet</td>
<td></td>
<td>15% Chrysotile</td>
<td>10% Cellulose</td>
<td>60% Asphalt Filler and Binder</td>
</tr>
<tr>
<td>15013304</td>
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<td>B3-RF5-31</td>
<td>Base flashing-parapet</td>
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<td>60% Asphalt Filler and Binder</td>
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<tr>
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<td>B3-RF5-32</td>
<td>Base flashing-parapet</td>
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<td>15% Chrysotile</td>
<td>10% Cellulose</td>
<td>60% Asphalt Filler and Binder</td>
</tr>
<tr>
<td>15013306</td>
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<td>B3-RF5-33</td>
<td>Base flashing-parapet</td>
<td></td>
<td>15% Chrysotile</td>
<td>10% Cellulose</td>
<td>60% Asphalt Filler and Binder</td>
</tr>
<tr>
<td>15013307</td>
<td></td>
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<tr>
<td>B4-RF9-34</td>
<td>Roof patch</td>
<td></td>
<td>No Asbestos Detected</td>
<td>20% Cellulose</td>
<td>60% Asphalt Filler and Binder</td>
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<tr>
<td>15013308</td>
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</tbody>
</table>

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Sampled By: Mike Reed  
Received By: Rebecca Ferrell  
Reviewed By: Cheuk-Wa Angela Ng  
Analyzed By: Rebecca Ferrell
## Bulk Asbestos Fiber Analysis

**Contra Costa Community College District**  
Project Location: Los Medanos College - Roof (B)  
RGA Batch Number: **15-1467**  
RGA Project Number: **R1157811**  
Number of Samples: **18**

<table>
<thead>
<tr>
<th>Client Sample ID</th>
<th>Layer ID (if applicable)</th>
<th>Layer Description</th>
<th>Asbestos Components</th>
<th>Non-Asbestos Fibrous Components</th>
<th>Non-Fibrous Components</th>
</tr>
</thead>
</table>
| B4-RF9-35        | 15013309                 | Roof patch        | 10% Chrysotile      | 10% Cellulose                  | 60% Asphalt Filler and Binder  
|                  |                          |                   |                     | 10% Mineral Particles          | 10% Rocks               |
| B4-RF9-36        | 15013310                 | Roof patch        | 15% Chrysotile      | 5% Cellulose                   | 60% Asphalt Filler and Binder  
|                  |                          |                   |                     | 10% Mineral Particles          | 10% Rocks               |
| B5-RF5-37        | 15013311                 | Grey roofing debris | 20% Chrysotile     |                                | 70% Asphalt Filler and Binder  
|                  |                          |                   |                     | 10% Mineral Particles          |                        |
| B5-RF5-38        | 15013312                 | Grey roofing debris | 20% Chrysotile     |                                | 70% Asphalt Filler and Binder  
|                  |                          |                   |                     | 10% Mineral Particles          |                        |
| B5-RF5-39        | 15013313                 | Grey roofing debris | 20% Chrysotile     |                                | 70% Asphalt Filler and Binder  
|                  |                          |                   |                     | 10% Mineral Particles          |                        |

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Sampled By: Mike Reed  
Received By: Rebecca Ferrell  
Reviewed By: Cheuk-Wa Angela Ng  
Analyzed By: Rebecca Ferrell  
8/13/2015  
8/20/2015  
8/20/2015

Page 3 of 3
**Project Name/Address/Building No.: LOS MEDIANOS COLLEGE - ROOF (B)**

**Project #: R1157811**

Sample(s) Sent To: 

Sample(s) Sampled By: M. REED  08-14/64 

Sampling Date: 08-10-15 

**TAT:** Rush 24Hrs, 48Hrs 1-3 Days

---

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<thead>
<tr>
<th>HM#</th>
<th>B1</th>
<th>Material Description</th>
<th>Roof Location</th>
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<td>THROUGH OUT</td>
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<td>BF7-23</td>
<td>WEST SECTION</td>
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<td>BF7-24</td>
<td>SOUTH SECTION</td>
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</thead>
<tbody>
<tr>
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<table>
<thead>
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<table>
<thead>
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<tr>
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<td>NORTH PERIMETER</td>
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<thead>
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<table>
<thead>
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<tr>
<td></td>
<td>RF5-33</td>
<td>WEST SIDE UPPER CLEAR STORY</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Relinquished By:** M. REED 
**Date/Time:** 8-12-15

