

JOB COPY

PROJECT MANUAL

of the Material and Labor Required for Construction of:

**TO REMAIN ON
SITE AT ALL TIMES**



County of San Mateo

Maple Street Correctional Center Photovoltaic System

for

Maple Street Correctional Facility

1300 Maple St Redwood City, California 94063

County of San Mateo Project Number PB010

Permit Submittal: 07 21 2022

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BIDDING CALENDAR

NOTICE - THIS SUMMARY OF DATES IS FOR INFORMATIONAL PURPOSES ONLY.

The dates and times listed may not be relied upon or enforced. This summary does not form a part of the Contract Documents and does not establish contractual obligations.

NOTICE – THIS IS A SUMMARY ONLY AND DOES NOT LIST ALL DATES, TIMES OR TIME PERIODS CONTAINED IN THE BIDDING AND CONTRACT DOCUMENTS.

All bidders and contractors must refer to the actual documents for all applicable dates, times, and time periods.

Maple Street Correctional Center Photovoltaic System, Project No PB010		
Event	Date/Time	Location
Contract Documents Issued for Bid (Released & Available):	Monday 9 th of January 2023	https://publicworks.smcgov.org/projects-out-bid
Mandatory Pre-Bid Conference and Project Site Visit/Job Walk	Thursday 26 th of January 2023, 2pm	1300, Maple St, Redwood City, CA 94063
Deadline for Questions –Last Day for prospective Bidders to submit questions, in writing, by email to Authorized Contact Person: syatagama@smcgov.org	Wednesday 1 st of February 2023	N/A
Response to Questions	Wednesday 8 th of February 2023	https://publicworks.smcgov.org/projects-out-bid
Bids Due:	Wednesday February 15 th , 2023	See Notice to Contractors Document 00 11 16
Bid Opening Date:	Monday February 20 th , 2023	See Notice to Contractors Document 00 11 16
Bid Evaluation Period:	Friday February 24 th , 2023	N/A
Issue Notice of Intent to Award:	Monday February 27 th , 2023	N/A
Protest Period:	Friday March 3 rd 2023	See Instructions to Bidders Document 11 21 13
Submission to County Board for Approval:	Tuesday March 28 th , 2023	N/A
Anticipated Contract Award Date:	Wednesday March 29 th 2023	N/A

END OF DOCUMENT 00 11 09

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DOCUMENT 00 11 16

NOTICE TO CONTRACTORS

NOTICE IS HEREBY GIVEN that the Board of Supervisors of the County of San Mateo, State of California, will receive sealed bids for the following construction contract:

**MAPLE STREET CORRECTONAL CENTER PHOTOVOLTAIC SYSTEM
PROJECT NO. PB010
SAN MATEO COUNTY CORRECTIONAL FACILITY – MAPLE ST
1300 MAPLE STREET
REDWOOD CITY, CA 94063**

Engineer's Estimate: \$1,200,000.00

Bids shall be received in accordance with the Contract Documents. The Contract Documents may be examined and/or downloaded at the Department of Public Works website at <https://publicworks.smcgov.org/projects-out-bid> (includes complete bid package).

A **Mandatory** Pre-Bid Conference followed by a Project Site Visit/Job Walk is scheduled for **Thursday January 26th, at 2:00 PM (Pacific Time)**. The mandatory pre-bid conference will meet at the project site entry gate, 1300 Maple St, Redwood City CA 94063. It is mandatory for interested contractors to attend the pre-bid conference, sign the attendance roster and visit the project site to become familiar with project. **Bids will not be accepted from any prime contractor not present at the mandatory pre-bid conference as evidenced on the attendance roster.**

Please review the Project Plans & Specifications in advance of the Mandatory Pre-Bid Conference and Project Site Visit.

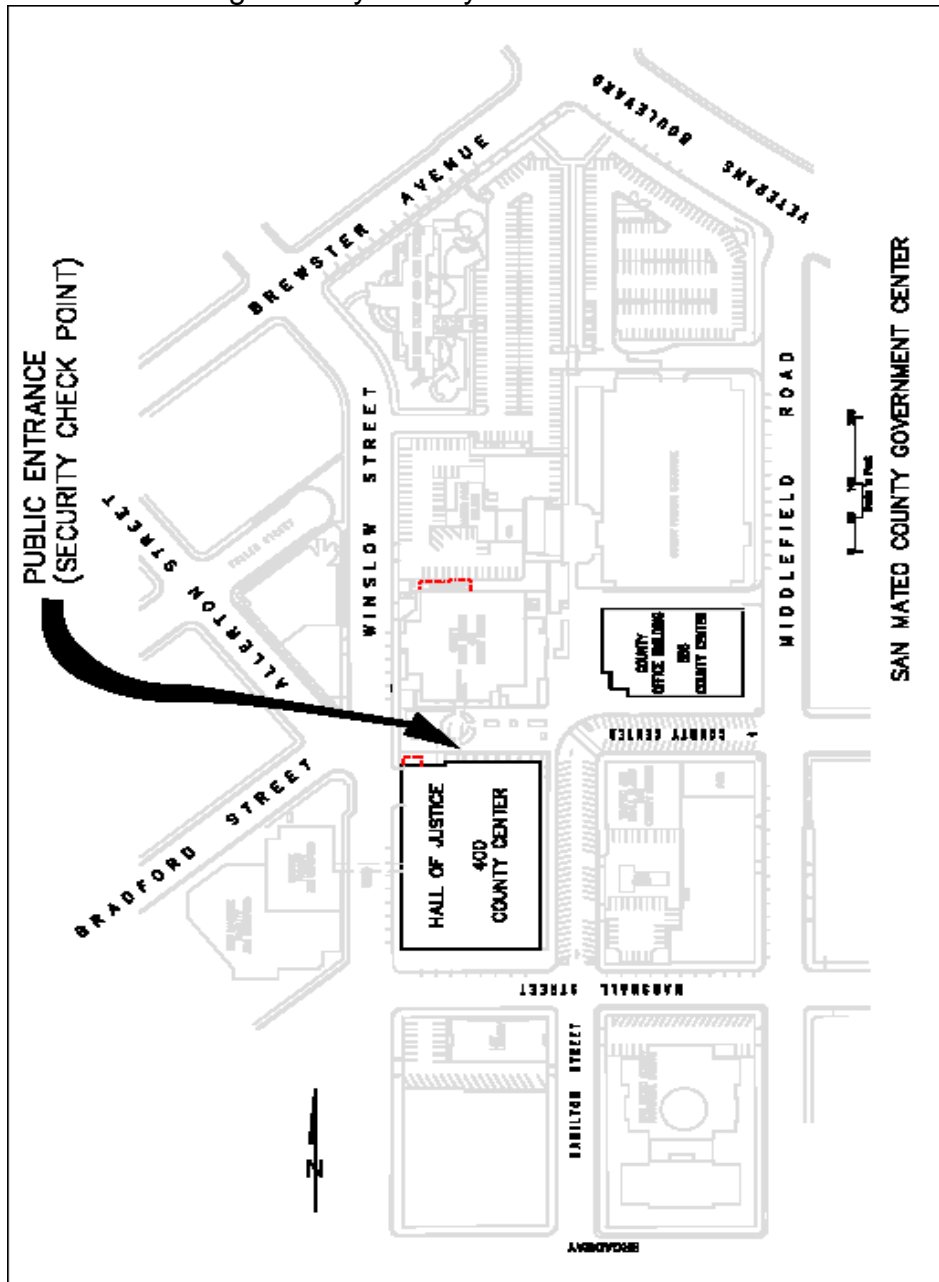
Due to COVID-19 requirements in San Mateo County, interested Contractors are required to don appropriate Personal Protective Equipment (PPE) and maintain social distancing protocols at the Mandatory Pre-Bid Conference and Project Site Visit.

Contractors are expected to provide PPE for their personnel, as published by *Order No. c19-5c (Revised) of the Health Officer of the County of San Mateo*. The entire Order shall be followed by all who live and visit San Mateo County. Contractors shall comply with ALL applicable federal, state, and local health orders and ordinances and are required to continue to check for updates to such orders and ordinances.

Questions regarding this project should be directed to the Authorized Contact Person:
Suna Yatagama, Energy Program Manager
Department of Public Works
555 County Center, 5th Floor, Redwood City, California 94063-1665
Office Phone: (650) 599-7285
Cell Phone: (650) 407-3219

Bids shall be submitted using forms furnished and bound in the Project Manual of the Construction Documents and in accordance with the Instructions to Bidders Document 11 21 13 and shall be accompanied by a Bid Bond.

Bids shall be sealed and filed with the Clerk of the Board of Supervisors of the County of San Mateo at the Hall of Justice and Records, 400 County Center, (formerly 401 Marshall Street) 1st Floor, Redwood City, California, 94063 and filed Bids shall receive the Clerk's timestamp before **February 15th 2023, 2:30PM (Pacific Time)**. All sealed bids officially received and filed with the Clerk of the Board of Supervisors will be opened in public shortly thereafter outside in front of the 400 County Center Building or at another location as designated by County.



The Board of Supervisors of the County of San Mateo, State of California, reserves the right to reject any and all bids, alternate bids, or unit prices and waive any irregularities in any bid received.

No bidder may withdraw his bid for a period of ninety (90) days after the date set for the opening thereof.

Prospective bidders must be fully qualified, licensed, certified, and insured to perform the Work requested for the Project. All work performed must meet all current applicable laws and regulations.

Pursuant to Labor Code Sections 1770, et seq., the Director of the Department of Industrial Relations has determined the general prevailing rate of wages in the County of San Mateo for each craft, classification, or type of workman needed to execute the contract. The prevailing rates so determined are based on an 8-hour day, 40-hour week, except as otherwise noted. Existing agreements between the Building Trades and the Construction Industry groups relative to overtime, holidays and other special provisions shall be recognized. It shall be mandatory upon the Contractor and upon any sub-contractors under him, to pay not less than the said specific rates to all laborers, workmen or mechanics employed by them in the execution of this contract.

Pursuant to State Senate Bill SB 854 (Stat. 2014, Ch. 28), effective January 1, 2015:

- (1) No Contractor or Subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 (with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)).
- (2) No Contractor or Subcontractor may be awarded a contract for public work on a public works project (awarded on or after April 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.
- (3) This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. All Contractors and Subcontractors must furnish electronic certified payroll records directly to the Labor Commissioner (aka Division of Labor Standards Enforcement).

Contractor and its subcontractor(s) agree to pay not less than prevailing rates of wages and be responsible for compliance with all the provisions of the California Labor Code, Article 2-Wages, Chapter 1, Part 7, Division 2, section 1770 et seq and section 1810 et seq. A copy of the prevailing wage scale established by the Department of Industrial Relations is on file in the office of the Director of Public Works, and available at www.dir.ca.gov/DLSR or by phone at 415-703-4774. California Labor Code section 1776(a) requires each contractor and subcontractor keep accurate payroll records of trades' workers on all public works projects and to submit copies of certified payroll records upon request.

A bid security bond will be required for the faithful performance of the contract in amount of not less than one hundred percent (100%) of the amount of the bid. See Document 00 61 16 Bid Bond.

A payment bond and performance bond will be required pursuant to California Public Contract Code Section 7103 and Section 10221 if a contractor is awarded a contract.

The Work to be performed consists, in general, of providing all labor, materials, tools, appurtenances, and equipment required, as well as any other items and details not mentioned above but required by the Contract Documents and as directed by the Director of Public Works.

The engineer's estimate for the scope of work of this Project is One Million Two Hundred Thousand Dollars (\$1,200,000).

The Contract Time for completion of all the Work of the Project is One Hundred Eighty (180) calendar days, as defined as sufficiently complete in accordance with the Contract Documents.

Liquidated Damages are \$1,000.00 per calendar day and shall be based on the Contract Time. Pursuant to California Government Code Section 53069.85, Owner may withhold Liquidated Damages from payments to the Contractor as such damages accrue, or, at Owner's discretion, withhold Liquidated Damages from any payments due or that become due pursuant to the Contract, including Retention and final payment.

END OF DOCUMENT 00 11 16

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DOCUMENT 00 21 13

INSTRUCTIONS TO BIDDERS

1. General
 - 1.1 Bids shall be received in accordance with the Contract Documents. Each Bidder shall carefully read the complete Contract Documents including these instructions.
 - 1.2 Before submitting a bid, each Bidder shall attend the mandatory pre-bid conference and visit the project site and evaluate all conditions and limitations involved thereon as no allowance will be made because of the lack of such examination and knowledge.
 - 1.3 Only licensed Contractors authorized to do business under the laws of the State of California and able to qualify as follows will be eligible to submit a bid.
 - 1.4 Contractors shall meet the following qualifications for this project:
 - A. Contractors bidding to the County shall have a minimum five (5) years continuous experience as a prime contractor on projects in California of comparable quality, size, complexity, and type.
 - B. Contractors bidding to the County shall have completed as the prime three (3) projects of comparable quality, size, complexity and type, preferably in an operating facility, and the projects have been closed with compliance.
 - C. Contractors bidding to the County shall submit Superintendent's qualifications with a minimum of three (3) years supervising projects of comparable quality, size, complexity, and type.
 - D. Subcontractors shall meet the above two requirements in A. and B. as it pertains to their Work.
 - E. Contractor is legally authorized to do business in the State of California.
 - F. Within two (2) business days of request by County, Contractor shall submit evidence of compliance to the above qualifications (in A. B., and C.) and a list of all project work performed, both complete and incomplete, within the previous five (5) years including the names and phone numbers of the Owners and Architects.

- 1.5 Contractors shall meet the following construction requirements:
- A. Permits: All work is subject to inspection and acceptance of the Authority Having Jurisdiction (AHJ).
 - B. Differing Site Conditions: Contractor is advised the work will be performed in an existing facility.
 - C. Work shall be performed between the construction hours of 7:00AM to 5:00PM, unless otherwise agreed upon between the County and Contractor due to extenuating factors.
 - D. Contractor is advised the County intends to maintain active San Mateo Correction Facility, Maple Street utility operations specific to facility systems during construction. Existing systems and utility outages, and shutdowns shall be approved in advance by the County.
 - E. Contractor to coordinate with the County and AHJ regarding providing temporary construction barriers and maintain public sidewalk access in the street Right-of-Way for duration of project.
 - F. Not Used.
 - G. Schedule: Contractor's attention is directed to the Contract Time and the requirement of the Contractor to achieve substantial completion of the work within said time period. Construction shall be completed within Contract Time defined as sufficiently complete in accordance with the Contract Documents to allow the Owner to occupy or utilize for its intended use.
 - H. Sequence of Construction. Contractor shall submit for approval by the County the proposed sequence of construction.
 - I. Contractor shall be required to attend weekly construction project meetings with County and County's Representatives for the duration of the project. Contractor shall track meeting action items and provide updates per Contract Documents.
 - J. Contractor's Personnel: Contractor shall submit within ten (10) working days from the execution of the Contract a list of names, addresses, and telephone numbers of key personnel who are to be contacted in case of emergencies on the job during non-working hour, including Saturdays, Sundays, and Holidays. Contractor shall update the list during the project and ensure the latest revision is posted in project office and provided to County Representatives.

All personnel who will have access to the work site shall carry photo identification at all times. Personnel may be required to pass a background check to be granted access. The County reserves the right to reject personnel with current parole or probationary status and/or criminal records. County staff reserves the right to request a worker be excused from the job site for not carrying appropriate photo identification issued by

the State of California. No claims for delays will be allowed for failure on the part of the Contractor to enforce this requirement.

1.6 Contract Documents:

Questions regarding the Contract Documents, such as discrepancies, conflicts, omissions, doubt as to meanings, or regarding scope of work shall be referred to the County Authorized Contact Person. Inquiries must be received by the Authorized Contact Person not later than Tuesday January 3rd at 2pm. Inquiries will be answered in writing to all bidders of record if a response or written clarification is warranted in the opinion of the Owner. The Owner will not be responsible for oral clarifications.

Regarding questions on the Contract Documents in the absence of written clarifications, Contractor is instructed to bid the more expensive method or materials.

2. Bid Proposals

2.1 Bids shall be submitted in accordance with the Contract Documents. Bid documents shall be submitted on County forms provided in these Contract Documents, and are to be properly and fully completed, including the designation of all subcontractors who will perform work or labor or render service on behalf of Contractor, in an amount in excess of one-half of one percent of the Contractor's total bid. Bidders must complete and submit all of the following documents with their Bid:

1. Document 00 41 13 – Bid Form and Designated Subcontractor List
2. Document 00 45 19 - Non-Collusion Declaration
3. Document 00 45 36.01 – EEO Certification of Compliance & Intent
4. Document 00 45 36.02 – EEO Program Contractor Report Form
5. Document 00 45.36.03 - EEO Program Questionnaire
6. Document 00 45 46 - Anti-Trust Laws Questionnaire
7. Document 00 61 16 - Bid Bond (Bid Security) Form

2.2 No bid will be considered which makes exceptions, changes, or in any manner makes reservations to the terms of the Contract Documents.

2.3 Unit Prices on all classes of work as specified or required shall be submitted. Additions to or deductions from the contract sum shall be based on these unit prices. However, none will be acceptable that are above and beyond a fair and just amount and may be subject to third party estimator verification and reasonable adjustment before the signing of the Contract or bid disqualification.

2.4 Each bid must give the full business address of the bidder and be signed by the bidder with his usual signature. Bids by partnerships must furnish the full name of all partners and must be signed in the partnership name by one of the members of the partnership or by any authorized representative, followed by the signature and designation of the person signing. Bids by corporations must 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 president, secretary, or other person authorized to bind it in the matter. Corporations must furnish a Certificate attesting to the existence of the corporation. The name of each person signing shall also be typed or printed below the signature. When requested by the Owner, satisfactory evidence of the authority of the officer signing on behalf of the corporation shall be furnished.

2.5 Bids are to be submitted in separate sealed envelopes. Envelopes shall be marked in lower left corner "Bid for" (provide contract title) and "Bid Opening" (provide bid opening date and time).

Deliver all bids to Clerk of the Board of Supervisors of the County of San Mateo at the Hall of Justice and Records, 400 County Center, (formerly 401 Marshall Street) 1st Floor, Redwood City, California, 94063 for the Clerk's timestamp of receipt before the day of **January 30, 2023, 2:30PM.**

2.6 All sealed bids officially received and filed with the Clerk of the Board of Supervisors of the County of San Mateo on or before the day of **January 30, 2023, 2:30PM** will be opened in public shortly thereafter outside of the 400 County Center building or at another location as designated at that time by County Clerk of the Board.

2.7 No bid will be considered which is received after the date and time set for the deadline to receive bids as stated herein, as determined by County.

3. Bonds and Insurance

3.1 Bids shall be accompanied by a cashier's check or a certified check payable to County, or a Bid Bond of not less than ten percent (10%) of the amount of the base Bid, plus all additive alternates as required. Required form of corporate surety, a Bid Bond Form, is provided by County and must be used and fully completed by Bidders choosing to provide a Bid Bond as security. The Surety on Bidder's Bid Bond must be an insurer admitted in the State of California and authorized to issue surety bonds in the State of California. Bids submitted without

necessary bid security will be deemed non-responsive and will not be considered.

- 3.2 Two bonds, as itemized below and in the forms presented in these Contract Documents, shall be furnished by the successful Bidder within ten (10) calendar days after notification of award, and by which documents shall be filed with the Department of Public Works, Capital Projects Division, 555 County Center, 5th Floor, Redwood City, California. The bonds shall be in the form of surety bonds issued by corporations duly and legally licensed to transact business in the State of California, satisfactory to the County. Premiums for said bonds shall be paid by the Contractor and maintained at Contractor's expense during the period prescribed herein for the completion of the work to be performed under the contract.
 - 3.3 Performance Bond in amount of 100 percent (100%) of the Contract Amount to insure County during construction and for the guarantee period after completion against faulty or improper materials or workmanship and to assure County of full and prompt performance of Contract.
 - 3.4 Payment Bond in amount of 100 percent (100%) of the Contract Amount in accordance with the laws of the State of California to secure payment of any and all claims for labor and material used or consumed in performance of this Contract.
 - 3.5 Workers' Compensation Insurance, Comprehensive General Liability Insurance, and Motor Vehicle Liability Insurance and evidence thereof shall be furnished to County and shall be maintained by the Contractor as detailed in the General Conditions.
4. Wage Rates
- 4.1 The Director of Industrial Relations has determined the general prevailing rate of wages in the County of San Mateo.
 - 4.2 In accordance with the General Conditions, it shall be mandatory upon the Contractor and Subcontractors to pay not less than the said prevailing wage rates to all laborers, workmen, or mechanics employed by them in the execution of this Contract. When applicable, both Contractor and Subcontractor hereby agree to pay not less than prevailing rates of wages and be responsible for compliance with all the provisions of the California Labor Code, Article 2-Wages, Chapter 1, Part 7, Division 2, Section 1770 et seq and Section 1810 et seq. A copy of the prevailing wage scale established by the Department of Industrial Relations is on file in the office of the Director of Public Works, and

available at www.dir.ca.gov/DLSR or by phone at 415-703-4774. California Labor Code Section 1776(a) requires each Contractor and Subcontractor keep accurate payroll records of trades workers on all public works projects and to submit copies of certified payroll records upon County's request.

- 4.3 The Contractor's attention is further directed to the following requirements of State Senate Bill SB 854 (Stat. 2014, Chapter 28), effective January 1, 2015:
- (1) No Contractor or Subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 (with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)).
 - (2) No Contractor or Subcontractor may be awarded a contract for public work on a public works project (awarded on or after April 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.
 - (3) This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.
- 4.4 The Contractor is further advised that, pursuant to State Senate Bill SB 854 (Stat. 2014, Chapter 28), effective January 1, 2015, all contractors and subcontractors working on a contract for public work on a public works project (awarded on or after April 1, 2015) must furnish electronic certified payroll records to the Labor Commissioner.
5. Non-Discrimination
- 5.1 All Contractors with contracts over \$5,000 must comply with the County Ordinance No. 4026, Chapter 2.93 of the County of San Mateo Ordinance Code with respect to the provision on employee benefits. The ordinance mandates that Contractors provide to employees with domestic partners benefits equal to those provided to employees with spouses.
6. Contractor Employee Jury Service Ordinance
- 6.1 For contracts over \$100,000, Contractor shall comply with the County Ordinance No. 4324, Chapter 2.85 of the County of San Mateo Ordinance Code with respect to provision of jury duty pay to employees. Refer to Document 00 45 29 Jury Service and Wage Compensation.

7. Recycling and Diversion of Debris from Construction and Demolition Ordinance

7.1 All Contractors with demolition contracts exceeding \$5,000 in value; or construction contracts exceeding \$250,000 in value; or construction contracts consisting of at least 2,000 square feet shall comply with the County Ordinance No. 4099, Chapter 4.105 of the County of San Mateo Ordinance Code for with respect to construction and demolition debris. Refer to Document 00 62 63 Recycling and Diversion of Debris from Construction and Demolition.

8. Sole Source Products and/or County Vendors

8.1 The County has found and determined that the following item(s) shall be used on this Project based on the purpose(s) indicated. Public Contract Code Section 3400(b): A particular material, product, thing, or service is designated by specific brand or trade name for the following purpose(s):

- (1) In order to match other products in use at the San Mateo Correctional Center.
- (2) In order to obtain a necessary item that is only available from one source.

See Drawings and Specifications for specific project requirements.

9. Contractor Selection and Contract Award

9.1 Before a contract is awarded, the Director of Public Works may, at his sole discretion, require from the proposed contractor evidence of his ability to faithfully, capably, and reasonably perform such proposed contract within the Contract Time and for the Contract Amount and may consider such evidence before making a decision on the award of such proposed contract.

9.2 The County reserves the right to reject any and all bid proposals, to contract work with whomever and in whatever manner, to abandon work entirely, or waiver of any irregularities in receiving bids.

9.3 The contract shall be awarded to the lowest and most responsible bidder as interpreted by the County in accordance with the Contract Documents. The Base Bid shall be used to determine the lowest bidder. Alternates may be accepted and awarded to the lowest and most responsible bidder, as determined above, in any combination or order.

- 9.4 Once a decision has been made to award a contract to a bidder, the County will issue a Notice of Intent to Award to notify all bidders of the selected bidder.

10. Protests

Protests that do not comply with the protest procedures outlined below will be rejected.

10.1 Protest Eligibility, Format, and Address

(1) Protests or objections may be filed regarding the procurement process, the content of the solicitation, Construction Documents, or any addenda, or contract award.

(2) The County will only review protests submitted by an interested party, defined as an actual or prospective bidder whose direct economic interest could be affected by the County's conduct of the solicitation. Subcontractors do not qualify as interested parties.

(3) Submit protests to the Department of Public Works by registered mail to:

Tory Newman
Deputy Director, Facilities
Department of Public Works
County of San Mateo
555 County Center, 5th Floor
Redwood City, Ca 94063.

10.2 Protest Deadlines

Submit Protests with any supplemental materials by 2:00PM, Pacific Standard Time, (PST), as appropriate, on the deadlines set forth below. The date of filing is the date the County receives the protest, unless received after 2:00PM PST, or on other than a Business Day, in which case the date of filing will be the next Business Day. Failure to file by the relevant deadline constitutes a waiver of any protest on those grounds. Supplemental materials filed after the relevant deadline may be rejected by the County.

- (1) If relating to the content of the solicitation or to an addendum, file within five (5) Business days after the date the County releases the solicitation or addendum.
- (2) If relating to any notice of non-responsiveness or non-responsibility, file within five (5) Business Days after the County issues such notice.
- (3) If relating to intent to award, file within five Business Days after the County issues notice of Intent to Award. No protests will be accepted once actual award has been made.

10.3 Protest Contents

- (1) The letter of protest must include all of the following elements:
 - a) Detailed grounds for the protest, fully supported with technical data, test results, documentary evidence, names of witnesses, and other pertinent information related to the subject being protested; and
 - b) The law, rule, regulation, ordinance, provision or policy upon which the protest is based, with an explanation of the violation.
- (2) Protests that simply disagree with decisions of the Department of Public Works will be rejected.

10.4 Reply to Protest

The County will send a written response to the protestor and to any other party named in the protest.

10.5 No Stay of Procurement Action during Protest

Nothing in these protest requirements will prevent the County from proceeding with negotiations or awarding a purchase order or contract while a protest is pending.

11. Public Records

11.1 General

- (1) All bids, protests, and information submitted in response to this solicitation will become the property of the County and will be considered public records. As such, they may be subject to public review.
- (2) Any contract arising from this solicitation for bids will be public record.
- (3) Submission of any materials in response to this solicitation for bids constitutes:
 - a) Consent to the County's release of such materials under the Public Records Act without notice to the person or entity submitting the materials; and
 - b) Waiver of all claims against the County and/or its officers, agents, or employees that the County has violated a proposer's right to privacy, disclosed trade secrets, or caused any damage by allowing the bid or materials to be inspected; and
 - c) Agreement to indemnify and hold harmless the County for release of such information under the Public Records Act; and

d) Acknowledgement that the County will not assert any privileges that may exist on behalf of the person or entity submitting the materials.

11.2 Confidential Information

(1) The County is not seeking proprietary information and will not assert any privileges that may exist on behalf of the proposer: Proposers are responsible for asserting any applicable privileges or reasons why a document should not be produced in response to a public record request.

(2) If submitting information protected from disclosure as a trade secret or any other basis, identify each page of such material subject to protection as “CONFIDENTIAL”. If requested material has been designated as confidential, the County will attempt to inform the proposer of the public records request in a timely manner to permit assertion of any applicable privileges.

(3) Failure to seek a court order protecting information from disclosure within ten (10) days of the County’s notice of the request to the proposer will be deemed agreement to disclosure of the information and the proposer agrees to indemnify and hold the County harmless for release of such information.

(4) Requests to treat an entire proposal as confidential will be rejected and deemed agreement to County disclosure of the entire proposal and the proposer agrees to indemnify and hold the County harmless for release of any information requested.

(5) Trade secrets will only be considered confidential if claimed to be a trade secret when submitted to the County, marked as confidential, and compliant with Government Code Section 6254.7.

END OF DOCUMENT 00 21 13

DOCUMENT 00 41 13

BID FORM

STIPULATED SUM SINGLE-PRIME CONTRACT

To: The County of San Mateo
State of California

From: _____
(Proper Name of Bidder)

For: **MAPLE STREET CORRECTIONAL CENTER PHOTOVOLTAIC SYSTEM,
PROJECT NO PB010**

SAN MATEO COUNTY CORRECTIONAL FACILITY – MAPLE ST
1300 MAPLE STREET
REDWOOD CITY, CA 94063

Project No.: PB010

Bid Opening Date: February 20, 2023, at 2:30PM

1. SCOPE OF BIDS – The undersigned, doing business under the name of

_____,
declares that the only persons or parties interested in this Bid proposal as Principals are those named herein; that this Bid is made without collusion with any other person, firm or corporation; that Principals have carefully examined the location of the proposed Work, the form of Agreement, and the Contract Documents therein referred to; that they propose, and agrees if this Bid is accepted, that Principals will contract with the County of San Mateo, in the form of the Agreement in the Contract Documents, and shall perform all the Work and furnish all the materials specified in the Contract Documents for the following amount(s). The base bid, unit prices, alternates, allowances, as applicable, shall include all labor, materials, equipment, supervision, overhead, profit, and incidentals necessary to complete the Work in accordance with the Contract Documents. The Base Bid will be used to determine the lowest responsible bidder.

2. BASE BID – Base bids shall include all Work specified in the Contract Documents. Write base bid in words and numbers. The base bid is the Contract Amount.

_____ Dollars
(\$ _____)

3. UNIT PRICES: Not used.

4. ALLOWANCES: Not Used.

5. ALTERNATES: Not Used.

6. CONTRACT – If written notice (by electronic mail and U.S. Mail) of the acceptance of this Bid to the undersigned occurs within ninety (90) calendar days after the date of opening the bids, or any time thereafter before the bid is withdrawn, the undersigned will, within ten (10) calendar days after the date of such notice, execute and deliver a contract in the Form of Agreement provided in these Contract Documents and submit with Agreement required Payment and Performance Bonds in the form provided in these Contract Documents. The undersigned designates the address provided in Section 14 of this form to be the place of business to which such notice of acceptance may be mailed or delivered.

7. TIME OF COMPLETION – The undersigned agrees, if awarded the Contract, to complete this entire work within Contract Time specified in Document 00 11 16 Notice to Contractors.

8. BONDS – The undersigned agrees, if awarded the Contract to execute within ten (10) calendar days, two corporate surety bonds as called for in Document 11 21 13 Instruction to Bidders.

9. INSURANCE – Bidder’s Insurance as required for this Contract is placed with:

Bidder’s Workers Compensation Insurance is placed with:

Bidder’s All Other Risk Insurance is placed with:

10. ADDENDA – All Addenda during Bidding are bound with Contract Documents and issued during the time of bidding.

11. ADDENDA RECEIPT – The receipt and acceptance of the following addenda is hereby acknowledged:

ADDENDUM NO. _____	DATED _____
ADDENDUM NO. _____	DATED _____
ADDENDUM NO. _____	DATED _____

12. This Bid may be withdrawn at any time prior to the scheduled time for the opening of bids or any authorized postponement thereof.

13. **CONTRACTOR'S LICENSE** – The undersigned agrees, if awarded the contract, to maintain and keep current through the completion of the contract the valid licenses for the work to be performed as required by the California Contractors License Law and all other applicable licensing requirements.

License No.	License Class	Expiration Date
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14. By the signature below, the Bidder certifies, under penalty of perjury, the accuracy of the representations made in this Bid proposal.

Dated _____, 20_____.

Company
Business Type _____Corporation _____Partnership _____Sole Proprietorship

State of Incorporation of Location of Business Registration: _____

Name of Bidder: _____

Type of Organization: _____

Signed by: _____

Print Name of Signer: _____

Title of Signer: _____

Address of Bidder: _____

Phone: _____ Fax: _____

Email: _____

Taxpayer Identification Number of Bidder: _____

Department of Industrial Relations Registration Number: _____

If Bidder is a partnership, give full names of all partners: _____

If Bidder is a corporation, affix corporate seal.
Name of Corporation: _____

President/Secretary/Treasurer/Other: _____

15. **DESIGNATION OF SUBCONTRACTORS** – In compliance with the provisions of Sections 4100-4108 of the Public Contract Code of the State of California, and any amendments thereof, each Bidder shall set forth and list below the name and the location of each subcontractor who will be employed, and the kind of form that each will perform work or labor or render service to the Bidder in or about the construction of the Work in an amount in excess of one-half of one percent (1/2 of 1%) of the Bidder's total Bid to County, if the Contract is awarded to the Bidder. Any work that the Bidder fails to list, Bidder agrees to perform that portion itself or be subject to penalty under applicable law.

In case more than one subcontractor is named for the same kind of work, state the portion that each will perform. Vendors or suppliers of materials only do not need to be listed.

Reference: Notice to Contractor regarding State Senate Bill SB 854

DESIGNATION OF SUBCONTRACTORS - Please List All Subcontractor's

DESIGNATED SUBCONTRACTOR LIST				
Project Number: PB010		Project Name: Maple Street Correctional Center Photovoltaic System		
Name and City of Subcontractor (1) (4)	Description of Work: Reference to Contract Items (1)	Price Under Contract (2) (3)	State of California Contractor's License (2)	Department of Industrial Relations Registration No. (DIR) (2)

- (1)** Submit this information with sealed bid.
- (2)** This information shall be required of the two (2) apparent low bidders, no later than two days following the bid opening. **DO NOT INCLUDE THIS INFORMATION WITH BID.**
- (3)** Dollar amounts will be treated as proprietary and will solely be for the use of County staff. **DO NOT INCLUDE THIS INFORMATION WITH BID.**
- (4)** Submit full address of Subcontractors two days following bid opening.

Attach additional page as necessary. Indicate "none" or number of pages attached here: _____
 pages attached.

END OF DOCUMENT 00 41 13

DOCUMENT 00 45 19

NON-COLLUSION DECLARATION

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

Project: **MAPLE STREET CORRECTIONAL CENTER PHOTOVOLTAIC SYSTEM, PROJECT NO PB010**
SAN MATEO COUNTY CORRECTIONAL FACILITY – MAPLE ST
1300 MAPLE STREET
REDWOOD CITY, CA 94063
Project No.: PB010

The undersigned declares:

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

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

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____ date], at _____ city], _____ state]."

Signature

Title

(ATTACH NOTARIAL ACKNOWLEDGMENT FOR THE ABOVE SIGNATURE)

END OF DOCUMENT 00 45 19

DOCUMENT 00 45 26

WORKERS' COMPENSATION CERTIFICATION

Contract Between County Of San Mateo (The "County" Or The "Owner") and _____ (The "Contractor" Or The "Bidder") for the construction of:

MAPLE STREET CORRECTIONAL CENTER PHOTOVOLTAIC SYSTEM, PROJECT NO PB010 NO. PB010 (The "Contract" Or The "Project")

Labor Code §3700 provides:

"Every employer, except the State, and all political subdivisions or institutions thereof, shall secure the payment of compensation in one or more of the following ways:

- (a) By being insured against liability to pay compensation by one or more insurers, duly authorized to write compensation insurance in this State.
- (b) By securing from the Director of Industrial Relations a certificate of consent to self-insure, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to employees."

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

Date: _____ 20_____

By _____ Print Name: _____
(Signature of Contractor) (Name of Contractor)

_____ (Official Title)

(Labor Code §1861 requires that this Contractor certification must be signed and filed by the Contractor with the public agency prior to performing any Work.)

END OF DOCUMENT 00 45 26

DOCUMENT 00 45 29

JURY SERVICE AND WAGE COMPENSATION

COUNTY OF SAN MATEO
CONTRACTOR EMPLOYEE JURY SERVICE
ORDINANCE NO. 4324, CHAPTER 2.85

2.85.010 Definitions

For the purposes of this chapter:

(a) "Contract" means a legal agreement between the county and a contractor for public works, consulting, or other services, or for purchase of supplies, material or equipment.

(b) "Contractor" means a party who enters into a contract with the county for which the contractor receives consideration of \$100,000 or more.

(c) "Contract Authority" means the Board of Supervisors or the head of the department or agency presenting the proposed contract to the Board of Supervisors.

(d) "Employee" means any California resident who is a full-time employee of a contractor under the laws of California.

(e) "Full time" means forty (40) hours or more worked per week, or a lesser number of hours if

(1) the lesser number is a recognized industry standard as determined by the County Manager, or

(2) the contractor has a long-standing practice that defines the lesser number of hours as full time. (Ord. 4324, 08/15/06)

2.85.020 Contractor Jury Service Policy

(a) A contractor shall have and adhere to a written policy that provides that its employees shall receive from the contractor, on an annual basis, no less than five days of regular pay for actual jury service in San Mateo County. The policy may provide that employees deposit any fees received for such jury service with the contractor or that the contractor deduct from the employees' regular pay the fees received for jury service.