**Received By:** 
**Signature:**  
**Date/Time:**

**Relinquished By:** 
**Signature:**  
**Date/Time:**

**Received By:** Rebecca Frisvoll 
**Signature:**  
**Date/Time:** 8/13/15 1520
# ACM Bulk Sample Data Sheet

**Project Name/Address/Building No.:** LOS MEDANOS COLLEGE - ROOF (B)

**Project #:** R1157811  
**Sampled By:** M. REED  
**Sampling Date:** 08-14-14  
**Sample(s) Sent To:** LC  
**TAT:** Rush 24Hrs 48Hrs 3-5 Days

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<th>HM#</th>
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<th>Qty</th>
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</thead>
<tbody>
<tr>
<td>B4</td>
<td>ROOF PATCH</td>
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</table>

**Material Locations:**

- NE CORNER, SE CORNER, WEST
- NORTH

<table>
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<tr>
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<th>Material Description</th>
<th>Qty</th>
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</thead>
<tbody>
<tr>
<td>B5</td>
<td>ROOFING DEBRIS (GRAY)</td>
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</table>

**Material Locations:**

- MIXED IN WITH MEMBRANE
- ROOF GRAVEL

<table>
<thead>
<tr>
<th>HM#</th>
<th>Material Description</th>
<th>Qty</th>
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</table>

**Material Locations:**

<table>
<thead>
<tr>
<th>HM#</th>
<th>Material Description</th>
<th>Qty</th>
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</thead>
</table>

**Material Locations:**

<table>
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<tr>
<th>Relinquished By:</th>
<th>M. REED</th>
<th>Received By:</th>
<th>Signature:</th>
<th>Date/Time:</th>
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<tbody>
<tr>
<td>Reelinquished By:</td>
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<td>Received By:</td>
<td>Signature:</td>
<td>Date/Time:</td>
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<tr>
<td>Received By:</td>
<td></td>
<td></td>
<td>Signature:</td>
<td>Date/Time:</td>
</tr>
</tbody>
</table>
Sample Log
Chain of Custody

Client:     Client Contact
Company: Contra Costa Community College District
Client Address: 500 Court Street
Martinez CA 94553-
City State Zip

Phone #:
2nd or Cell #:
Fax #:
e-mail Address:

Project Manager:  Marlin Bryant

Project Location: Los Medanos College - Roof (B)

Condition: □ Good  □ Damaged  □ Severe Damage

RGA Batch #: 15-1467
RGA Project #: R1157811
Client Job #: Number of Samples: 18

**TYPE OF ANALYSIS**

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<th>ASBESTOS:</th>
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<tbody>
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<td>PCM (air)</td>
<td>Paint</td>
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<tr>
<td>PLM (bulk)</td>
<td>Wipe</td>
</tr>
<tr>
<td>Pt. Cont (bulk)</td>
<td>TCLP</td>
</tr>
<tr>
<td>MOLD: P&amp;K</td>
<td>100</td>
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Other Method:

Turn Around Time (other):  5 days
2 hour / 4 hour  Same Day  One Day  Two Days  3 Days
                           5 Days

Price per Sample: $ ________________

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<th>Client Sample ID</th>
<th>RGA Laboratory ID</th>
<th>Comments</th>
<th>#</th>
<th>Client Sample ID</th>
<th>RGA Laboratory ID</th>
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<td>B4-RF9-36</td>
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Sampled by: M. Reed
Relinquished by: H. Santos
Received by: H. Santos
Relinquished by: H. Santos
Received for Laboratory by: H. Santos
Analyzed by: H. Santos
Preliminary Results Reported to P.M. by: H. Santos
Final Report to P.M. by: H. Santos

Signature            Date            Time
M. Reed             2/10/15
H. Santos           2/12/15
H. Santos           8/13/15          1320
H. Santos           8/20/15          1330

Special Instructions: Due by 8/20/2015

*Unless requested in writing, all samples will be properly disposed of 30 days after final report date.
# Bulk Asbestos Fiber Analysis

Contra Costa Community College District  
Project Location: Los Medanos College - Roof (C)  
RGA Batch Number: 15-1468  
RGA Project Number: R1157811  
Number of Samples: 12

## Report Key

<table>
<thead>
<tr>
<th>Client Sample ID</th>
<th>Layer ID (if applicable)</th>
<th>Layer Description</th>
<th>Asbestos Components</th>
<th>Non-Asbestos Fibrous Components</th>
<th>Non-Fibrous Components</th>
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<tbody>
<tr>
<td></td>
<td>RGA Lab ID</td>
<td></td>
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</tbody>
</table>

|                  | C1-RF6-40                | 15013314          | Roof membrane      | 15% Chrysotile                | 20% Cellulose          | 50% Asphalt Filler and Binder |
|                  |                          |                   |                    |                                |                        | 10% Mineral Particles          |
|                  |                          |                   |                    |                                |                        | 5% Rocks                        |
|                  | C1-RF6-41                | 15013315          | Roof membrane      | 15% Chrysotile                | 20% Cellulose          | 50% Asphalt Filler and Binder |
|                  |                          |                   |                    |                                |                        | 10% Mineral Particles          |
|                  |                          |                   |                    |                                |                        | 5% Rocks                        |
|                  | C1-RF6-42                | 15013316          | Roof membrane      | 15% Chrysotile                | 20% Cellulose          | 50% Asphalt Filler and Binder |
|                  |                          |                   |                    |                                |                        | 10% Mineral Particles          |
|                  |                          |                   |                    |                                |                        | 5% Rocks                        |
|                  | C2-RF5-43                | 15013317          | Base flashing-parapet | 15% Chrysotile                | 10% Synthetic          | 60% Asphalt Filler and Binder |
|                  |                          |                   |                    |                                |                        | 10% Cellulose                  |
|                  |                          |                   |                    |                                |                        | 5% Mineral Particles           |
|                  | C2-RF5-44                | 15013318          | Base flashing-parapet | 15% Chrysotile                | 10% Cellulose          | 60% Asphalt Filler and Binder |
|                  |                          |                   |                    |                                |                        | 10% Synthetic                  |
|                  |                          |                   |                    |                                |                        | 5% Mineral Particles           |
|                  | C2-RF5-45                | 15013319          | Base flashing-parapet | 3% Chrysotile                | 15% Cellulose          | 65% Asphalt Filler and Binder |
|                  |                          |                   |                    |                                |                        | 10% Synthetic                  |
|                  |                          |                   |                    |                                |                        | 7% Mineral Particles           |
|                  | C3-SC7-46                | 15013320          | L-1 White perimeter coping sealant | No Asbestos Detected | 80% Resin and Binder | 20% Mineral Particles |
|                  |                          |                   |                    |                                |                        |                                  |
|                  |                          | L-2 Black asphalitic material | No Asbestos Detected | 10% Cellulose | 80% Asphalt Filler and Binder | 10% Mineral Particles |

Sampled By: Mike Reed  
Received By: Rebecca Ferrell  
Reviewed By: Cheuk-Wa Angela Ng  
Analyzed By: Rebecca Ferrell  
8/13/2015 8/20/2015 8/20/2015

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# Contra Costa Community College District

**Project Location:** Los Medanos College - Roof (C)  
**RGA Batch Number:** 15-1468  
**RGA Project Number:** R1157811  
**Number of Samples:** 12