(b) At the time of seeking a contract, a contractor shall certify to the County that it has and adheres to a policy consistent with this chapter or will have and adhere to such a policy prior to award of the contract.

(c) The Board of Supervisors may waive the requirements of this chapter when it determines that it is in the best interests of the County for such reasons as follows:

1. Award of a contract or amendment is necessary to respond to an emergency;

2. The Contractor is a sole source;
3. No compliant contractors are capable of providing goods or services that respond to the County's requirements;
4. The requirements are inconsistent with a grant, subvention or agreement with a public agency;
5. The County is purchasing through a cooperative or joint purchasing agreement.

(d) Contractors should submit requests for waivers of the terms of this chapter to the Contract Authority or the County Manager.

(e) The County Manager may reject a contractor's bid or proposal, or terminate a contract, if he determines that the contractor is in violation of the requirements of this chapter or was established, or is being used, for the purpose of evading the intent of this chapter.

(f) No contract shall be executed with a contractor unless such contractor is in compliance with this chapter. (Ord. 4324, 08/15/06)

2.85.030 Powers and duties of the County Manager

The County Manager's office shall have the authority to:

(a) Adopt rules and regulations, in accordance with this chapter and the Ordinance Code of the County of San Mateo, establishing standards and procedures for effectively carrying out this chapter;

(b) Receive notification from employees of contractors regarding violations of this chapter;

(c) Determine and recommend to the Board of Supervisors for final decision the imposition of appropriate sanctions for violation of this chapter by contractors including, but not limited to:

1. Disqualification of the contractor from bidding on or being awarded a County contract for a period of up to five (5) years, and
2. Contractual remedies, including, but not limited to termination of contract.

(d) Impose other appropriate contractual sanctions for violations of this chapter;

(e) Allow for remedial action after a finding of noncompliance.

(g) Perform such other duties as may be required or which are necessary to implement the purposes of this chapter. (Ord. 4324, 08/15/06)

2.85.040 Date of Application

The provisions of this chapter shall apply to any contract awarded or amended on or after September 01, 2005, provided that if the contractor is then signatory to a collective bargaining agreement, this chapter shall only apply to any contract with that contractor which is awarded or amended after the effective date of the next collective bargaining agreement. (Ord. 4324, 08/15/06)

END OF DOCUMENT 00 45 29

DOCUMENT 00 45 36.01

EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS

CERTIFICATION OF COMPLIANCE

WITH LAWS PROHIBITING DISCRIMINATION

THIS FORM MUST BE COMPLETED IN FULL AND SUBMITTED WITH THE BID

We are in compliance with the Equal Employment Opportunity Requirement of Executive Order 11246, Title VII of the Civil Rights Act of 1964, the California Fair Employment Practices Act, Section 503 of the Rehabilitation Act of 1973, and any other federal or state laws relating to equal employment opportunity and the provisions of Title 2, Chapter 2.50 of the San Mateo County Ordinance Code and the Board established guidelines implementing them.

We will not discriminate against any employee or applicant for employment based on race, religion, color, national origin, age, ancestry, physical or mental disability, sexual orientation, or sex. This pertains to the areas of recruitment, hiring, training, upgrading, transfer, compensation, and termination.

CERTIFICATION OF INTENT

We will develop and implement, during the course of the work concerned, an Equal Employment Opportunity Program of hiring and employment conducted without regard to race, religion, color, national origin, age, ancestry, physical or mental disability, sexual orientation, or sex of the applicants. With this certification we shall submit any and all information which may be required by the County in connection with this program.

Date: _____

Bidder/Company Name: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT 00 45 36.01

DOCUMENT 00 45 36.02

**EQUAL EMPLOYMENT OPPORTUNITY PROGRAM
 CONTRACTOR REPORT FORM**

THIS FORM MUST BE COMPLETED IN FULL AND SUBMITTED WITH THE BID

Project: **MAPLE STREET CORRECTIONAL CENTER PHOTOVOLTAIC SYSTEM, PROJECT
 NO PB010 NO. PB010**
 SAN MATEO COUNTY CORRECTIONAL FACILITY – MAPLE ST
 1300 MAPLE STREET
 REDWOOD CITY, CA 94063
 Project No.: PB010

Company Name: _____ Date: _____

RACIAL/ETHNIC MAKEUP OF THE COMPANY

Be sure to include the total of all employees in each classification in the first column, not just minorities.
 Report the number of employees enrolled in formal on-the-job (apprenticeship) training programs in
 parenthesis () for each classification.

Minority Employees										
Job Classification	Total All Employees	Ethnicity								
		American-Indian or Native Alaskan	Asian	Native Hawaiian or Pacific Islander	Black American or African American	Caucasian	Filipino	Hispanic or Latino (1)	Other (2)	Unidentified (3)
Total(s)										

Ethnicity Notes:

- (1) “Hispanic” includes all persons of Mexican, South and Central American, Puerto Rican, Cuban or Spanish ancestry.
- (2) “Other” includes all others whose origin consists of two or more races other than Hispanic or Latino.
- (3) Use this category for employees who have chosen not to identify any race or ethnicity, including “Other”.

END OF DOCUMENT 00 45 36.02

DOCUMENT 00 45.36.03

**EQUAL EMPLOYMENT OPPORTUNITY PROGRAM
QUESTIONNAIRE**

THIS QUESTIONNAIRE MUST BE COMPLETED IN FULL BY AN OFFICIAL OF THE
COMPANY AND SUBMITTED WITH THE BID

Project: **MAPLE STREET CORRECTIONAL CENTER PHOTOVOLTAIC
SYSTEM, PROJECT NO. PB010**
SAN MATEO COUNTY CORRECTIONAL FACILITY – MAPLE ST
1300 MAPLE STREET REDWOOD CITY, CA 94063

Project No.: PB010

Company Name: _____

Name of Company Official: _____

Phone: _____ Date: _____

1. Yes No Have you read and are you acquainted with the Equal Employment Opportunity Requirement of Executive Order 11246, Title VII of the Civil Rights Act of 1964, Section 503 of the Rehabilitation Act of 1973, the California Fair Employment Practices Act and Title 2, Chapter 2.50 of the San Mateo County Ordinance Code?

2. Yes No Is it the policy of your company to recruit, hire, train, upgrade, transfer, compensate, and discharge without regard to race, religion, color, national origin, age, ancestry, physical or mental disability, sexual orientation, or sex?

3. Yes No Have you appointed an Equal Employment Opportunity Officer? Give his name, position in the company, office address, and phone number.

4. Yes No Does your employment advertising state that you are an Equal Opportunity Employer?

5. Yes No Have all recruitment sources been advised that all qualified applicants will be considered for employment without regard to race,

religion, color, national origin, age, ancestry, physical or mental disability, sexual orientation, or sex?

6. Yes No Were any employees hired by means other than the union hiring hall in the past year?

How many? _____

What positions? _____

7. If non-union personnel are employed by the company, or if a position cannot be filled by the union hall, specify the advertisement and recruitment sources that are used. (For example, State HRD, newspapers, high schools, vocational schools, referral agencies/organizations, community groups).

8. How many apprentices do you employ? _____

How many of these are minorities? _____

9. Yes No Do you have a program for upgrading and counseling present employees?

Describe: _____

10. Yes No Do you have a collective bargaining agreement with a labor union or other organization?

Please list these groups: _____

11. What percentage of your work force is covered by union agreement? _____

- 12. Yes No Have you advised the labor union and/or worker organization of your company's responsibility under the Equal Employment Opportunity Program?
- 13. Yes No Does your company's collective bargaining agreement include a provision for non-discrimination in employment?
- 14. Yes No Have you notified all subcontractors submitting bids to you that they will be subject to the same minority employment requirements should you be the successful bidder?
- 15. Describe any previous experience with Equal Employment Opportunity Programs:

- 16. State what Equal Employment Opportunity Program you plan to take in connection with this project:

If your company has a written Equal Employment Opportunity Program now in effect, please attach a copy of it.

END OF DOCUMENT 00 45.36.03

DOCUMENT 00 45 36.04

**COUNTY OF SAN MATEO
 CONTRACTOR’S DECLARATION FORM**

I. CONTRACTOR INFORMATION

Contractor Name:		Phone:	
Contact Person:		Fax:	
Address:		Number of employees:	

II. EQUAL BENEFITS (check one or more boxes)

Contractors with contracts in excess of \$5,000 must treat spouses and domestic partners equally as to employee benefits.

- Contractor complies with the County’s Equal Benefits Ordinance by:
 - offering equal benefits to employees with spouses and employees with domestic
 - offering a cash equivalent payment to eligible employees in lieu of equal benefits.
- Contractor does not comply with the County’s Equal Benefits Ordinance.
- Contractor is exempt from this requirement because:
 - Contractor has no employees, does not provide benefits to employees’ spouses, or the contract is for \$5,000 or less.
 - Contractor is a party to a collective bargaining agreement that began on _____ (date) and expires on _____ (date), and intends to offer equal benefits when said agreement expires.

III. NON-DISCRIMINATION (check appropriate box)

- Finding(s) of discrimination have been issued against Contractor within the past year by the Equal Employment Opportunity Commission, Fair Employment and Housing Commission, or other investigative entity. Please see attached sheet of paper explaining the outcome(s) or remedy for the discrimination.
- No finding of discrimination has been issued in the past year against the Contractor by the Equal Employment Opportunity Commission, Fair Employment and Housing Commission, or any other entity.

IV. EMPLOYEE JURY SERVICE (check one or more boxes)

Contractors with original or amended contracts in excess of \$100,000 must have and adhere to a written policy that provides its employees living in San Mateo County up to five days regular pay for actual jury service in the County.

- Contractor complies with the County’s Employee Jury Service Ordinance.
- Contractor does not comply with the County’s Employee Jury Service Ordinance.
- Contractor is exempt from this requirement because:
 - the contract is for \$100,000 or less.
 - Contractor is a party to a collective bargaining agreement that began on _____ (date) and expires on _____ (date), and intends to comply when the collective bargaining agreement expires.
 - Contractor has no employees.

Contractor has no employees who live in San Mateo County.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am authorized to bind this entity contractually.

Signature

Name

Date

Title

END OF DOCUMENT 00 45.36.04

DOCUMENT 00 45 46
ANTI-TRUST LAWS QUESTIONNAIRE

THIS QUESTIONNAIRE MUST BE COMPLETED IN FULL AND SUBMITTED WITH
THE BID

Project: **MAPLE STREET CORRECTIONAL CENTER PHOTOVOLTAIC
SYSTEM, PROJECT NO PB010**
SAN MATEO COUNTY CORRECTIONAL FACILITY – MAPLE ST

Project No.: PB010

Company Name: _____

In accordance with instructions from the State of California Attorney General’s Office, with regard to California and Federal Anti-Trust Laws, answers to the following must be included with the bid.

1. Yes No Were bid depository of registry services used in obtaining subcontractor bid figures in order to compute your bid?
2. If the answer to No. 1 is “Yes” please list the subcontractors using a bid depository or registry service.

3. Yes No Did you have any source of subcontractor’s bids other than bid depositories?
4. Yes No Has any person or group threatened you with subcontractor boycotts, union boycotts, or other sanctions to attempt to convince you to use the services or abide by the rules of one or more bid depositories?

Date: _____ Name: _____

Nature of the threats: _____

Additional comments: _____

END OF DOCUMENT 00 45 46

DOCUMENT 00 52 13

AGREEMENT FORM – STIPULATED SUM

THIS AGREEMENT, entered into this _____ day of _____, 20____, by and between the COUNTY OF SAN MATEO, a Political Subdivision of the State of California, hereinafter called the "County", and _____, hereinafter called the "Contractor".

WITNESSETH that the Contractor and the County, in consideration of the mutual covenants, considerations and agreements herein contained, agree as follows:

STATEMENT OF WORK – The Contractor shall furnish all labor and materials and perform all work for:

Project: **MAPLE STREET CORRECTIONAL CENTER PHOTOVOLTAIC SYSTEM, PROJECT NO PB010**
SAN MATEO COUNTY CORRECTIONAL FACILITY – MAPLE ST
Project No.: PB010

in strict accordance with the Contract Documents.

TIME FOR COMPLETION – The work shall be commenced on a date to be specified in the Notice to Proceed issued by the County. Construction shall be completed within **Two Hundred Ninety-Six (296) calendar days** defined as sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize for its intended use.

COMPENSATION TO BE PAID TO CONTRACTOR – The County will pay and the Contractor will accept in full consideration for the performance of the contract, subject to additions and deductions and procedures for payment as provided therein, the sum of _____ (\$_____) which is the Contractor's Bid. The Contract as defined in paragraph 1.1 of the General Conditions constitutes the sole agreement of the parties hereto relating to said work and correctly states the rights, duties, and obligations of each party as of the document's date. Any prior agreement, promises, negotiations, or representations between the parties not expressly stated in this document are not binding. All subsequent modifications shall be in writing.

PREVAILING WAGE RATES - In accordance with the provisions of Section 1770 of the Labor Code, the Board of Supervisors of the County of San Mateo has ascertained the prevailing rate of wages applicable to the work to be done, which prevailing wage rates have been established as indicated in the Notice to Bidders and are incorporated herein by reference.

The Contractor’s attention is further directed to the following requirements of State Senate Bill SB 854 (Stat. 2014, chapter 28), effective January 1, 2015:

- (1) No contractor or subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)].
- (2) No contractor or subcontractor may be awarded a contract for public work on a public works project (awarded on or after April 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.
- (3) This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

IN WITNESS WHEREOF, the parties hereto on the day and year first above written have executed this agreement in three counterparts, each of which shall, without proof or accounting for the other counterparts, be deemed an original thereof.

COUNTY OF SAN MATEO

A Political Sub-Division of the State of California

Attest:

By _____
President, Board of Supervisors

Michael Callagy, County Manager

Clerk of the Board of Supervisors

By _____
Contractor

END OF DOCUMENT 00 52 13

DOCUMENT 00 61 13.13

**PERFORMANCE BOND FORM
(100% of Contract Price)**

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

KNOW ALL PERSONS BY THESE PRESENTS:

That WHEREAS, the County of San Mateo, hereinafter designated as the "County," has awarded to _____ (CONTRACTOR'S NAME), hereinafter designated as "Principal," a contract dated _____ (CONTRACT AWARD DATE), hereinafter designated as the "Contract," which Contract is by this reference made a part hereof, for the work described as the **Maple Street Correctional Center Photovoltaic System, Project No PB010, San Mateo County Correctional Facility – Maple St, Redwood City, CA 94063, Project No.PB010.**

And WHEREAS, Principal is required to furnish a bond in connection with the Contract, guaranteeing the faithful performance thereof;

NOW THEREFORE, THESE PRESENTS WITNESSETH:

That the said Principal and the undersigned, (SURETY'S NAME), as corporate Surety, are held and firmly bound unto the County in the sum of

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

The condition of this obligation is such, that if the Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term of said Contract and any extensions thereof that may be granted by the County, with or without notice to the Surety, and during the life of any guarantee required under the Contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modifications to Surety being hereby waived, on Principal's part to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify, defend, protect, and hold harmless the County as stipulated in the Contract, then this obligation shall become and be null and void; otherwise it shall be and remain in full force and effect.

No extension of time, change, alteration, modification, or addition to the Contract, or of the work required thereunder, shall release or exonerate Surety on this bond or in any way affect the obligation of this bond; and Surety does hereby waive

notice of any such extension of time, change, alteration, modification, or addition.

IN WITNESS WHEREOF, this instrument has been duly executed by the

Principal and Surety this _____ day of _____, 20_____.

Principal

Surety

Signature

Signature

Printed Name

Printed Name of California Agent Surety

Address of California Agent Surety

Telephone Number of California Agent Surety

(Affix Corporate Seal)

NOTE: Notary acknowledgement for Surety signatures and Surety's Power of Attorney and Certificate of Authority for Surety must be attached. The California Department of Insurance must authorize the Surety to be an admitted surety insurer.

END OF DOCUMENT 00 61 13.13

DOCUMENT 00 61 13.16

PAYMENT BOND FORM

**Contractor's Labor & Material Payment Bond
(100% of Contract Price)**

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

KNOW ALL PERSONS BY THESE PRESENTS:

That WHEREAS, the County of San Mateo hereinafter designated as the "County," has awarded to _____ (CONTRACTOR NAME) hereinafter designated as the "Principal," a contract dated _____ (CONTRACTOR AWARD DATE) hereinafter designated as the "Contract," which Contract is by this reference made a part hereof, for the work described as the **the Maple Street Correctional Center Photovoltaic System, Project No PB010, San Mateo County Correctional Facility – Maple St, Redwood City, CA 94063, Project No.PB010.**

And WHEREAS, pursuant to law, the Principal is required, before entering upon the performance of the work, to file a good and sufficient bond with the body by whom the Contract is awarded to secure the claims to which reference is made in Sections 9550 to 9566 and 9100 to 9364 both inclusive, of the Civil Code of California.

NOW THEREFORE, THESE PRESENTS WITNESSETH:

That the said Principal and the undersigned _____,
(Surety's Name)

as corporate Surety, are held and firmly bound unto all laborers, material men and other persons referred to in said statutes in the sum of

_____ Dollars (\$ _____)

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

The condition of this obligation is that if the above bonded Principal, contractor, person, company or corporation, or his or its sub-contractor, fails to pay any claimant name in Section 9100 of the Civil Code of the State of California, or amounts due under the Unemployment Insurance Code, with respect to work or labor performed by any such claimant, that the Surety on this bond will pay the same, in an amount not exceeding the aggregate sum specified in this bond, and also, in case suit is brought upon this bond, a reasonable attorney's fee, which shall be awarded by the court to the prevailing party in said suit, and attorney's fees to be taxed as costs in said suit.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies and corporations entitled to file claims under Section 9100 to 9364 of the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

This bond is executed and filed to comply with the provisions of the act of Legislature of the State of California as designated in the Civil Code, Sections 9550-9566 inclusive, and all amendments thereto.

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

And the said Surety, for value received, hereby stipulates and agrees that no change will be made which increases the total Contract price more than twenty percent (20%) in excess of the original Contract price without notice to the Surety, then, this obligation to be void, otherwise to remain in full force and virtue.

Correspondence relating to this bond shall be sent to the Surety at the address set forth below.

IN WITNESS WHEREOF, this instrument has been duly executed by the
Principal and Surety this _____ day of _____, 20____.

Principal

Surety

Signature

Signature

Printed Name

Printed Name of California Agent Surety

Address of California Agent Surety

Telephone Number of California Agent
Surety

(Affix Corporate Seal)

NOTE: Notary acknowledgement for Surety signatures and Surety's Power of Attorney and Certificate of Authority for Surety must be attached. The California Department of Insurance must authorize the Surety to be an admitted surety insurer.