<table>
<thead>
<tr>
<th>Client Sample ID</th>
<th>Layer ID (if applicable)</th>
<th>Asbestos Components</th>
<th>Non-Asbestos Fibrous Components</th>
<th>Non-Fibrous Components</th>
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<tbody>
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<td>80% Asphalt Filler and Binder</td>
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<td>10% Mineral Particles</td>
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<td>C4-RF5-49</td>
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<td>70% Asphalt Filler and Binder</td>
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**Sampled By:** Mike Reed  
**Received By:** Rebecca Ferrell  
**Reviewed By:** Cheuk-Wa Angela Ng  
**Analyzed By:** Rebecca Ferrell  
**Page 2 of 2**
# ACM BULK SAMPLE DATA SHEET

**Project Name/Address/Building No.:** LOS MEDANOS COLLEGE - ROOF (C)

**Sample(s) Sent To:** other

**Sampled By:** M. Reed 08-4/64

**Sampling Date:** 8-10-15

**TAT:** Rush 24Hrs 48Hrs 3-5 Days

**E-MAIL REPORT TO:** SEE ABOVE PROJECT MANAGER (PM) **

### Table

<table>
<thead>
<tr>
<th>HM#</th>
<th>Material Description</th>
<th>Qty</th>
<th>Material Locations</th>
</tr>
</thead>
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<td><strong>ROOF MEMBRANE</strong></td>
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<td></td>
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</tr>
<tr>
<td>C1- RF6-40</td>
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<td># &quot; 41</td>
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<td>V &quot; 42</td>
<td>SOUTH SIDE</td>
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<tr>
<td><strong>C2</strong></td>
<td><strong>BASE FLASHING (PARAPET)</strong></td>
<td>Qty</td>
<td>Material Locations</td>
</tr>
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<td>Sample ID</td>
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<td>V &quot; 45</td>
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<tr>
<td><strong>C3</strong></td>
<td><strong>PERIMETER COPING SEALANT (WHITE)</strong></td>
<td>Qty</td>
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</tr>
<tr>
<td>Sample ID</td>
<td>Sample Location</td>
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</tr>
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<td>C3- SC7-44</td>
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<td># &quot; 47</td>
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<td>V &quot; 48</td>
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<tr>
<td><strong>C4</strong></td>
<td><strong>ROOFING DEBRIS (GRAY)</strong></td>
<td>Qty</td>
<td>Material Locations</td>
</tr>
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<td>Sample ID</td>
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<td>-51</td>
<td>SOUTH</td>
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**Relinquished By:** M. Reed
**Received By:** [Signature]
**Date/Time:** 8-12-15

**Relinquished By:** [Signature]
**Received By:** [Signature]
**Date/Time:** 8/13/15 1530
**Sample Log**  
**Chain of Custody**

**Client:**  
**Company:** Contra Costa Community College District  
**Client Address:** 500 Court Street  
**Martinez:** CA 94553  
**Phone #:**  
**Fax #:**  
**e-mail Address:**  
**Project Manager:** Marlin Bryant

**Project Location:** Los Medanos College - Roof (C)  
**Type of Analysis:**

<table>
<thead>
<tr>
<th>ASBESTOS:</th>
<th>METALS:</th>
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<tbody>
<tr>
<td>PCM (air)</td>
<td>Paint</td>
</tr>
<tr>
<td>PLM (bulk)</td>
<td>Wipe</td>
</tr>
<tr>
<td>Pt. Count (bulk)</td>
<td>TCLP</td>
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<tr>
<td>MOLD: F&amp;K</td>
<td>100 101 102 105 117</td>
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**Other Method:**

**Turn Around Time (other):** 5 Days

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<th>2 hour / 4 hour</th>
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<th>One Day</th>
<th>Two Days</th>
<th>3 Days</th>
<th>5 Days</th>
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**Price per Sample:** $