END OF DOCUMENT 00 61 13.16

DOCUMENT 00 61 16

BID BOND

(Bid Security Form)

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned,

_____, as Principal
("Principal"),

and _____, as Surety
("Surety"), are hereby held and firmly bound unto the County of San Mateo in the State
of California, as represented by the County Board of Supervisors, hereinafter called the
"Owner" in the sum of

_____ Dollars (\$ _____)
lawful money of the United States of America, for payment of which sum, well and truly
to be made, we hereby jointly and severally bind ourselves, our heirs, executors,
administrators, successors, and assigns.

The condition of the above obligation is such that, whereas the Principal has submitted
to the County a certain Bid, attached hereto and hereby made a part hereof, to enter
into a contract in writing for the Maple Street Correctional Center Photovoltaic System,
Project No PB010, San Mateo County Correctional Facility – Maple St, Redwood City,
CA 94063, Project No.PB010.in strict accordance with the Contract Documents.

NOW, THEREFORE,

- a. If said Bid shall be rejected, or, in alternate
- b. If said Bid shall be accepted and the Principal shall execute and deliver a
contract in the Form of Agreement attached hereto and shall execute and deliver
Performance and Payment Bonds in the Forms attached hereto (all properly completed
in accordance with said Bid), and shall in all other respects perform the agreement
created by the Acceptance of said Bid.

Then, this obligation shall be void; otherwise, the same shall remain in force and
effect, it being expressly understood and agreed that the liability of the Surety for any
and all default of the Principal hereunder shall be the amount of this obligation as herein
stated.

The Surety, for value received, hereby stipulates and agrees that the obligation
of said Surety and its bond shall be in no way affected or impaired by any extension of
the time within which the County may accept such Bid and said Surety does hereby
waive notice of such extension.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals this _____ day of _____, 20____, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

In presence of:

(Individual Principal) (Affix Corporate Seal)

(Business Address)

By _____

Attest:

(Corporate Principal)

(Business Address)

(Affix Corporate Seal)

By _____

Attest:

(Corporate Surety)

(Business Address)

(Affix Corporate Seal)

By _____

The rate or premium on this bond is _____ per thousand.

Total amount of premium charge, \$ _____
(The above must be filled in by Corporate Surety.)

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

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

END OF DOCUMENT 00 61 16

DOCUMENT 00 62 23

**RECYCLING AND DIVERSION OF DEBRIS FROM CONSTRUCTION AND
DEMOLITION**

UNDER THE

COUNTY OF SAN MATEO, ORDINANCE NO. 4099, CHAPTER 4.105

AND THE

COUNTY OF SAN MATEO WASTE MANAGEMENT PLAN FORM

4.105.010 Definitions

For purposes of this chapter, the following definitions apply:

(a) “Construction and demolition debris” means and includes:

1. Discarded materials generally considered to be not water soluble and non-hazardous in nature, including but not limited to steel, copper, aluminum, glass, brick, concrete, asphalt material, pipe, gypsum, wallboard, and lumber from the construction or destruction of a structure as part of a construction or demolition project or from the renovation of a structure and/or landscaping, including rocks, soils, tree remains, trees, and other vegetative matter that normally results from land clearing, landscaping and development operations for a construction project;

2. Remnants of new materials, including but not limited to: cardboard, paper, plastic, wood, and metal scraps from any construction and/or landscape project.

(b) “Contractor” means any person or entity holding, or required to hold, a contractor’s license of any type under the laws of the State of California, or who performs (whether as contractor, subcontractor, owner-builder, or otherwise) any construction, demolition, remodeling, renovation, or landscaping service relating to buildings or accessory structures in the unincorporated area of San Mateo County.

(c) “Covered Project” means and includes any project which consists of one or more of the following:

1. Demolition work only, where the cost of the work exceeds \$5,000 as determined by the Building Official;

2. The renovation, remodel or addition to an existing structure, or the construction of a new structure where the cost of the work exceeds \$250,000, as determined by the Building Official;

3. Commercial, residential, or multi-family residential development, and any new structure that is equal to or greater than 2,000 square feet.

(d) “Designated recyclable and reusable materials” means and includes:

1. Inert solids;
2. Wood materials, including any and all dimensional lumber, fencing or construction wood that is not chemically treated, creosoted, CCA pressure treated, contaminated or painted;
3. Vegetative materials, including trees, tree parts, shrubs, stumps, logs, brush or any other type of plants that are cleared from a site for construction or other use;
4. Metals, including all metal scrap such as, but not limited to, pipes, siding, window frames, door frames and fences;
5. Roofing materials including wood shingles and shakes as well as asphalt, stone and slate based roofing material;
6. Salvageable materials and structures, including, but not limited to doors, windows, fixtures, hardwood flooring, sinks, bathtubs and appliances;
7. Any other materials that the Building Official determines can be diverted due to the identification of a recycling facility, reuse facility, or market accessible from the County.

(e) “Inert solids” includes asphalt, concrete, rock, stone, brick, sand, soil and fines;

(f) “Salvage” means the controlled removal of materials from a covered project, for the purpose of reuse or storage for later reuse;

(g) “Structure” means anything constructed or erected. (Ord. 4099, 02/26/02)

4.105.020 Deconstruction and Salvage and Recovery

(a) Contractors are encouraged to make every structure planned for demolition available for deconstruction, salvage, and recovery prior to demolition; and to recover the maximum feasible amount of salvageable designated recyclable and reusable materials prior to demolition.

(b) Recovered and salvaged designated recyclable and reusable materials from the deconstruction phase shall be counted towards the diversion requirements of this chapter. (Ord. 4099, 02/26/02)

4.105.030 Diversion Requirements

(a) One hundred percent (100%) of inert solids, and at least sixty five percent (65%) of the remaining construction and demolition debris tonnage shall be diverted.

(b) For each covered project, the diversion requirements of this chapter shall be met by submitting and following a “Waste Management Plan” that includes the following:

1. Deconstructing and salvaging all or part of the structure as practicable.
AND

2. Directing one hundred percent (100%) of inert solids to reuse or recycling facilities approved by the County. AND

3. Either:

a. Taking all mixed construction and demolition debris to the Mixed Construction and Demolition Debris Recycling facilities approved by the County and taking all sorted or crushed construction and demolition debris to approved facilities; OR

b. Source separating non-inert materials, such as cardboard and paper, wood, metals, green waste, new gypsum wallboard, tile, porcelain fixtures, and other easily recycled materials, and directing them to recycling facilities approved by the County and taking the remainder (but no more than 50% by weight or yardage) to a facility for disposal. In this option, calculations must be provided to show that 50% of construction and demolition debris (in addition to 100% of inert solids) has been diverted. (Ord. 4099, 02/26/02)

4.105.040 Information Required Before Issuance of Permit:

Every contractor shall submit a properly completed Waste Management Plan on a form prescribed by the County, as an integral part of the building or demolition permit application process for a covered project. The Waste Management Plan shall indicate the intended salvage, reuse, and recycling facilities, chosen from a list of facilities approved by the County, for all construction and/or demolition debris from the project. Approval of alternative facilities or special salvage or reuse options may be requested of the Building Official. Approval by the Building Official, or designee, of the Waste Management Plan as complying with this chapter shall be a condition precedent to the issuance of any building or demolition permit for a covered project. (Ord. 4099, 02/26/02)

4.105.050 Administrative Fee

As a condition precedent to the issuance of any building or demolition permit for a covered project, the applicant shall pay to the County a fee as established by

resolution to compensate the County for all expenses incurred in administering this chapter. (Ord. 4099, 02/26/02)

4.105.060 Reporting

(a) No later than thirty (30) days following the completion of a demolition project or construction project, the contractor shall, as a condition of final approval and for issuance of any certificate of occupancy, submit documentation to the County that demonstrates compliance with the requirements of this chapter.

(b) The documentation shall consist of photocopies of receipts and weight tags or other records of measurement or equivalent documentation from recycling companies, deconstruction contractors, and landfill and disposal companies. The contractor's approved Waste Management Plan shall be completed by recording and confirming the type of debris diverted and the facilities to which it was taken. The contractor shall sign the completed Waste Management Plan form to certify its accuracy as part of the documentation of compliance.

(c) Progress reports during construction may be required.

(d) All documentation submitted pursuant to this section is subject to verification by the County.

(e) It is unlawful for any person to submit documentation to the County under this section which that person knows to contain any false statements, including but not limited to false statements regarding tonnage of materials recycled or diverted, or to submit any false or fraudulent receipt or weight tag or other record of measurement. (Ord. 4099, 02/26/02)

4.105.070 Penalties and Enforcement

(a) Each violation of the provisions of this chapter shall constitute a misdemeanor and shall be punishable by imprisonment in the county jail for up to six (6) months, or by a fine of up to one thousand dollars (\$1,000), or both. Each day that a violation continues shall be deemed a new and separate offense.

(b) The Building Official shall have the authority to enforce this chapter as specified in section 9021 of the San Mateo County Building Regulations, including but not limited to the authority to order that work be stopped where any work is being done contrary to the provisions of this chapter. (Ord. 4099, 02/26/02)

END OF DOCUMENT 00 62 23

**See the next page for "The County of San Mateo Waste Management Plan"
fillable form.**



County of San Mateo

WASTE MANAGEMENT PLAN

Case/group number(s):

BLD _____ - _____

Project address:

Street: _____

City: _____

Zip Code: _____

Green Halo number(s):

WMP required because project is a:

- Residential Demolition
- Nonresidential New Construction
- Addition

Submit to:

County of San Mateo
Office of Sustainability
455 County Center, 4th Floor
Redwood City, CA 94063
Mon-Fri, 8:30 am-12:00 pm, 1:00 pm-4:30 pm

Information and support: 888-442-2666
www.smcsustainability.org/waste-reduction/construction-demolition

Section One: Permit Application

This Waste Management Plan (WMP) must be completed, submitted for review with a **\$95 administration fee**, and approved to obtain a building permit. Separate WMPs are required for demolition and construction at the same site unless the Building Department requires only one permit. Need for a WMP is at the discretion of the Building Official or designee.

Applicant's Name: _____ Owner's Name: _____

Phone Number: _____ Email: _____

Applicant is (please check one): Owner Architect Builder Owner/Builder Other _____

Contractor (if applicable): _____ Contact Phone Number: _____

Project Description: _____

Project Square Footage: _____ Estimated Completion Date: _____

Waste Management Requirements:

You are required to recycle or re-use all inert solids (asphalt, brick, concrete, dirt, fines, rock, sand, and stone) and 65% of all construction and demolition debris.

I understand that I am required by San Mateo County Building Regulations Section 9210 - Adoption Of 2016 California Green Building Standards Code (Building Regulations) to salvage, reuse, or recycle **all inert solids** (asphalt, brick, concrete, dirt, fines, rock, sand, and stone) and **a minimum of 65%** of all construction and demolition debris (C&D). _____ (Initial)

I understand that failure to meet the requirements of the Building Regulations shall constitute a misdemeanor, and shall be punishable by imprisonment in the county jail for up to 6 months and/or a fine of up to \$1,000, calculated as a percentage of the required 65% diversion of C&D debris, and that the fine must be paid as a condition of final approval. _____ (Initial)

At the completion of this project, or more frequently if required, all weight tags or other equivalent documentation from salvage, recycling and waste facilities will be provided and I understand that I may not be issued my final inspection unless all original receipts and documentation are submitted to the County of San Mateo Office of Sustainability. _____ (Initial)

Recycling and waste facilities ask for the correct origin of the materials generated as they come through the scale house. These tons are reported to the State of California. I understand that I need to advise my debris box company, waste haulers, and my drivers that the materials generated on this project originated in Unincorporated County of San Mateo. _____ (Initial)

1) Deconstruction/salvage/reuse:

What materials will be salvaged/reused? _____

Deconstruction or salvage company (if applicable): _____

What materials will be reused on site? _____

How will this be documented? _____

2) Material transportation:

Will you be using a hauling company, debris box company or hauling the material yourself?

Hauler Debris Box Self-haul

If using a hauling or debris box company, which company? _____

Have they been notified that the diversion of 65% mixed debris and all inert solids is required? Yes No

3) Waste management plan:

Check the materials you anticipate generating and fill in the facilities that you plan to use.

Category	Material	√	Reuse, Recycling or Disposal Facility
Mixed C&D	Mixed Debris		
Inerts	Asphalt		
	Bricks		
	Concrete		
	Dirt		
	Other inert solids		
Source Separated	Cardboard		
	Metals		
	Wood		
	Roofing		
	Carpet		
	Drywall		
	Yard trimmings		
	Other		
Disposal	Waste		

The undersigned hereby agrees to comply with the Waste Management Plan as submitted and is the owner or authorized agent to sign for the owner of this project.

Applicant Signature _____ **Date** _____

County Approval: Approved Approved with comments Denied

All receipts, weight tags and documentation for salvage, recycling, and disposal must be submitted:

On completion of project Other _____

Office of Sustainability Approval: _____ Date: _____



County of San Mateo

WASTE MANAGEMENT PLAN

Case/Group Number(s):
BLD _____ - _____

Project Address:
Street: _____

City: _____

Section Two: Final Report Approval

Please complete, submit, and get this section approved by the Office of Sustainability, prior to obtaining final approval by the Building Department no later than 30 days after completion of the demolition or construction project. Please provide weight of materials in **tons**. If needed, please use the conversion table on the next page to convert cubic yards to tons.

This section must be completed and signed, and all receipts or other supporting documentation must be attached in order to receive final project approval.

Category	Date	Material/items	Name of facility debris was hauled to	Weight (Tons)	Volume (CU. YD.)
Mixed C&D					
Salvage/Reuse					
Inerts Asphalt, bricks, concrete, dirt, rock, sand, soil, stone					
Source Separated Cardboard, wood, metal, sheetrock, wire, carpet, yard trimmings					
Disposal (Waste)					

- All receipts or equivalent documentation for salvage, recycling, and disposal are hereby attached.
- This project has recycled all of the inert solids and at least 65% of all debris generated.

Applicant Signature _____ **Date** _____

County Approval: Approved Approved with Comments Fine Payment Required

Comments: _____

Fine Calculation: $1 - (\text{C\&D Diversion \% Achieved} \text{ ____} / 65\%) \times \$1000 = \$$ _____

Office of Sustainability Approval: _____ Date: _____

County of San Mateo

WASTE MANAGEMENT PLAN

Cubic Yards to Tons Conversion Table

Category	Material	Cubic Yards	Pounds	Tons
Mixed C&D	Mixed load C&D	1	500	0.25
Inerts	Asphalt	1	1380	0.69
	Bricks	1	3000	1.5
	Concrete	1	1860	0.93
	Dirt	1	2000	1
	Other inert solids	1	1240	0.62
Source Separated	Cardboard	1	100	0.05
	Metals	1	900	0.45
	Wood	1	300	0.15
	Asphalt roofing	1	1188	0.59
	Carpet	1	600	0.3
	Drywall	1	400	0.2
	Green waste	1	300	0.15
	Gravel	1	2600	1.3
Disposal	Waste	1	300	0.15

DOCUMENT 00 65 36

WARRANTY FORM

(Contractor's or Subcontractor's own letterhead)

WARRANTY GUARANTEE FOR THE:

Project: Maple Street Correctional Center Photovoltaic System, Project No PB010
San Mateo County Correctional Facility Redwood City, CA 94063

Project No.: PB010

We, _____ (Contractor's name) hereby guarantees

(Scope of Contractor's Work) _____

_____ which Contractor has installed for the County of San Mateo for the above project

beginning _____ for _____ year(s) in accordance with the Contract Documents.

We agree to repair or replace to the satisfaction of the Owner any and all such work that may prove defective in workmanship or materials within that period, ordinary wear and tear and unusual abuse or neglect excepted, together with all other Work which may be damaged or displaced in connection with such Work. This Warranty includes labor and materials.

In the event of our failure to comply with the above-mentioned conditions within seven (7) calendar days after being notified in writing, we collectively and separately do hereby authorize the Owner to proceed to have the defects repaired and made good at our expense, and will pay the costs and charges therefore immediately upon demand.

I hereby certify that I am authorized to sign this document.

Date _____

(Signature of Contractor)

Print Name and Title

Date _____

(Signature of Subcontractor)

Print Name and Title
(Subcontractor must co-sign with Contractor)

Representative(s) to be contacted for service subject to terms of Contract:

NAME: _____

ADDRESS: _____

PHONE NO.: _____

END OF DOCUMENT 00 65 36

DOCUMENT 00 72 13
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GENERAL CONDITIONS

1 THE CONTRACT

1.1 CONTRACT DESCRIPTION

The Contract Documents form the entire Contract between the Contractor and the Owner. The Contract supersedes prior negotiation and representations, either written or oral.

1.2 CONTRACT DOCUMENTS

- A. The Contract Documents consist of the Notice to Contractors, Instructions to Bidders, Agreement, General Conditions, Special Provisions, Supplementary Conditions, Specifications, Drawings, Addenda, Revisions , Construction Change Directives, Change Orders (including Unilateral Change Orders), RFI Responses, Shop Drawings and other documents listed in the Agreement or included in the Project Manual, and written interpretations and instruction when issued in accordance with the provisions herein.
- B. The Contract Documents are complementary and what is required by anyone shall be as binding as if required by all. The Contract Documents are not necessarily complete in every detail. The Contract is to include all labor, materials, equipment and other items as necessary for the proper execution and completion of the work as specified or reasonably inferable as being necessary to produce the intended results in accordance with high quality industry standards.
- C. An item designated by reference to the number, symbol, or title of a specific standard such as a commercial standard, a Federal Specification, a Trade Association Standard or other similar standard, shall comply with the requirements in the latest revision thereof and any amendments or supplement thereto in effect on the date of the bid. The standards referred to shall have full force and effect as though printed in the Specifications.
- D. The County will arrange for the Contractor to have access to one set of reproducible Drawings. The Contractor may at his expense, reproduce the Drawings and Specifications as needed. All Drawings and Specifications and copies thereof are the property of the Owner. They are not to be used on other projects.
- E. For convenience, the Specifications may be arranged in sections and the Drawings may be arranged by system or otherwise. Such separation shall not be considered as the limit of Work required of any separate trade. The terms and conditions of such limitations are wholly between the Contractor and his Subcontractors.

- F. In general, the Drawings will indicate dimensions, position, quantity and type of construction; and the Specifications will indicate quality and method. Work indicated in one but not the other shall be furnished as though fully set forth in both. Work not specifically marked, specified, or detailed shall be the same as similar work that is marked, specified, or detailed.
- G. The Project Manual is a collection of documents assembled for the convenience of the parties and usually includes, but is not limited to, the Notice to Contractors, Instructions to Bidders, General Conditions, Supplementary General Conditions, Special Provisions, Bid Documents, Agreement, and Specifications.