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<th>Comments</th>
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<tbody>
<tr>
<td>1</td>
<td>C1-RF6-40</td>
<td>15013314</td>
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<td>2</td>
<td>C1-RF6-41</td>
<td>15013315</td>
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<td>C1-RF6-42</td>
<td>15013316</td>
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<td>4</td>
<td>C2-RF5-43</td>
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<td>5</td>
<td>C2-RF5-44</td>
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<td>6</td>
<td>C2-RF5-45</td>
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<td>7</td>
<td>C3-SC7-46</td>
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<td>8</td>
<td>C3-SC7-47</td>
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<td>C3-SC7-48</td>
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<tr>
<td>10</td>
<td>C4-RF5-49</td>
<td>15013323</td>
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</tr>
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</table>

**Signature:** M. Reed  
**Date:** 8/10/15  
**Time:**

**Sampled by:**

**Relinquished by:**

**Received by:** H. Santos  
**Date:** 8/12/15

**Relinquished by:**

**Received for Laboratory by:**

**Analyzed by:**

**Preliminary Results Reported to P.M. by:**

**Final Report to P.M. by:**

**Special Instructions:**

Due by 8/20/2015

---

*CoC016-(Rev.1/07)*  
*Unless requested in writing, all samples will be properly disposed of 30 days after final report date.*

Page 1 of 1
# Bulk Asbestos Fiber Analysis

**Contra Costa Community College District**  
Project Location: Los Medanos College - Roof (D)  
RGA Batch Number: **15-1469**  
RGA Project Number: **R1157811**  
Number of Samples: **21**

<table>
<thead>
<tr>
<th>Client Sample ID</th>
<th>RGA Lab ID</th>
<th>Layer ID (if applicable)</th>
<th>Asbestos Components</th>
<th>Non-Asbestos Fibrous Components</th>
<th>Non-Fibrous Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1-RF9-52</td>
<td>15013326</td>
<td>Pitch pan penetration mastic</td>
<td>No Asbestos Detected</td>
<td>90% Asphalt Filler and Binder</td>
<td>10% Mineral Particles</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>D1-RF9-53</td>
<td>15013327</td>
<td>Pitch pan penetration mastic</td>
<td>No Asbestos Detected</td>
<td>90% Asphalt Filler and Binder</td>
<td>10% Mineral Particles</td>
</tr>
<tr>
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</tr>
<tr>
<td>D1-RF9-54</td>
<td>15013328</td>
<td>Pitch pan penetration mastic</td>
<td>No Asbestos Detected</td>
<td>90% Asphalt Filler and Binder</td>
<td>10% Mineral Particles</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>D2-RF5-55</td>
<td>15013329</td>
<td>Roofing debris</td>
<td>50% Chrysotile</td>
<td>30% Asphalt Filler and Binder</td>
<td>20% Mineral Particles</td>
</tr>
<tr>
<td></td>
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<tr>
<td>D2-RF5-56</td>
<td>15013330</td>
<td>Roofing debris</td>
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<td>30% Asphalt Filler and Binder</td>
<td>20% Mineral Particles</td>
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<td>D2-RF5-57</td>
<td>15013331</td>
<td>Roofing debris</td>
<td>50% Chrysotile</td>
<td>30% Asphalt Filler and Binder</td>
<td>20% Mineral Particles</td>
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</tr>
<tr>
<td>D3-RF5-58</td>
<td>15013332</td>
<td>Equipment curbs</td>
<td>No Asbestos Detected</td>
<td>10% Cellulose</td>
<td>70% Asphalt Filler and Binder</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10% Glass Fiber</td>
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<td>D3-RF5-59</td>
<td>15013333</td>
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<td>10% Glass Fiber</td>
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</table>

This report relates only to the items tested. If samples are not collected by RGA Environmental personnel, accuracy of the results is limited by the methodology and expertise of the sample collector. Analyses are cross-checked with other laboratories for quality assurance purposes. This report shall not be reproduced except in full, without written approval of RGA Environmental. It shall not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Sampled By: Mike Reed  
Received By: Rebecca Ferrell  
Reviewed By: Cheuk-Wa Angela Ng  
Analyzed By: Cheuk-Wa Angela Ng