1.3 ERROR IN THE DOCUMENTS

- A. Should an error or conflict appear in the Contract Documents, or a conflict with the documents and actual conditions, the Contractor shall notify the Owner, Owner's Representative, and Architect at once, and the Architect will provide a response and/or issue instructions. If the Contractor proceeds with the work without a written response/instructions, he shall make good any resulting unacceptable work or consequences.
- B. Whenever the documents could be construed to be ambiguous or conflicting at the time of Bid, the Contractor is deemed to have included the cost of the more expensive material, method, or requirement in the Contract Amount.
- C. Figured dimensions shall govern over scaling and large scale details shall govern over smaller scale details.

1.4 SEPARATE CONTRACTS

- A. The Owner reserves the right to let other contracts in connection with this Project. Contractor shall afford other County contractor(s) reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs as required by the Owner.
- B. If any part of Contractor's Work depends for proper execution or results upon the work of another contractor, the Contractor shall inspect and measure the work of other contractor and promptly report to the Owner all defects or discrepancies that render it unsuitable for such proper execution or results. Contractor's action of proceeding with his work shall constitute his acceptance of the prior work as fit and proper for the reception of his work.
- C. The Contractor and its respective Subcontractors shall repair any damage he may do to another County contractor's work to the Owner's satisfaction.

1.5 CONTRACT TERMINATIONS

- A. Owner's Right to Terminate Contract for Cause

If Contractor should be adjudged as bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver by the Surety should be

appointed on account of his insolvency, or if he should fail to supply enough properly skilled workmen or materials to maintain the schedule, or if he should fail to diligently and expeditiously prosecute the Work, or if he should fail to commence the Work on the Project site per the Owner's Notice to Proceed, or if he should fail to make prompt payments to Subcontractors or for materials or labor, or persistently disregard laws, ordinances or the instructions of the Owner or Architect, or otherwise breach any provision of the Contract between the Contractor and Owner, the Owner may without prejudice to any right or remedy the Owner may have and after giving the Contractor seven (7) calendar days written notice, terminate the Contract or terminate the Contractor's right to proceed with the Work and take possession of the premises and of all materials, tools and equipment thereon and finish the Work by whatever method the Owner may deem expedient. In such case, Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Amount shall not exceed the expense of finishing the Work, including compensation for additional managerial and administrative services, such excess amount of the Contract shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner.

B. Owner's Right to Terminate Contract for Convenience

The Owner reserves the right to terminate this contract at any time. Contractor shall be compensated on the basis of the reasonable value of the portion of Work completed as prorated against the Contract Amount or shown as a separate price and the cost incurred for portions of the Work performed but not completed. The total payments to contractor shall not exceed the Contract Amount.

C. Contractor's Right to Terminate Contract

Except as provided by paragraph 1.5.D Emergency Termination, if the Work should be stopped by the Owner, or an order of the court, or other public authority for a period of six months, through no act or fault of the Contractor or of anyone employed by him, then the Contractor may, upon twenty-one (21) days written notice to the Owner, terminate this Contract and recover from the Owner the amount owed under the Contract for the portion of Work, if any, which was completed.

D. Emergency Termination

This Contract is subject to termination as provided by Section 4410 and 4411 of the Public Contracts Code of the State of California, being portions of the Emergency Termination of Public Contracts Act of 1949. Said Sections read as follows:

"Sec. 4410. TERMINATION OF CONTRACT FOR PUBLIC WORK IN EVENT OF NATIONAL EMERGENCY. In the event a national emergency

occurs, and public work, being performed by Contract, is stopped, directly or indirectly, because of the freezing or diversion of materials, equipment, or labor, as the result of an order or of a proclamation of the President of the United States, or of an order of any federal authority, and the circumstances or conditions are such that it is impracticable within a reasonable time to proceed with a substantial portion of the Work, then the public agency and the Contractor may, by written agreement, terminate said Contract."

"Sec. 4411. INCLUSION OF TERMS AND CONDITIONS OF TERMINATION OF CONTRACT IN AGREEMENT: COMPENSATION TO CONTRACTOR. Such an agreement shall include the terms and conditions of the termination of the Contract and provision for the payment of compensation or money, if any, which either party shall pay to the other or any other person, under the facts and circumstances in the case."

"Compensation to the Contractor shall be determined on the basis of the reasonable value of the Work done, including preparatory Work. As an exception to the foregoing, in the case of any fully completed separate item or portion of the work for which there is a separate Contract price, the Contract price shall control. The parties may in any other case adopt the Contract price as the reasonable value of the Work or any portions thereof."

1.6 ALLOWANCES

- A. The Contractor shall include in the Contract Amount all allowances stated in the Contract Documents. Items or services covered by these allowances shall be supplied as the Owner may direct.
- B. Allowances for material and equipment shall cover the cost to the Contractor, less any applicable trade discount, delivered at the site, and all applicable taxes. The Contractor's costs for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses required to complete the Work shall be included in the Contract Amount and not in the allowance.
- C. Whenever the cost of the material, equipment or service is more than or less than the allowance, the Contract Amount shall be adjusted by the procedure in Section 2, Contract Modifications.

1.7 DISPUTES

Should any dispute including breach, arise out of or relate to this Contract the Contractor shall continue to perform the Work in accordance with the Contract Documents and the Owner and Contractor agree to pursue resolution of the disagreement by whatever means available. Neither a dispute resolution process, the resolution, nor lack of resolution shall delay, hinder, or alter the completion of the Work in accordance with the undisputed portion of the Contract Documents and in accordance with the Owner's direction to Contractor regarding disputed portions of the Contract.

1.8 SEVERABILITY

In the event that any provision or any part of a provision of this Contract shall be finally determined to be superseded, invalid, illegal or otherwise unenforceable pursuant to applicable laws by an authority having jurisdiction, such determination shall not impair or otherwise affect the validity, legality, or enforceability of the remaining provisions or parts of provisions of this Contract, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

1.9 HEADINGS

The headings of any section or provision of this Contract are for convenience only and shall not be deemed to limit, restrict or alter the content, meaning or effect thereof.

2 CONTRACT MODIFICATIONS

2.1 MODIFICATION DOCUMENTS

- A. The Owner, without invalidating the Contract and without consent of surety, may accomplish changes in the Work within the general scope of the Contract consisting of additions, deletions, additional instructions, or other revisions, to the Contract Documents, and where applicable, the Contract Amount and/or the Contract Time being equitably adjusted accordingly. All such changes in the Work may be accomplished by Owner's Instructions, Architect's Supplemental Instructions, a Construction Change Directive, a Change Order (including a Unilateral Change Order), as may be applicable in accordance with the provisions of the Contract. The Contract Amount and/or the Contract Time may be changed only by a Change Order. Contractor agrees to promptly proceed with changes in the Work according to the respective form of documentation issued. All changes to the Work and all Contractor requests for additional compensation shall be resolved in accordance with this Section 2, Contract Modifications.
- B. A Change Order is a written order from the Owner ordering a change in the Work. Upon receipt of a Change Order, the Contractor shall promptly proceed with the Work as changed. The Contractor will not delay the Work for any reason. Within ten (10) working days after receiving a Change Order and prior to or simultaneously with proceeding with the change in the Work, Contractor shall advise the Owner and Architect of Contractor's inability to proceed with the Work, and shall state in writing. Proceeding with the Work as changed without submitting a notice to Owner or Owner's Representative indicates Contractor's full acceptance of the Change Order including the Contract Amount and/or Contract Time.
- C. The signature of the Owner and Contractor on the Change Order indicates their final and conclusive acceptance of the stated terms and provisions as full compensation for the change to the Work. In the event the Owner and Contractor do not agree upon an adjustment to the Contract Amount and/or Contract Time resulting in a Change Order, the Owner may issue a Unilateral Change Order. A

Unilateral Change Order is signed by the Owner and issued to the Contractor authorizing an adjustment in the Contract Amount and/or Contract Time as the Owner deems equitable. A Unilateral Change Order does not require the Contractor's signature, but may be signed by the Contractor and returned to the Owner.

- D. If Contractor is in disagreement with the terms or provisions of a Unilateral Change Order, the Contractor shall give the Owner and Architect written notice of his disagreement, the basis thereof, and supporting documentation within ten (10) working days of receiving the Unilateral Change Order. Such notice of disagreement does not excuse performance by the Contractor of all obligations under the Contract Documents and the Contractor shall proceed with the Work including the Work involved with the disagreement. Failure to present such notice of disagreement constitutes a waiver by the Contractor of any entitlement to additional cost or time, or subsequent claim.
- E. The Owner and Architect have the authority to issue Owner's instructions or Architect's Supplemental Instructions respectively to the Contractor which may require minor changes in the Work not involving an adjustment in the Contract Amount or an extension of Contract Time. If Contractor believes an adjustment of Contract Amount or Contract Time is justified, Contractor shall not incur additional cost or delay and notify the Owner or Architect in writing within 24 hours of upon receipt.
- F. A Construction Change Directive is a written document signed by the Owner and issued to the Contractor to perform as specified. The Contractor shall immediately comply with and perform to the Construction Change Directive. If the Contractor believes an adjustment of Contract Amount or Contract Time is justified, a request may be submitted in accordance with Section 2.4, Contractor Claims. If the Owner concurs with the Contractor a Change Order will be issued.

2.2 VERBAL INSTRUCTIONS

Contractors shall not act or rely upon verbal instructions. If a verbal instruction is provided on site to the Contractor, Contractor shall document such verbal instruction through a confirming RFI. No work will be accepted by the Owner that differs from the Contract Documents as modified in writing.

2.3 METHOD OF DETERMINING ADJUSTMENT

- A. An adjustment to the Contract Amount or Contract Time pursuant to a Change Order resulting from a Construction Change Directive, Claim, or other provision herein shall be determined in one or more of the following ways at the Owners discretion.
 - 1 By negotiation based upon Contractor's estimate. The estimate shall include quantities of materials and man hours, and a breakdown of cost showing labor, materials, profit, overhead, and all other items of cost. Labor rates for Change Orders shall be agreed upon between the Owner and the

Contractor within thirty (30) calendar days of Contract Award date General requirements, labor burden, project supervision, project management and facilities are not allowed. Overhead and profit shall not exceed the percentages specified in the Contract Documents.

2. By unit prices stated in the Contract or subsequently agreed upon.
 3. By acceptance of a lump sum price proposal of Subcontractor to Contractor.
 4. By determination of the Owner and issued unilaterally by a Unilateral Change Order.
- B. If the adjustment is not determined by the above methods prior to the Contractor starting Work pursuant to the Change Order, Contractor shall proceed with the Work and keep daily accurate records of the labor hours, materials, and other items of cost used in the performance of the changed Work. Copies of the records shall be given to the Owner or Owner's Representative daily. Contractor shall present at such time and in such form as Owner may prescribe, an itemized accounting together with appropriate supporting data as may be required by Owner to fully substantiate the cost of the changed Work. Owner shall consider such accounting in its determination of equitable adjustment. Overhead and profit shall not exceed the percentages specified in the Contract Documents.
- C. Extension of Contract Time will be granted only to the extent that the time required to complete the Work as changed or delayed extends the schedule critical path beyond the contract completion date. If changes or delays do not extend the critical path of the schedule beyond the contract completion date, there will be no contractor entitlement to extended or additional home office expenses. Float, as used in this agreement, is the sum of the amount of time available to a task before the task becomes critical and the amount of time between the scheduled completion date and the contract completion date. Float may be used in the order needed by either the Owner or the Contractor.

2.4 CONTRACTOR CLAIMS AND DISPUTES

- A. If the Contractor wishes to request an adjustment in the Contract Amount or Contract Time, other than pursuant to a Change Order or Construction Change Directive, Contractor shall give the Owner and Architect a written Notice of Claim.
- B. Contractor shall file with the Owner any written Claim, including the documents necessary to substantiate it, on or before Substantial Completion, but no later than the day of Contractor's submittal of final payment on the Contract.
- C. The Notice of Claim shall be given by the Contractor to the Owner before conditions occur which are the basis for the Claim, except in an emergency endangering life or property in which case the Contractor should proceed in

accordance with Section 6.7, Emergencies. Failure to present such Notice of Claim constitutes a waiver of such Claim.

- D. Notices for claims or disputes are valid only if written and shall be a document issued for the sole purpose of notification and titled clearly “Notice of (specify category i.e., delay) Claim.” A separate written notice is required for each subject and issue.
- E. Written notice shall be deemed to have been duly served if delivered in person to the individual to whom it is addressed, or if sent by certified mail to the address specified in the Contract Documents as may be revised in writing.
- F. The Contractor shall continue to perform its Work under the Contract and shall not cause a delay in the Work during any dispute, claims definition, negotiation, mediation, or arbitration proceeding, except by written agreement by the Owner.
- G. The adjustment to the Contract Amount or Contract Time, if any, as the result of a settled claim, shall be determined and issued in accordance with this Section 2, Contract Modifications.
- H. All procedures for Claims and Disputes resolution shall be duly processed pursuant to the California Public Contract Code, Division 2, Part 1, Chapter 9 Sections 9201 – 9204.
- I. The attention of the Contractor is drawn to Government Code Section 12650, et seq. regarding penalties for false claims.

2.5 DELAYS BEYOND CONTRACTOR’S CONTROL

- A. If the Contractor is delayed at any time in the progress of the Work by acts or neglect of the Owner or by any separate contractor employed by Owner, or by labor disputes, fire, unusual delays in transportation, unusually adverse weather conditions, unavoidable casualties or by any other unforeseeable cause of delay beyond the Contractor’s control, which the Owner decides justifies the delay, then the Contract Time may be extended for such reasonable time as the Owner in his discretion may decide. Contractor’s Claim for extension of Contract Time shall be made in writing to the Owner in accordance with Section 2.4, Contractor Claims. Only one Claim is necessary in the case of continuing delay.
- B. Unusually adverse weather conditions for the purposes of this Project are agreed to be work days lost from weather or the effects of weather greater than the number of lost days specified in Section 7.5, Schedule.

2.6 HIDDEN CONDITIONS

Should concealed or unknown conditions be encountered in the performance of the Work below the surface of the ground or in an existing structure be at variance with the conditions indicated by the Contract Documents, or differ materially from those ordinarily encountered and generally recognized as inherent in work of the

character provided for in this Contract, the Contract Amount and/or Contract Time shall be equitable adjusted as provided herein upon Claim by Owner or Contractor. Contractor Claims shall be in accordance with Section 2.4, Contractor Claims.

2.7 HAZARDOUS MATERIALS

Asbestos or other hazardous material may be present in County buildings or on County property. Asbestos is typically in the form of pipe lagging, fire proofing, floor tiles, mastic, and plaster. Soil may be contaminated by petroleum products or other substances. In the event any suspected asbestos or other hazardous material is encountered during construction that may be disturbed by the Work, the Contractor shall stop immediately and notify the County. The Contractor and all Subcontractors shall instruct their employees of the type and location of the most likely forms of hazardous material to be encountered and of the procedure to be taken if encountered. Contractor will be responsible for the mitigation and abatement of the hazardous material upon authorization of Owner. All Claims for adjustment in time or money shall be processed in accordance with Section 2.6, Hidden Conditions.

2.8 OVERHEAD AND PROFIT

- A. Adjustments to the Contract Amount due to changes in the Work or any other reason, shall include overhead and profit as follows:
1. Contractor's overhead and profit on the direct cost of Work (labor, material, and equipment) performed by his forces and all Subcontractors shall be a total sum not exceeding twenty percent (20%) in aggregate of such costs.
 2. Contractor's overhead and profit on the direct cost of Work (labor, material, and equipment) performed by Subcontractors shall be a total sum not exceeding ten percent (10%).
 3. Subcontractor's overhead and profit on the direct cost of the Work (labor, material, and equipment) performed by Subcontractor shall be a total amount not exceeding fifteen percent (15%). Subcontractor overhead and profit will be allowed for one tier only.
 4. Bonds and Insurance shall not exceed one percent (1%) of the sum of the direct cost of the work, the Subcontractor's overhead and profit, and the Contractor's overhead and profit.
 5. Changes to the Work ordered by the Architect or Owner which decrease the Contract Amount shall include overhead and profit in accordance with the above provisions. Value engineering revisions initiated by the Contractor and accepted by Owner which decrease the Contract Amount shall be at cost only.

6. The “direct cost of the Work” is considered to be the cost of labor, material, and equipment incorporated into the construction. Supervision and administration of the work, changes, or claims shall not be included in direct cost.

2.9 MAINTAIN RECORDS

Contractor and Subcontractor shall maintain records, in accordance with generally accepted accounting principles, relating to costs of changes to the Work or Claims for 4 years after the final completion. The Owner will have the right to audit these records at any time up to 4 years after completion of the Project and recover from the Contractor or Subcontractor any amount paid but not substantiated by audit.

2.10 PROPOSAL REQUESTS

Contractor is required to provide preliminary estimates using their best judgment of time and cost impact of potential changes to the Project as requested by the Architect and/or Owner. Estimates shall be provided to the Architect and Owner within 10 working days of receiving the Proposal Request. Contractor will be responsible for any cost increase or schedule impact resulting from Contractor's failure to respond within the allowed time.

3 CONTRACTOR

3.1 DEFINITIONS

- A. The term Contractor, as used herein, is the person or organization identified as such in the Agreement, and is referred to as if singular and masculine and includes his authorized representatives.
- B. The term Subcontractor, as used herein, includes only those persons or organizations having a direct Contract with the Contractor to perform a portion of Contractor's Work.

3.2 GENERAL

- A. Contractor agrees to perform all Work required by the Contract Documents.
- B. All Work shall be done in accordance with the best practices of the various trades and/or suppliers and highest industry standards.
- C. The Contractor shall keep on the Project site during the progress of the Work a competent superintendent satisfactory to the Owner. The Superintendent shall not be changed except with the consent of the Owner. The Superintendent shall represent the Contractor and all directions given to him shall be as binding as if given to the Contractor.
- D. It is the Contractor's responsibility to diligently prosecute the Work, using his best skills and attention, and the most appropriate techniques and equipment that are required to provide a finished product in compliance with the Contract

requirements. Contractor shall insure that no Work is done that does not comply with the Contract Documents.

- E. The Contractor shall attend a preconstruction meeting, weekly progress meetings and other meetings as necessary to accomplish the Work and administer the provisions of the Contract.
- F. Contractor shall submit to Owner a daily record of Contractor's activity. Such record shall be delivered to Owner's Representative daily for previous day's activity and shall include Project name, date, weather, names of Subcontractors, count of personnel by company, material deliveries, description and location of activity and events. The record of daily activity shall not be used as a Notice to Owner.

3.3 SUBCONTRACTS

- A. The Contractor shall not be permitted to substitute any person or organization for any Subcontractor, person or organization listed by him in his bid without the prior, written consent of the Owner, as provided for in the California Public Contract Code, Division 2, Part 1, Chapter 4, Section 4017.
- B. In addition to the information required in Division 00 Bidding Documents regarding Subcontractors, the Contractor, after execution of the Contract but prior to execution of a subcontract, shall submit the following information on each Subcontractor: name, address, and nature of Subcontractor's work, Subcontract Amount, and all other information the Owner deems relevant. The Contractor shall not Contract with any such proposed Subcontractor or entity to whom the Owner objects.
- C. Contractor shall bind every Subcontractor and every Subcontractor agrees to be bound by the terms of the Contract Documents insofar as applicable to their portions of the Work. The Contractor shall be responsible for the acts and omissions of Subcontractors.
- D. Contractor agrees to pay to each Subcontractor promptly upon receiving payment from Owner.
- E. Neither the acceptance of the Subcontractor nor any other act of the Owner, nor anything contained in any contract document is to be construed as creating any contractual relation between the Owner and any Subcontractor.

3.4 PERSONNEL AND LABOR POLICY

- A. Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ any unfit person or anyone not skilled in the work assigned to them. The Contractor shall be responsible to the Owner for the acts and omissions of its employees and other persons performing work for the Contractor.

- B. No person shall be excluded from participation in, denied benefits of, or be subject to discrimination under this Contract on the basis of their race, color, religion, national origin, age, sex, sexual orientation, pregnancy, childbirth or related conditions, medical condition, mental or physical ability, or veteran's status. Contractor shall ensure full compliance with federal, state and local laws, directives and executive orders regarding non-discrimination for all employees and subcontractors under this Contract.

Violation of the non-discrimination provisions of this Contract shall be considered a breach of this Contract and subject the Contractor to penalties, to be determined by the County Manager, including but not limited to: i) termination of this Contract; ii) disqualification of the Contractor from bidding on or being awarded a County contract for a period of up to 5 years; iii) liquidated damages of \$2,500 per violation; iv) imposition of other appropriate contractual and civil remedies and sanctions, as determined by the County Manager.

To effectuate the provisions of this paragraph, the County Manager shall have the authority to: i) examine Contractor's employment records with respect to compliance with this paragraph; ii) set off all or any portion of the amount described in this paragraph against amounts due to Contractor under the Contract or any other Contract between Contractor and County.

Contractor shall report to the County Manager the filing by any person in any court of any complaint of discrimination or the filing by any person of any and all charges with the Equal Employment Opportunity Commission, the Fair Employment Housing Commission or any other entity charged with the investigation of allegations within 30 calendar days of such filing, provided that within such 30 calendar days such entity has not notified Contractor that such charges are dismissed or otherwise unfounded. Such notification shall include the name of the complainant, a copy of such complaint and a description of the circumstance. Contractor shall provide County with a copy of its response to the complaint when filed.

For contracts over \$5,000, with respect to the provision of employee benefits, Contractor shall comply with the County Ordinance which prohibits contractors from discriminating in the provision of employee benefits between an employee with a domestic partner and an employee with a spouse. See Document 00 7373 Supplemental Conditions, Equal Benefits Compliance Ordinance No. 4324, Chapter 2.84.

- C. Contractor shall ensure equal employment opportunity based on objective standards of recruitment, selection, promotion, classification, compensation, performance evaluations, and management relations, for all employees working on the Project. Contractor's affirmative action policies shall be made available to Owner upon request. See Document 00 45 36.01 Equal Opportunity Requirements, Certification of Compliance with Laws Prohibiting Discrimination.

- D. It is the policy of the Owner that Contractors on public Projects employ their workers from the local labor market whenever possible. Consistent with that policy, the Contractor is requested to employ his workers from the local labor market. Local labor market within the meaning of this section is defined as the labor market within the geographical confines of the County of San Mateo, State of California.
- E. The Contractor shall forfeit, , as per the San Mateo County Office of Labor Standards and Enforcement (OLSE) and/or the State of California Department of Industrial Relations (DIR) penalties for each laborer, workman, or mechanic employed in the execution of the Contract by Contractor, or by any Subcontractor under Contractor, upon any of the Work performed for the Contract, for each calendar day during which said laborer, workman, or mechanic is required or permitted to labor more than eight (8) hours in violation of the provisions of the California Labor Code, Division 2, Part 7, Chapter 1, Article 3, Section 1810.
- F. Apprenticeship Program: Contractor shall comply with the provision of California Labor Code, Division 2, Part 7, Chapter 1, Article 2, Section 1777.5.
- G. The Contractor shall comply with the provisions of the California Labor Code, Division 2, Part 7, Chapter 1, Article 2, Section 1776, and the regulations implementing it in Title 8 of the California Administrative Code. The Contractor shall be responsible for compliance by his Subcontractors. A certified copy of all weekly payroll records shall be furnished upon request of the Owner, the Division of Labor Standards Enforcement, or the Division of Apprenticeship Standards of the Department of Industrial Relations.
- H. Payrolls shall contain the full name, address, and social security number of each employee, his correct classification, rate of pay, daily and weekly number of hours worked, itemized deductions made and actual wages paid. They shall also indicate apprentices and ratio of apprentices to journeymen.
- I. The penalties specified in Subdivision (h) of Labor Code Section 1776 for noncompliance with the provisions of Section 1776 may be deducted by the County from any moneys due or which may become due to the Contractor.

4 OWNER

4.1 DEFINITION

The Owner is the person or organization identified as such in the Agreement and is referred to as if singular in number and masculine in gender and includes his authorized representatives. The Owner may be the County of San Mateo, sometimes referred to as "The County".

4.2 GENERAL

- A. The Owner may furnish information after the bid date and not included in the Contract Documents in the form of drawings, reports, survey data, utility locations, plans of existing facilities and such other information. This information is not part of the Contract Documents.
- B. The Owner shall receive copies of all correspondence, notices, approved shop drawings, test reports and such material pertinent to the Contract. The Owner shall have access to the Work at all times.

4.3 THE DIRECTOR OF PUBLIC WORKS

The Director of Public Works for the County of San Mateo or his duly appointed representative is the duly appointed agent for the Owner and as such is empowered to act for the Owner in all matters as stated in the Contract Documents or as provided by law.

4.4 OWNER'S CONSTRUCTION MANAGER

- A. The Owner may engage a Construction Manager as an Owner's Representative for the Project. The Owner's Construction Manager shall receive copies of all communications regarding the Project, have full access to the Work, and be kept informed of all actions taken by the Contractor.
- B. The Owner's Construction Manager shall not interpret the plans, coordinate the Work, order changes in the Work, supervise the workmen, or perform any duty which is the responsibility of the Architect or the Contractor.

5 ARCHITECT

5.1 DEFINITION

For the purpose of this Contract, the Architect is identified in the Project Manual. The term "Architect" is the individual, partnership, corporation, joint venture, or any combination thereof, who will have the rights and authority assigned to the Architect in the Construction Documents. The Term Architect means the County's Architect on this Project or the Architect's authorized representatives and consultants. Nothing contained in the Contract Documents shall create any contractual relationship between the Architect and the Contractor.

5.2 GENERAL

- A. The Architect and the Construction Manager will provide general administration of the Contract between Owner and Contractor.
- B. The Architect will have authority to act on behalf of the Owner to the extent provided in the Contract Documents. The Owner's instructions to the Contractor may be issued through the Architect.

- C. The Architect shall at all times have access to the Work. The Contractor shall provide facilities for such access so the Architect may perform his functions under the Contract Documents. The Architect will make periodic visits to the site to familiarize himself with the progress and quality of the work and to determine if the work is proceeding in accordance with the Contract Documents. Architect will endeavor to guard the Owner against defects and deficiencies in the Work.
- D. The Architect will be the interpreter of the requirements of the Contract Documents and the judge of the Contractor's performance thereunder. The Architect will, within ten (10) working days, render interpretations or answers to questions submitted by Contractor. All interpretations and decisions of the Architect shall be consistent with the intent of the Contract Documents. In Architect's capacity as interpreter and judge he will exercise his best efforts to insure faithful performance by all parties of the Contract. The Architect's decision in matters relating to esthetic effect will be final.
- E. The Architect will review submittals, samples, adjustments to the Contract, applications for payment, written guarantees, operation and maintenance manual and other documents required by the Contract.

6 PERFORMANCE OF THE WORK

6.1 DEFINITION

- A. The term "Work" as used herein is all of the Contractors obligations under the Contract including, but not limited, to providing all labor, material, equipment and services indicated by the Contract Documents, as-built drawings, punchlist, inspections and approvals required or necessary for occupancy, and guarantees.
- B. The term "Project" is the total construction planned or contemplated by the Owner of which the Work may be the whole or a part. The Owner may perform or contract for other work on the Project site during the progress of the Work.

6.2 GENERAL

- A. The Contractor shall provide, maintain and remove upon completion of the Work, all tools, machinery, equipment, temporary rigging, scaffolding, hoisting equipment, rubbish chutes, barricades around openings and excavation, ladders between floors, fences around buildings, and all other items as required for safe completion of the Work, whether specifically designated or not and shall conform to all requirements in regard to operation, safety, and fire hazards of State and local authorities and of underwriters.
- B. Deliver all materials and equipment in the manufacturer's original sealed, labeled containers and protect items against moisture, rust, dust, tampering, or damage.
- C. Place all materials and equipment orders in time to avoid job delay or hindrance. Schedule deliveries to coincide with the construction schedule so that materials and equipment are promptly installed upon delivery.

- D. Except as specifically noted otherwise, the installation and/or maintenance directions provided by the manufacturer shall be followed for all materials and equipment.
- E. All materials and equipment shall be new, unless specifically marked otherwise.
- F. All materials and equipment not conforming to the Contract Documents shall be rejected and shall be immediately removed from the site of the Work.
- G. All utilities and services required by the Contractor including electrical power, water, temporary telephones, temporary sanitary facilities, and temporary heat as required for the proper installation of materials and the completion of the Work shall be provided by Contractor.
- H. Shut down of utilities for any reason or duration shall be subject to approval by the Owner. The Owner requires a minimum notice per Document 00 35 13.19 Special Project Procedures for a utility shut down. When shut-downs of 30 minutes or more are required, the Contractor shall provide alternate service for normal occupancy requirements. Utility shut-downs shall be scheduled during non-business hours.
- I. Prior to ordering materials, the Contractor shall verify all measurements, material handling pathway and logistical dimensions at the site and shall be held responsible for their accuracy. No extra compensation will be allowed for differences between actual measurements and the dimensions shown on the Drawings.
- J. Fences, office facilities, enclosures, storage sheds, etc., required by the Contractor in the performance of the Work shall be located where approved by the Owner.
- K. The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with any materials or equipment.
- L. During the progress of the Work, Contractor shall keep the premises orderly and safe and free from accumulation of waste materials and rubbish.
- M. At the completion of the Work, Contractor shall remove all waste, surplus materials, and rubbish and shall clean all surfaces, removing all extraneous paint, mortar, dust, and stains, leaving the Work bright, clean and polished.
- N. The project is not exempt from any Federal, State or local taxes.

- O. Royalty and License Fees incidental to the use of any patented material, device or process shall be paid by the Contractor and in the event of a Claim of alleged infringement of patent rights, the Contractor shall save the Owner free and harmless from loss on account thereof; and also defend, at his own expense, all suits that may be brought in such connection.
- P. Contractor shall continuously maintain adequate protection of all Work and shall protect the Owner's property from damage or loss arising in connection with this Contract.
- Q. Precaution shall be exercised at all times for the protection of persons (including Contractor's and Owner's employees) and property. The safety provisions of applicable laws, building and construction codes shall be observed. Machinery, equipment and all hazards shall be guarded or eliminated in accordance with the safety provisions of the latest safety orders of the State of California: California Code of Regulations, Title 8, Construction Safety Orders (see Department of Industrial Relations at: <https://dir.ca.gov>), the California Occupational Safety and Health Administration (CAL/OSHA) Safety Orders (at <https://dir.ca.gov/dosh/>), and CAL/OSHA and Statewide Industry Guidance on COVID-19 (at <https://dir.ca.gov/dosh/coronavirus/Health-Care-General-Industry.html>).
- R. All materials and workmanship shall be subject to inspection, examination, test, and acceptance by the Owner at all times during manufacture and construction and at all places where such manufacture and construction occurs.

6.3 EXISTING CONDITIONS

- A. The Contractor by executing the Contract represents that he has visited the site and familiarized himself with the local conditions under which the Work is to be performed and has correlated his site observations with the requirements of the Contract Documents.
- B. The contractor shall carefully study and compare the Contract Documents and existing conditions and dimensions and the connection of the Work to existing conditions and shall report to the Architect any error, conflict, inconsistency, omission, or any variance with laws, ordinances, codes, rules or regulations bearing on the Work. Contractor shall report such conditions to the Architect in writing at such time as to allow at least ten (10) working days for a response with no delay to the Work. All necessary changes shall be accomplished in accordance with Section 2, Contract Modifications.

6.4 ADJACENT FACILITIES

- A. The Contractor shall provide adequate protection for all parts of the Project site, and adjacent property, its improvements and its occupants throughout the Work. All damage done to existing property shall be repaired or replaced at the Contractor's expense and determined to be acceptable by the Architect and Owner.

- B. Work shall be executed in careful, orderly manner, with the least possible disturbance to public and occupants of the area.
- C. The Owner will continue to use adjacent areas of the facilities. Contractor shall take care to disrupt the Owner as little as possible. Contractor shall provide legal and safe access to all facilities at all times. In order to facilitate use of adjacent facilities Owner may order Contractor to alter or temporarily cease operations.

6.5 PERMITS

- A. It shall be the responsibility of the Owner to obtain and pay for all permits, licenses, certificates, approvals, utility connections and services necessary for the proper execution and completion of the Work.
- B. All fees which are for temporary approvals or services, such as those which are necessary for construction procedures, shall be paid by the Contractor.
- C. In the event the Special Provisions require the Owner to pay any fee, the Contractor shall notify the Owner in writing, twenty (20) working days in advance of a required fee payment.
- D. It is the policy of the County to cooperate with State, County and City officials in regard to the construction of this Project, and it is the responsibility of the Contractor and all his Subcontractors to meet the requirements of government officials having responsibility for inspecting or observing construction by taking out permits for the Work, calling for inspections and adhering to safety practices in accordance with standard practice. In the case of conflict of any of these provisions, the Owner shall be notified. The term Inspector means a Public Building Construction Inspector or an individual performing the inspection as required by building codes or jurisdiction.

6.6 LAWS

- A. The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work. If the Contractor performs any Work contrary to such laws, ordinances, rules and regulations, he shall bear all costs and delays arising therefrom.
- B. Owner and Contractor have all rights provided by law not specifically waived by this Contract.

6.7 EMERGENCIES

- A. In an emergency affecting the safety of life, the Work, or property, the Contractor, without special instruction or authorization from the Owner, is hereby permitted to act, at his discretion, to prevent such threatened loss or injury; he shall so act without appeal if so instructed or authorized. Any compensation, claimed by the Contractor on account of emergency work, beyond Contractor's contractual obligations, shall be determined by agreement. The Contractor shall immediately notify the Owner in writing.

- B. In an emergency affecting the safety of life, the Work, or property or if an unsafe condition exists, the Owner may, but is not obligated, take measures to mitigate the condition. Such measures may include expending labor or material, engaging other contractors, entering the Project site utilizing materials, equipment, or facilities of Contractor. The Owner's actions may be performed immediately and without notice to Contractor. Contractor shall pay Owner for all costs which are attributable to Contractor.

6.8 SUBMITTALS

- A. Submittals include, but are not limited to shop drawings, product data, maintenance information, samples, manufactures instructions, certifications, and similar documents or items which demonstrate the way the Contractor proposes to perform the Work to the information in the Contract Documents. Contractor shall review the entire Contract Documents for other provisions relating to submittals and individual submittal requirements, if any.
- B. The Contractor shall review, stamp with his approval and submit to the Architect in orderly sequence so as to cause no delay in his Work or in the work of any other contractor, all submittals required by the Contract. Submittals shall be properly identified with specification section. At the time of submission, the Contractor shall note in writing any deviation in the submittals from the requirements of the Contract Documents. By approving and submitting shop drawings and samples, the Contractor thereby represents that he has determined and verified all field measurements, field construction criteria, materials, catalogue numbers and similar data, and that he has checked and coordinated each shop drawing and sample with the requirements of the Work and of the Contract Documents.
- C. The Architect will review submittals for conformance with the designed concept and with the information given in the Contract Documents. A minimum of 10 working days is required for each submittal review. The Architect's review will not relieve the Contractor of responsibility for complying with the Contract Documents. If a submittal is required to be resubmitted, the time and cost of resubmission is the responsibility of the Contractor.

6.9 SUBSTITUTIONS

- A. The intent of the Specifications is to specify high grade equipment and materials appropriate for the Project. It is not the intent of the Specifications to exclude or limit the products of any responsible manufacturer, except when the Owner has adopted a specific system or product which will be noted, "No Substitutions Allowed", or similar language. Where equipment, material, or process is specified by trade name or by patentee, manufacturer or dealer, it shall mean the specified item or product. No substitution shall be made by the Contractor without written approval of the Architect. The Architect shall be the sole judge of a Contractor proposed substitution. See Division 01 for Substitution requirements. The Architect's refusal to approve a substitution shall not effect the progress of the Work and is not grounds for a Claim against the Owner.

- B. The Contractor shall pay a \$200, lump sum, for the Architect's time to review substitution requests. Payment is to be included with the substitution request package.