8/13/2015  
8/20/2015
# Asbestos Components Report

<table>
<thead>
<tr>
<th>Client Sample ID</th>
<th>RGA Lab ID</th>
<th>Layer Description</th>
<th>Asbestos Components</th>
<th>Non-Asbestos Fibrous Components</th>
<th>Non-Fibrous Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>D4-RF6-61</td>
<td>15013335</td>
<td>Roof membrane</td>
<td>10% Chrysotile</td>
<td>50% Asphalt Filler and Binder</td>
<td>40% Filler and Binder</td>
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<td>D4-RF6-62</td>
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<td>Roof membrane</td>
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<td>50% Asphalt Filler and Binder</td>
<td>20% Filler and Binder</td>
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<td>D4-RF6-63</td>
<td>15013337</td>
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<td>50% Asphalt Filler and Binder</td>
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<td>30% Filler and Binder</td>
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<tr>
<td>D5-RF5-65</td>
<td>15013339</td>
<td>Parapet flashing</td>
<td>20% Chrysotile</td>
<td>70% Asphalt Filler and Binder</td>
<td>10% Mineral Particles</td>
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<tr>
<td>D5-RF5-66</td>
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<td>Parapet flashing</td>
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<td>D5-RF5-67</td>
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<td>70% Asphalt Filler and Binder</td>
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<td>D5-RF5-68</td>
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<td>70% Asphalt Filler and Binder</td>
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</tbody>
</table>

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<table>
<thead>
<tr>
<th>Client Sample ID</th>
<th>Layer ID (if applicable)</th>
<th>Layer Description</th>
<th>Asbestos Components</th>
<th>Non-Asbestos Fibrous Components</th>
<th>Non-Fibrous Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>D6-SC7-69</td>
<td>White sealant</td>
<td>No Asbestos Detected</td>
<td>70% Resin and Binder</td>
<td>20% Calcite Filler and Binder</td>
<td>10% Mineral Particles</td>
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<td>15013343</td>
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<td>70% Resin and Binder</td>
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<td>15013344</td>
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<tr>
<td>D6-SC7-71</td>
<td>White sealant</td>
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<td>20% Calcite Filler and Binder</td>
<td>10% Mineral Particles</td>
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<td>D6-SC7-72</td>
<td>L-1</td>
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<td>L-2</td>
<td>Black asphaltic material</td>
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<td>90% Asphalt Filler and Binder</td>
<td>10% Mineral Particles</td>
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</table>

This report relates only to the items tested. If samples are not collected by RGA Environmental personnel, accuracy of the results is limited by the methodology and expertise of the sample collector. Analyses are cross-checked with other laboratories for quality assurance purposes. This report shall not be reproduced except in full, without written approval of RGA Environmental. It shall not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.
**ACM Bulk Sample Data Sheet**

- **PM - A. Scherer**
- **PM - K. Schreiber**
- **PM - K. Pilgrim**
- **PM - T. Kauffman**
- **PM - B. Gill**
- **PM - D. Waterman**

**Project Name/Address/Building No.:** LOS MEDANOS COLLEGE - ROOF (D)

**Project #:** R157811

**Sample ID:** D1

<table>
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<tr>
<th>Sample ID</th>
<th>Material Description</th>
<th>Pitch</th>
<th>Pan Penetration</th>
<th>Mastic</th>
<th>Qty</th>
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<tbody>
<tr>
<td>D1- RF9-52</td>
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<td>HVAC LOUVER</td>
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<td>&quot; &quot;-53</td>
<td>&quot; &quot;- NW</td>
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<tr>
<td>&quot; &quot;-54</td>
<td>&quot; &quot;- W</td>
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**Sample ID:** D2

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<th>Qty</th>
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<tbody>
<tr>
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<td>ROOFING DERRIS (GRAY)</td>
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<td>&quot; &quot;-57</td>
<td>EAST SIDE</td>
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**Sample ID:** D3

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<tbody>
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<td>NORTH SIDE UNIT</td>
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<tr>
<td>&quot; &quot;-60</td>
<td>NE CORNER UNIT</td>
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**Sample ID:** D4