6.10 CORRECTING WORK

- A. The Contractor shall promptly correct all Work rejected by the Owner or Architect, whether observed before or after the Notice of Completion and whether or not fabricated, installed or completed. The Contractor shall not receive a time extension for correcting such rejected Work. All such defective or non-conforming Work shall be corrected to comply with the Contract Documents without cost to the Owner. The Contractor shall bear the cost of making good all Work of separate contractors which may be destroyed or damaged by such removal or correction.
- B. If any Work should be covered before it is inspected, the Contractor at his expense, must uncover the Work for inspection and then replace the Work.
- C. If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, or fails to perform any provisions of the Contract Documents, the Owner may, after seven (7) working days written notice to the Contractor and without prejudice to any other remedy Owner may have, and without Contract termination or ordering the Contractor to stop Work make good such deficiencies in any manner the Owner deems expedient. In such case an adjustment to the Contract shall be made in accordance with Section 2, Contract Modifications, deducting from the payment then or thereafter due the Contractor, the cost of correcting such deficiencies, including the cost of additional services made necessary by such default, neglect or failure.
- D. If the Owner deems it not expedient to correct Work damaged or not done in accordance with the Contract Documents, a deduction from the Contract price shall be made.
- E. If the Contractor fails to correct defective Work or fails to supply materials or equipment in accordance with the Contract Documents, the Owner may order the Contractor to stop the Work or any portion thereof until the cause of such order for the Work has been eliminated. Contractor shall not receive a time extension or compensation as a result of stopping Work as required by this provision.

6.11 TESTING

- A. The Owner will provide for testing of materials or workmanship as required by these Specifications. The Contractor shall coordinate and schedule tests directly with the testing firm. The costs of tests on materials at the Project site will be borne by the Owner, except for retesting, as specified below, the material required for testing, and the Contractor's labor required to facilitate the test or delayed by the test, which the Contractor shall furnish. The Contractor will cooperate with the Owner's testing representative in the taking of test Samples. The Contractor shall pay for all tests which are not performed at the job site.

- B. Required tests are specified elsewhere in the Specifications.
- C. Should the results of any required tests fail to meet the requirements of the Contract Documents, Contractor shall either correct the unacceptable condition or furnish new materials, as directed by the Owner. Additional tests shall be made at the Contractor's expense until the materials are found to meet the requirements of the Contract Documents.
- D. Should the results of any soil compaction tests fail to meet the requirements of the Specifications, Contractor shall recondition and/or recompact the fill, and additional tests shall be made at the Contractor's expense until the compaction is found to meet the requirements of the Specifications.
- E. Testing or inspection services required outside of regular working hours shall be paid for by the Contractor.
- F. When existing building systems such as fire alarms, fire sprinkler systems, smoke detectors, halon systems, etc., are modified by the Work, the Contractor shall test the entire system at the completion of the Work and demonstrate to the Owner that the system is functioning correctly and reliably.

6.12 RECORD DOCUMENTS

- A. The Contractor shall maintain at the site record documents consisting of all Drawings, Specifications, addenda, approved shop drawings and samples, Change Orders, Construction Change Directives, instructions from the Architect, and other documents relating to the Project. All record documents shall be marked legibly by the Contractor to record all changes to the Work, field measurements, actual conditions, and adjustments made during construction.
- B. Upon completion of the Work, Contractor shall transfer all record document information to a clean set of Drawing and Specifications and electronic media compatible with the Owner's software and deliver them to the Architect. CAD documents shall be in sheet format. Contractor shall provide any explanation or clarification of the record documents requested by Owner or Architect.

6.13 OPERATING AND MAINTENANCE MANUALS

Assemble and bind two (2) hardcopy sets and one (1) electronic PDF file, clearly categorized according to the Project Specifications, of all guarantees, certificates, warranties, operating instructions, as-built specification, and maintenance manuals into clearly organized files with an index, a list of Subcontractors and suppliers including their names, addresses, and phone numbers and present to Architect at the completion of the Work.

6.14 TRAINING TO OWNER/OWNER'S REPRESENTATIVE

Contractor shall provide training to the Owner and Owner's representatives for all operating systems, features, and equipment. Training shall be sufficient to explain and demonstrate the location, function, and operation and shall be a minimum of

four (4) hours for each item of Work. Training shall be given by a person familiar with the Project. Operation and Maintenance manuals must be available to the Owner prior to training and referenced during the training. Contractor to provide Owner with videos taken of the training(s), particularly of systems such as fire alarm, HVAC, and building management system(s). Contractor and Owner shall agree which systems will require videos of training.

7 TIME

7.1 DEFINITION OF OFFICIAL DATES

- A. The Contract Time is the period of time indicated in the Agreement for achieving completion of the Work. Time is of the essence for the Contract. The term day as used in reference to Contract Time shall mean calendar day.
- B. The Notice to Proceed from the Owner shall establish the official date the Work may commence and the start of the Contract Time.
- C. The date of Substantial Completion of the Work is the date established by the Architect. The date of beneficial occupancy or acceptance of the Work may be determined by the Owner but not effect the Contract Time or terms of the Agreement.
- D. The date of Final Completion is the date established by the Architect after Substantial Completion when the Work is complete in every detail. Retention may be withheld until after Final Completion.

7.2 SUBSTANTIAL COMPLETION

- A. Substantial Completion is the stage in the progress of the Work when the entire Work, or a designated portion thereof, is sufficiently complete in accordance with the Contract Documents to allow the Owner to use and occupy the entire Work or portion as intended. Prior to Substantial Completion the Contractor shall have inspected the Work, completed corrective measures, obtained all approvals necessary for occupancy, placed into operation all equipment and systems, and obtained the Architects concurrence that Substantial Completion of the Work has been achieved.
- B. When the Contractor considers that the Work, or designated portion thereof, is substantially complete, the Contractor shall provide a written notice to the Architect and Owner in which the Contractor certifies that the Work or portion is Substantially Complete, lists all remaining incomplete deficiencies of the Work, and requests inspection and acceptance. The failure to include any items on such list does not alter the responsibility of the Contractor to complete the Work in accordance with the Contract Documents.
- C. Upon receiving notice in accordance with paragraph 7.2.B, the Architect and/or Owner will review the Work or designated portion thereof. If the Architect

determines the Work or portion is substantially complete, the Architect will establish a date of Substantial Completion. If the Architect determines the Work or portion is not Substantially Complete the Contractor will be notified. Contractor is required to initiate re-inspections by providing notice in accordance with Section 7.2B and reimburse the Owner for the cost of the reinspection.

- D. The guarantee period, and associated warranty period(s), shall begin on the date of Substantial Completion. A separate date of Substantial Completion shall be established for designated portions of Work according to the Contract Documents or as agreed to by Owner.
- E. Any Work used by Contractor prior to Substantial Completion shall be made new as of the date of Substantial Completion. Such Work may include lights, filters and systems or equipment requiring periodic maintenance.

7.3 LIQUIDATED DAMAGES

- A. Should the Work not be Substantially Complete, as defined herein, and within the Contract Time, damages will be sustained by the Owner. The Owner may impose liquidated damages to portions of the Work. As it may be extremely difficult, not feasible, or may be impracticable to use County resources to determine the amount of actual damage the County may suffer should Contractor fail to complete the work within the time specified, it is understood and agreed the Contractor shall pay the Owner as fixed and liquidated damages, and not a penalty, the amount set forth in the Agreement for each calendar day of delay in completion. Contractor and its surety shall be liable for the amount thereof pursuant to Government code Section 53069.85. It is therefore agreed that the Contractor will pay the Owner the amount specified in the Notice to Contractors Document 00 11 16, as and for the Owner's liquidated damages. The liquidated damages amount covers Owner's damages only and is not in lieu of the indemnification obligations set forth separately in Section 9 nor shall these liquidated damages cover damages, including delay damages, claimed by third parties. Third parties shall include other contractors working on the Project. In the event the Contractor fails to make such payment, the Owner may deduct the amount thereof from any money due or that may become due to the Contractor under the Contract and should the balance due under the Contract not be sufficient to cover the amount owed, the Owner shall have the right to recover the balance from the Contractor, or from the Contractor's sureties.

- B. The Owner may impose liquidated damages to portions of the Work.

7.4 USE AND OCCUPANCY PRIOR TO SUBSTANTIAL COMPLETION

- A. The Contractor agrees to use and occupancy of a portion of the Work by the Owner upon Substantial Completion.
- B. Prior to the Owner occupying a portion of the Work, a list of Work to be completed or corrected shall be prepared jointly by the Contractor and Architect.

- C. Occupancy by the Owner shall not be construed by the Contractor as being an acceptance of the Work by Owner of that part of the Work to be occupied.
- D. The Contractor shall not be held responsible for any damage to the occupied part of the Work resulting from the Owner's occupancy after Substantial Completion.
- E. Occupancy by the Owner shall not be deemed to constitute a waiver of any claims which Owner or Contractor may have.
- F. Use and occupancy of a portion of the Work by the Owner prior to Substantial Completion does not relieve the Contractor of his responsibility to maintain all insurance and bonds required under the Contract until the Work is completed and accepted by Owner.

7.5 SCHEDULE

- A. Contractor shall submit to the Owner and Architect a schedule for the Work.

The schedule shall be a series of tasks representing the Contractor's plan for performing the Work including all activities both onsite and offsite, submittal due dates, submittal review periods, material purchasing, lead or fabrication times, a period for punchlist and corrections, final inspection and approvals, and other events or activities having an effect on the progress or completion of the Work. For each task, the schedule shall show the duration, the starting and finish dates, predecessors, successors, and the average manpower and equipment planned. The schedule shall be submitted in bar chart and pert chart format and with a separate task list showing all data in spreadsheet format. No single task on the schedule may exceed two weeks in duration. See General Requirements 01 00 00 for additional Schedule requirements.

(1) PRELIMINARY SCHEDULE

A. Submission

1. Submit the Preliminary Contract Schedule to Owner either within 10 working days after receipt of Notice of Award and/or with the Agreement.
2. Within seven (7) working days after receipt of the Preliminary Schedule, Owner will notify Contractor of its acceptance of, or its review comments about, the schedule so that appropriate adjustments may be made by Contractor in the development of the Schedule.

B. Form

1. Prepare the Preliminary Schedule in sufficient detail to demonstrate preliminary planning for the Work and to represent a practical plan to complete the Work within the Contract Time

2. Identify the following milestone events on the Preliminary Schedule:

Coordinate with County Project Manager/ Bartos
Architecture

3. Identify all holidays and non-working days on the Preliminary Schedule.

C. Activities

1. Identify all Work activities which constitute the critical path, including any known material and equipment lead times.

2. Shutdowns for all utilities as determined from listing provided by Owner's Representative as part of Contract Documents.

(2) SCHEDULE

A. Submission

1. Submit the Schedule, also known as the Baseline Schedule, in the form and having general content acceptable to Owner and shall be based on the review and comments to or acceptance of the Preliminary Schedule, within ten (10) working days following Owner's written acceptance of the Preliminary Schedule.

2. Owner, with Owner's Representative will determine acceptability of the Schedule within seven (7) working days after its receipt.

3. No Application for Payment will be processed nor shall any progress payment become due until the Baseline Schedule is accepted by Owner in writing.

B. Form

1. The Schedule shall be suitable for monitoring progress of the Work, in sufficient detail to demonstrate adequate planning for the Work, and shall represent a practical plan to complete the Work within the Contract Time.

2. Identify the milestone events as indicated above including additional milestones identified by Owner upon review of the Preliminary Schedule.

3. Identify all holidays and non-working days on the Schedule.

4. If the Schedule is shown on more than one (1) sheet, provide a summary sheet.

C. Activities

1. Identify all Work activities in correct sequence for the completion of the Work. Work activities shall include the following:

- a. Major Contractor-furnished equipment, materials, and building elements, lead times, and scheduled activities requiring submittals or Owner's prior approval.
- b. Show dates for the submission, review, and approval of each submittal. Dates shall be shown for the procurement, fabrication, delivery, and installation of major equipment, materials, and building elements, and for scheduled activities designated by Owner.
- c. For Submittals, a minimum of ten (10) working days shall be allotted in the Schedule for the Architect to review each submittal.
- d. Contractor's internal pre-functional testing and final System test dates.
- e. Scheduled overtime Work if required by Contract Documents.
- f. Dates Contractor requests designated working spaces, storage areas, access, and other facilities to be provided by Owner.
- g. Dates Contractor requests orders and decisions from Owner on designated items.
- h. Dates Contractor requests Owner-furnished equipment.
- i. Dates Contractor requests Owner-furnished utilities.
- j. Connection and relocation of existing utilities.
- k. Connecting to or penetrating existing structures.
- l. Scheduled inspections as required by Codes, or as otherwise specified.

2. Identify all Work activities that constitute the critical path.

3. Critical Work activities are defined as Work activities which, if delayed or extended, will delay the scheduled completion of one or more of the milestones specified in this Section or the scheduled completion of the Work, or both. All other Work activities are

defined as non-critical Work activities and are considered to have float.

4. Float is defined as the time that a non-critical Work activity can be delayed or extended without delaying the scheduled completion of milestones specified in this Section or the scheduled completion of the Work, or both. Neither Contractor nor Owner shall have an exclusive right to the use of float. The party using float shall document the effect on the updated Schedule.

5. Delays of any non-critical Work activity shall not be the basis for an extension of Contract Time until the delays consume the float associated with that non-critical Work activity and cause the Work activity to become critical.

6. The presentation of each Work activity on the Schedule shall include a brief description of the Work activity, the duration of the Work activity in days, and a responsibility code identifying the organization or trades performing the Work activity.

7. See 8.2 Contract Amount Breakdown – Schedule of Values for requirements to establish costs for each Work activity of the Schedule which cumulatively equal the total Contract amount.

(3) **PROGRESS SCHEDULE**

A. Updating the Schedule provides the Owner with a schedule of the progress of the work (Progress Schedule). The Contractor must submit Progress Schedule(s) prepared in accordance with the requirements of the Contract Documents.

B. Updating

1. Review the Schedule with Owner once each week to incorporate in the Progress Schedule all changes in the progress, sequences, and scope of Work activities.

2. Prepare and submit to Owner an updated Schedule, as the Progress Schedule, once each month, or as mutually agreed.

a. A Progress Schedule shall accurately represent the as-built condition of all completed and in-progress Work activities as of the date submitted.

b. The Progress Schedule shall incorporate all changes mutually agreed upon by Contractor and Owner during preceding periodic reviews and all changes resulting from

Change Orders, Field Orders and Amended Construction Documents.

c. Contractor shall perform the Work in accordance with the updated Schedule. Contractor may change the Project Schedule to modify the order or method of accomplishing the Work only with prior agreement by Owner.

3. Contractor shall submit the updated Schedule, as the Progress Schedule, in the form acceptable to Owner, at least five (5) working days prior to submitting the Application for Payment. Contractor will provide a written progress report of the Schedule to the Owner in a format approved by Owner.

4. Owner's Representative will determine acceptability of each Progress Schedule within five (5) working days after its receipt.

5. No Applications for Payment will be processed nor shall any progress payments become due until updated Progress Schedules are accepted by Owner.

6. The accepted Progress Schedule shall be the Schedule of record for the period it is current, shall be in compliance with the Contract Documents, and shall be the basis for the Owner's approval of the Contractor's monthly (or as mutually agreed) payment requests during that period.

7. The Owner's review and acceptance of the Contractor's updated Progress Schedule is for compliance with the requirements of the Contract Documents only. Review and acceptance by the Owner of the Contractor's Progress Schedule(s) does not mean approval of the sequence or duration of the tasks shown, and does not relieve the Contractor of any of the Contractor's responsibility for the accuracy or feasibility of the Schedule, or of the Contractor's obligation to meet the milestone dates established in the Schedule and the date of contract completion to the Contract Time.

8. The Owner's review and acceptance of the Contractor's Progress Schedule does not expressly or implicitly warrant, acknowledge, or admit the reasonableness of the logic, durations, cost, manpower or equipment loading indicated in the Progress Schedule.

(4) 3-WEEK LOOK AHEAD SCHEDULE

- A. During the course of construction, Contractor shall provide a 3-week schedule at each construction meeting referred to as a 3-week look ahead schedule. This schedule shall indicate the construction schedule activities for that time period. This schedule shall identify any critical items impacting the Schedule or progress and any items requiring additional Work or Time.
 - B. The Contractor shall carry on with the Work, for the construction of the various elements of the project concurrently, to the extent reasonable, and shall not defer construction of any portion of the work in favor of any other portion without the express written approval of the Owner.
- B. The Schedule may be revised as required by the progress and conditions of the Work, change orders and all other factors that could influence the date of Substantial Completion and/or Contract Time.
 - C. Contractor shall post the current Schedule on the Project site in a location readily accessible to the Owner and Architect.
 - D. Weather delays shall be allowed for in the Contractor's Schedule. Additional time will be granted for adverse weather to the extent the number of scheduled work days lost due to weather.

7.6 DETERMINATION OF WEATHER DELAYS

- A. Except for rain, if weather conditions are the basis for delays for continuing or completion of the Work or any designated portion of the Work, Contractor must substantiate that the weather conditions were abnormal, based on the climatologically data for the immediate preceding 10-year period. The Contractor must establish that the adverse weather conditions could not have been reasonably anticipated to constitute a weather delay.
- B. When the amount of rain is considered to be abnormal, additional rain days will be allowed and extensions to the Contract Time(s) will be granted where the condition of the site (exterior or interior location) or access to the site as determined by the Owner, is such that Contractor can perform no Work identified on the current version of the Progress Schedule in effect at the time the delay occurred. Rainfall will be considered unusually severe only when the Days of Rain (defined as more than one-tenth (1/10th) of an inch of rain per day) in any month exceed the number of allowed rain days per month.

- C. No Contract Time extension for rain will be allowed for any month until the established number of allowed rain days for the that month have been exceeded. The allowable rain days per month for this Project are as follows:

January: 2
February: 2
March: 2
April: 0
May: 0
June: 0
July: 0
August: 0
September: 0
October: 2
November: 2
December: 2

- D. Contractor must exercise due diligence in protecting the Work and the Work site from the adverse impacts of weather by:
1. Taking appropriate preventative actions before anticipated inclement weather to protect the Work and Work site from the potential adverse effects of the weather;
 2. Taking corrective action during the inclement weather to protect the Work and Work site from the actual and potential adverse effects of the inclement weather; and
 3. Taking correction action after the inclement weather to remedy, prevent, and/or mitigate the negative impacts of the adverse weather on the Work and the Work site.

7.7 DELAY AND TIME EXTENSIONS

- A. The Owner will consider extensions to the Contract Time for the following reasons only if they affect the Critical Path of the Official Progress Schedule.

1. Acts of God (as defined in PCC 7105 (b) (2)) or of the public enemy, acts of Government, acts of Owner, fires, floods, epidemics, quarantine restrictions, sanctioned strikes, freight embargoes, unusually severe weather, or delays of Subcontractors or Suppliers arising from unforeseeable causes beyond the control and without the fault or negligence of both Contractor and such Subcontractors or Suppliers.
2. Delays in progress due to an act of neglect by Owner only for the amount of delay time that occurs after Contractor has notified Owner in

writing and the Owner has had a reasonable time to respond to the notification.

3. An Approved Change Order that extends the Contract Time.

B. Within twenty-four (24) hours from the beginning of any critical path delay to the current updated Schedule, Contractor must notify Owner in writing of the causes of delay.