<table>
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<th>Sample ID</th>
<th>Material Description</th>
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<td>&quot; &quot;-62</td>
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<tr>
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<td>NORTH</td>
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**Sample ID:** D4

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<tr>
<td>D4- RF6-64</td>
<td>UPPER ELEVATION - CLEAR STORY</td>
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</tr>
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</table>

**Relinquished By:** M. REED

**Received By:** [Signature]

**Date/Time:** 8-12-15

**Relinquished By:** [Signature]

**Date/Time:** [Signature]

**Date/Time:** 8/13/15

**E-MAIL REPORT TO:** SEE ABOVE PROJECT MANAGER (PM) **

**Sampling Date:** 8-10-15
**ACM BULK SAMPLE DATA SHEET**

- **PM** - S. Steinber
- **SP** - K. Schroeder
- **PM** - M. Bryant
- **PM** - T. Kattchou
- **PM** - M. Benefield
- **PM** - D. Ulfert

---

**Project Name/Address/Building No.:** **LOS MEDIANOS COLLEGE - ROOF**

**Sample(s) Sent To:** 

- **Other:** 

---

**E-MAIL REPORT TO:** SEE ABOVE PROJECT MANAGER (PM)***

---

**Project #:** **R1157811**

**Sampled By:** M. REED 08-14/15

**Sampling Date:** 8-10-15

**TAT:** Rush 24Hrs 48Hrs 3-5 Days

---

**HM#** | **D5** | Material Description | **BASE FLASHING (PARAPET)** |
--- | --- | --- | --- |
Sample ID | Sample Location | Material Locations | Qty |
**D5-RF5-65** | EAST | | |
**D5-RF5-66** | WEST | | |
**D5-RF5-67** | SOUTH | | |

---

**HM#** | **D5** | Material Description | **CONTINUE** |
--- | --- | --- | --- |
Sample ID | Sample Location | Material Locations | Qty |
**D5-RF5-68** | UPPER Elevation - CLEAR Story | | |

---

**HM#** | **D6** | Material Description | **PERIMETER COPING SEALANT (WHITE)** |
--- | --- | --- | --- |
Sample ID | Sample Location | Material Locations | Qty |
**D6-SC7-69** | EAST | | |
**D6-SC7-70** | WEST | | |
**D6-SC7-71** | SOUTH | | |

---

**HM#** | **D6** | Material Description | **CONTINUE** |
--- | --- | --- | --- |
Sample ID | Sample Location | Material Locations | Qty |
**D6-SC7-72** | UPPER Elevation - CLEAR Story | | |

---

**HM#** | Material Description | **Qty** |
--- | --- | --- |
Sample ID | Sample Location | Material Locations |

---

**Relinquished By:** M. REED 08-14/15

**Received By:** [Signature] 08-14/15 6-13/15

**Relinquished By:** [Signature] 08-14/15 6-13/15

**Received By:** [Signature] 08-14/15 6-13/15
Sample Log
Chain of Custody

Client: Contra Costa Community College District
Client Contact:
Company: Contra Costa Community College District
Client Address: 500 Court Street

Martinez CA 94553-
City State Zip

Phone #:
2nd or Cell #:
Fax #:
e-mail Address:

RGA Batch #: 15-1469
RGA Project #: R1157811
Number of Samples: 21

Project Manager: Marlin Bryant
Project Location: Los Medanos College - Roof (D)

Condition: [✓] Good [ ] Damaged [ ] Severe Damage

TYPE OF ANALYSIS

ASBESTOS: METALS:

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<td>PCM (air)</td>
<td>Paint</td>
<td>Soil</td>
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<tr>
<td>PLM (bulk)</td>
<td>Wipe</td>
<td>Air</td>
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<tr>
<td>Pt. Count (bulk)</td>
<td>TCLP</td>
<td>Water</td>
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MOLD: P&K 100 101 102 105 117
Other Method:

Turn Around Time (other): 5 day
2 hour / 4 hour Same Day One Day Two Days 3 Days 5 Days

Price per Sample: $_____ 

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Sampled by: [Signature] M. Reed Date: 8/10/15 Time: 0
Relinquished by: [Signature]
Received by: [Signature] H. Santos Date: 8/12/15 Time: 0
Relinquished by:
Received for Laboratory by: [Signature] Kim Smull Date: 8/13/15 Time: 0
Analyzed by: [Signature] Date: 8/20/15 Time: 1:50
Preliminary Results Reported to P.M. by: [Signature] Date: 8/21/2015 Time: 0:05
Final Report to P.M. by:

Special Instructions:
Due by 8/20/2015

*Unless requested in writing, all samples will be properly disposed of 30 days after final report date.
Sample Log
Chain of Custody

Client: Company: Contra Costa Community College District
Client Address: 500 Court Street
Martinez, CA 94553

RGA Batch #: 15-1469
RGA Project #: R1157811
Client Job #: 
Number of Samples: 21

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Sampled by: 
Relinquished by: 
Received by: 
Relinquished by: 
Received for Laboratory by: 
Analyzed by: 
Preliminary Results Reported to P.M. by: 
Final Report to P.M. by: 

Signature: M. Reed 
Date: 8/10/15 
Time: 

Signature: H. Santos 
Date: 8/12/15 
Time: 

Signature: Rebecca Furrill 
Date: 8/13/15 
Time: 1545 

Signature: Chad Wintjes 
Date: 8/20/2015 
Time: 1800 

Signature: Chad Wintjes 
Date: 8/21/2015 
Time: 0905 

Special Instructions:

Due by 8/20/2015

CoC017-(Rev.1/07) *Unless requested in writing, all samples will be properly disposed of 30 days after final report date.
State of California
Division of Occupational Safety and Health
Certified Site Surveillance Technician

Michael H Reed
Name
Certification No. 08-4464
Expires on 12/18/15

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7160 of the Business and Professions Code.
State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Marlin Virgil Bryant

Certification No. 92-0596
Expires on 09/31/16

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7141.100 et seq. of the Business and Professions Code.
APPENDIX E

PHOTOGRAPHS
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<tr>
<th>Photo #</th>
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<tbody>
<tr>
<td>#1</td>
<td>Roof A Looking North</td>
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<tr>
<td>#2</td>
<td>Roof A – Looking Northeast</td>
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<tr>
<td>#3</td>
<td>Roof A – White Sealant</td>
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<tr>
<td>#4</td>
<td>Roof A – Northwest Area - Broken Condensate Line</td>
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<tr>
<td>#5</td>
<td>Roof A - Air Handler</td>
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<tr>
<td>#6</td>
<td>Roof A – Air Handlers</td>
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<tr>
<td>Photo #7</td>
<td>Roof A Looking East – Note White Debris in Pea Gravel</td>
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<tr>
<td>Photo #8</td>
<td>Roof A – Southeast Section Looking Southeast</td>
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<td>Photo #9</td>
<td>Roof B – Looking Northwest at Parapet</td>
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<tr>
<td>Photo #10</td>
<td>Roof B – Looking down onto Roof A toward Northwest</td>
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<td>Photo #11</td>
<td>Roof B – Roof Patch Looking Northeast</td>
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<tr>
<td>Photo #12</td>
<td>Roof B – Looking East Along North Side</td>
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<td>Photo #13</td>
<td>Roof B – White Cementitious Debris – 50% Asbestos</td>
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<td>Photo #14</td>
<td>Roof B – White Cementitious Debris – 50% Asbestos</td>
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<td>Photo #15</td>
<td>Roof B – Looking East Along South Side</td>
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<td>Photo #16</td>
<td>Roof B At Damaged Foam Insulation</td>
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<td>Photo #17</td>
<td>Roof C</td>
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<td>Photo #18</td>
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APPENDIX F

SAMPLE LOCATION DIAGRAM
APPENDIX F

SAMPLE LOCATION DIAGRAM