C. Within ten (10) working days from the end of any critical path delay to the Schedule, Contractor must submit two (2) hard copies and electronic data files of all supporting information to validate the impact of the delay on the Contract Time.

D. The Owner will ascertain the facts and the extent of the delay and adjust the Contract Time for completing the Work when, in Owner's judgment, the facts justify an adjustment. Owner's determination is final and conclusive.

E. Delay and Contractor's entitlement for delay will be determined as follows:

1. The following definitions apply to a Delay and Time Extension:

a. **"Excusable Delay"** means any delay in the Work caused by conditions beyond the control and without the fault or negligence of the Contractor.

b. **"Excusable Non-Compensable Delay"** means any Excusable Delay not solely the responsibility of the Contractor, such as, earthquake, fire, flood, and inclement weather conditions that caused a delay of Work on the critical path of the Schedule. The financial inability of the Contractor or any Subcontractor, Sub-subcontractor or Supplier, or the default of any Subcontractor, Sub-subcontractor or Supplier is not a condition beyond the Contractor's control. An Excusable Non-Compensable Delay may entitle the Contractor to an extension of the Contract Time, but will not entitle the Contractor to any adjustment of the Contract Sum.

c. **"Excusable Compensable Delay"** means any Excusable Delay caused by a delay of the Work on the critical path of the Schedule for which the Owner is solely responsible and which delay is unreasonable given the circumstances and not within the contemplation of the parties. An Excusable Compensable Delay may entitle the Contractor to an extension of the Contract Time and an adjustment of the Contract Sum.

d. **"Non-Excusable Delay"** means any delay in the Work resulting from causes within the control of the Contractor or due to the fault or negligence of the Contractor or its Subcontractors or Suppliers. A Non-excusable Delay shall not entitle the Contractor to an

extension of the Contract Time or an adjustment of the Contract Sum.

2. Whenever the Contractor foresees any delay in the prosecution of the Work, the Contractor must notify the Owner in writing of the potential delay. Such notification must specify with detail the cause asserted by the Contractor for the potential delay and provide a description of the anticipated effect of the potential delay on the most recent updated Schedule including identification of the activity numbers of the affected activities. Failure of the Contractor to submit such a notice after recognition of any incident or event giving rise to the potential delay will constitute a waiver by the Contractor of any request for extension of the Contract Time, and no extension of the Contract Time will be granted as a consequence of such delay.

3. Within twenty-four (24) hours from the beginning of any critical path delay to the Progress Schedule, Contractor must submit written notice to the Owner of the delay. The notice must include identification of the affected activities, evidence of the cause of the delay, and within ten (10) working days of the end of the critical path delay, Contractor must submit a Time Impact Analysis per F. Time Impact Analysis.

4. Owner has no obligation to consider any request for extension to the Contract Time unless the Contractor satisfies the requirements set forth in the Contract Documents for providing notice of potential delay and submission of a Time Impact Analysis establishing the impact of the delay on the critical path of the latest Progress Schedule.

5. Owner is not responsible to the Contractor for any constructive acceleration due to Contractor's failure to comply with the submission and justification requirements of the Contract Documents for Contract Time extension requests. The Contractor's failure to perform in accordance with the latest Progress Schedule shall not be excused because the Contractor has submitted Contract Time extension requests, unless and until Owner approves such requests.

6. Extension to the Contract Time will not be allowed for delays on paths of activities containing Total Float Time per the latest Progress Schedule, providing such delay does not exceed the Total Float Time(s) on paths of activities on the latest Progress Schedule.

7. Any extension of Contract Time granted the Contractor pursuant to this section, does not constitute a waiver by Owner of, nor a release of the Contractor from, the Contractor's obligation to perform the Work within the Contract Time specified by the Contract Documents, as modified by the particular extension in question. Owner's decision to grant an extension of

the Contract Time due to one circumstance set forth in one request, shall not be construed as a grant of an extension for any other circumstance or the same circumstance occurring at some other time, and shall not be viewed by the Contractor as a precedent for any other request for extension of the Contract Time.

8. If Owner orders the Contractor to suspend Work pursuant to the Contract Documents, the Contractor will not be entitled to any extension of the Contract Time, damages resulting from the suspension, unless the Contractor can establish that the suspension was Ordered without reasonable justification.

F. Time Impact Analysis

1. The time impact analysis must provide information justifying the request for extension of the Contract Time and stating the extent of the adjustment requested for the alleged delay. Time impact analysis must be in form and content acceptable to the Owner and include, but not be limited to, the following:

- a. Time impact analyses must be based on analyzing the Progress Schedule in effect at the time the alleged delay or impact first occurred.
- b. The Contractor must present fragmentary Critical Path Method (CPM) type network windows (fragments) in time scaled precedent format, illustrating how Contractor proposes to incorporate the alleged delay into the Progress Schedule in effect at the time the alleged delay or impact first occurred.
- c. The Contractor must identify the activities that are proposed to be amended due to the alleged delay.
- d. The Contractor must identify the preceding and succeeding activities in the Official Progress Schedule to which the fragment(s) is to be connected.

H. Concurrent Delays

1. If an Excusable Non-Compensable Delay and an Excusable Compensable Delay operate to concurrently delay completion of the Work, the maximum extension of the Contract Time will be the number of Calendar Days from the commencement of the first delay to the cessation of the delay which ends last. Any adjustment of the Contract Sum will be in accordance with changes in the Work, and will be based only on the number of days of Excusable Compensable Delay, less the duration of the concurrence.

2. If a Non-Excusable Delay operates to concurrently delay completion of the Work with an Excusable Non-Compensable Delay, the maximum extension of the Contract Time will be the number of days of concurrent delay plus the non-concurrent portion of the Excusable Non-Compensable Delay. The entire delay is non-compensable.

3. If a Non-Excusable Delay operates to concurrently delay completion of the Work with an Excusable Compensable Delay the maximum extension of the Contract Time will be the number of days of concurrent delay plus the non-concurrent portion of the Excusable Compensable Delay. Any adjustment of the Contract Sum will be in accordance with changes in the Work, and will be based only on the non-concurrent portion of the Excusable Compensable Delay.

4. Where the period of concurrent delay is sixty (60) calendar days or longer, the Owner will pay 50% of labor and material cost escalations experienced as a result of the concurrent delay following Contractor's demonstration of the cost escalations to the reasonable satisfaction of Owner.

8 PAYMENTS

8.1 CONTRACT AMOUNT

The Contract Amount as stated in the Agreement, including adjustments authorized under the terms of the Contract, is the total amount payable by the Owner to the Contractor for the complete Work.

8.2 CONTRACT AMOUNT BREAKDOWN – SCHEDULE OF VALUES

The Contractor shall, before the first application for payment, submit to the Architect and the Owner a Schedule of Values document which is a dollar value amount breakdown for the entire scope the Work of the Contract divided into categories so as to facilitate certification of completed Work for payment. The Schedule of Values shall be in such form as may be agreed upon by the parties and supported by such evidence as to its correctness that may allow the Architect and/or Owner's Representative to certify progress payments corresponding to the percentage of completed Work.

8.3 PROGRESS PAYMENTS

- A. The Owner shall make progress payments to the Contractor for labor and materials incorporated into the Work as called for by the Contract Documents and approved Change Orders. Not more often than once each month and on a day of each month agreed upon between the Owner and the Contractor, the Contractor shall submit to the Owner and the Architect, through the Owner's Representative, an application for payment consisting of a Certificate of Payment, a calculation of completed Work based on the approved payment breakdown and, if required by Owner, receipts, releases, or other evidence showing the Contractor's payments

for materials, labor, Subcontractors, and any such information as the Owner may require. Payment shall not be owed if the application does not conform to these requirements.

- B. Payment for materials stored on site which have not been permanently incorporated into the Work is at the discretion of the Owner. Payment for materials stored off-site, whether or not specially fabricated for the Project, can be made only when payment for such materials has been previously approved by the Owner and shown on the approved payment breakdown and such payment shall be conditional upon submission by the Contractor of a Bill of Sale in a form acceptable to the Owner or other such evidence as is required by the Owner to establish the Owner's title to such material. All materials stored off-site shall be stored in a bonded warehouse at no additional expense to the Owner.
- C. The Contractor shall present the application for payment, as required herein, to the Architect for approval using the Owner's previously approved Schedule of Values. The Architect will review and adjust the Certificate of Payment to such amount as he decides is properly due and deliver it to the Owner for payment.
- D. The Owner will retain five (5) percent of the amount of each payment due the Contractor until after the date of Owner's Certificate of Project Completion has been accepted by the County.
- E. No Certificate of Payment issued nor payment made to the Contractor nor partial or entire use of occupancy of the Work by the Owner shall be an acceptance of any Work not in accordance with the Contract Documents.
- F. The Contractor shall not assign any monies due or to become due hereunder without the written consent of the Owner and of all sureties executing bonds on behalf of the Contractor in connection with this Contract.

8.4 OWNER'S FAILURE TO ISSUE PAYMENT

Should the County fail to issue a progress payment to the Contractor for properly submitted, undisputed and approved amounts owed under the Contract within 30 calendar days, then the Owner shall pay interest to the Contractor equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure. Refer to the California Public Contract Code, Division 2, Part 2, Chapter 1, Article 8, Section 102.5 and other applicable sections. Contractor may, upon written notice to the Owner and provided the Owner does not pay the Contractor per the terms agreed to between the Owner and Contractor, stop Work only until Contractor receives the progress payment amount owed.

8.5 PAYMENTS WITHHELD

- A. The Owner may withhold payment, on account of subsequently discovered information, nullify the whole or a part of any progress payment or retention payment to such extent as may be necessary to protect the Owner from loss on account of:

1. Defective Work.
2. Third party claims or reasonable evidence indicating probable filing of third-party claims.
3. Failure of the Contractor to make payments to Subcontractors or for material, labor or equipment.
4. The Owner's doubt that the Work can be completed for the unpaid portion of the Contract Amount.
5. Damage to another contractor's work.
6. Damage to Owner's property.
7. Failure to pay fees in accordance with the Contract Documents.
8. Owner's cost of correcting deficiencies in the Work or undertaking any Work.
9. Liquidated damages or anticipated liquidated damages.
10. Any amount owed to Owner or claimed by Owner.
11. Contractor's failure to deliver as-built drawings, guarantees, operating manuals or other documents.
12. Failure by Contractor to fulfill any Contract requirement.

8.6 FINAL PAYMENT AND RETENTION PAYMENT

- A. The final payment shall be the one made in response to the Contractor's one hundred percent (100%) complete application for payment which will bring the total paid to date to the Contractor to ninety-five percent (95%) of the Contract Amount. Contractor's acceptance of the final payment shall constitute a waiver of all claims by Contractor except those previously made in writing.
- B. The Owner is entitled to retain five percent (5%) of the amount of each payment due Contractor, as Retention, until at least sixty (60) calendar days after the date of recording the Notice of Completion, as per California Public Contract Code, Division 2, Part 1, Chapter 7, Section 7107.
- C. As a prerequisite to the release of retention, Contractor shall sign a Release of Liens in a form prescribed by Owner.
- D. Contractor shall not be paid interest on retention.

9 INSURANCE

9.1 HOLD HARMLESS/INDEMNIFICATION

- A To the full extent permitted by law, CONTRACTOR shall indemnify and save harmless the COUNTY, its officers, employees, and servants from all claims, suits, or actions of every name, kind, and description, brought for, or on account of: (A) injuries to or death of any person, including CONTRACTOR, its officers, employees and servants, or (B) damage to any property of any kind whatsoever and to whomsoever belonging, (C) any sanctions, penalties or claims of damages resulting from CONTRACTOR'S failure to comply with applicable laws, or (D) any other loss or cost resulting from the CONTRACTOR'S negligent or reckless acts or omissions or willful misconduct in connection with the performance of any work required of CONTRACTOR or payments made pursuant to this Agreement, provided that this shall not apply to injuries or damage for which the COUNTY has been found in a court of competent jurisdiction to be solely liable by reason of its own negligence or willful misconduct.
- B The duty of CONTRACTOR to indemnify and save harmless as set forth herein, shall include the duty to defend as set forth in Section 2778 of the California Civil Code.
- C. The obligations set forth in this section shall continue beyond the term of this Agreement as to any act or omission which occurred during or under this Agreement.

9.2 INSURANCE

- A. The Contractor shall not commence Work under this Contract until all required insurance has been obtained and such insurance has been approved by the Owner. The Contractor shall furnish the Owner with Certificates of Insurance evidencing the required coverage, and there shall be a specific contractual liability endorsement extending the Contractor's coverage to include the contractual liability assumed by the Contractor pursuant to this Contract. Certificates of Insurance shall be filed with the Owner within ten (10) calendar days after award of the Contract. These certificates shall specify or be endorsed to provide that thirty (30) calendar days' notice must be given, in writing, to the Owner of any pending change in the limits of liability or of any cancellation or modification of the policy.
- B. The Contractor shall have in effect during the entire life of this Contract Workers Compensation and Employers Liability Insurance providing full statutory coverage; and in case any work is sublet, the Contractor shall require all Subcontractors similarly to provide Workers Compensation and Employers Liability Insurance to full statutory limits of the California Labor Code. In signing this Contract, the Contractor makes the following certification, required by Section 1861 of the Labor Code:

“I (Contractor Name/Company), am aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of the Code, and I (Contractor Name/Company) will comply with such provisions before commencing the performance of the work of this Contract”.

- C. The Contractor shall take out and maintain during the term of this Contract such Bodily Injury Liability and Property Damage Liability Insurance as shall protect Contractor and any Subcontractor performing Work covered by this Contract, from any and all Claims for damages for bodily injury, including accidental death, as well as any and all Claims for property damage including third party property damage to include coverage on property in the care, custody and control of the Contractor, which may arise from the Contractor's operations under this Contract, whether such operations be by Contractor or by any Subcontractor or by anyone directly or indirectly employed by either of them. Such insurance shall be combined single limit bodily injury and property damage for each occurrence and shall not be less than the amount specified below. Such insurance shall include:
1. Comprehensive Commercial or General Liability Insurance
 - a. \$1,000,000 Bodily Injury/Property Damage Each Occurrence
 - b. \$2,000,000 Product/Completed Operations Aggregate
 - c. \$2,000,000 General Aggregate
 - d. \$50,000 Fire Damage Legal Liability
 - e. \$5,000 Medical Payments
 - f. Coverage shall include but not be limited to the following supplementary coverages:
Contractual Liability to cover liability assumed under the Agreement;
Product and Completed Operations Liability Insurance;
Broad Form Property Damage Liability Insurance;
Explosion, collapse and underground hazards (deletion of the X, C, U exclusions) if such exposure exists; and
Independent Contractors.
 2. Motor Vehicle/Automobile Liability Insurance: \$1,000,000 Combined Single Limit.
 3. Workers' Compensation and Employer's Liability Insurance, Workers' Compensation Insurance Statutory benefits as provided by the California statute and Employer's Liability Limits as follows:
 - a. \$1,000,000 Bodily Injury with Accident – Each Accident
 - b. \$1,000,000 Bodily Injury by Disease – Policy Limit
 - c. \$1,000,000 Bodily Injury by Disease – Each Employee
- D. The Owner and its officers, agents, employees and servants shall be named as additional insured on any such policies of insurance, which shall also contain a provision that the insurance afforded thereby to the Owner, its officers, agents, employees and servants shall be primary insurance to the full limits of liability of

the policy, and that if the Owner or its officers, agents? and employees have other insurance against the loss covered by such a policy, such other insurance shall be excess insurance only.

- E. The Owner shall purchase and maintain at Owner's expense All Risk Property Insurance or Builder's Risk Insurance, excluding Earthquake and Flood coverage, in an amount covering all work and materials in the Contract, including that of Subcontractors, in an amount equal to the Contract Amount including adjustments. Subcontractors shall be included as insureds and the Owner shall be named as a Loss Payee as its interests may appear. Said insurance shall be maintained in complete coverage throughout the duration of the Contract until the one (1) year after the Completion Date of the Project.

9.3 FAILURE TO PROVIDE INSURANCE

If Contractor fails to provide insurance as required herein, the Owner, at its option, may take out and maintain such insurance as the Owner deems in its best interest and charge the cost thereof to the Contractor, which may be at a higher cost.

10 GUARANTEES

10.1 REQUIRED GUARANTEES

- A. In addition to guarantees required elsewhere in the Contract Documents, the Contractor shall guarantee all of the Work, and each Subcontractor shall guarantee his own Work, against defective material or faulty workmanship for a minimum of one (1) year after the date of Substantial Completion. All guarantees must be submitted in triplicate to the Architect on the Contractor's own letterhead in the form prescribed by Owner.
- B. In addition to the requirements of paragraph 10.1.A, all standard manufacturer warranties shall be passed to the Owner which may extend the warranty period beyond one (1) year.
- C. The date of guarantee and all warranties for the Work shall commence upon the Owner's agreed Substantial Completion Date, when the County achieves beneficial use and occupancy of the Project, or phase of the Project.
- D. In addition to the guarantees and warranties required by the Contract Documents, the Owner has all rights and remedies provided by law including those pertaining to latent defects.

10.2 REPAIR OF GUARANTEED WORK

- A. If repairs are required in connection with guaranteed Work, the Contractor shall promptly upon receipt of written notice from the Owner, and without expense to the Owner:
 - 1. Place in satisfactory condition in every detail all of such guaranteed Work;

2. Make good all damage to the building, site, equipment, furniture, or contents which, in the opinion of the Owner, is the result of work not in accordance with the terms of the Contract Documents or disturbed in the process of correcting guaranteed Work.
- B. If the Contractor disturbs any work guaranteed under another contract in fulfilling the requirements herein he shall restore such disturbed work to a condition satisfactory to the Owner and guarantee such restored work to the same extent as it was guaranteed under the Contract.
 - C. A new full term guarantee period shall apply to repaired work upon completion of repairs.
 - D. If Contractor fails to proceed to comply with the terms of the guarantee to make repairs of defective work within seven (7) calendar days of Notice from Owner, the Owner may remedy the Contractor's failure by whatever means the Owner deems expedient. The Owner may, at any time, take measures to mitigate damage or reduce undesirable effects of defective work. All costs expended by Owner pursuant to this Section shall be paid by Contractor.

END OF DOCUMENT 00 72 13

DOCUMENT 00 73 36

**SAN MATEO COUNTY SUPPLEMENTARY GENERAL CONDITIONS
EQUAL EMPLOYMENT OPPORTUNITY (EEO) PROGRAM FOR MINORITY
EMPLOYMENT**

1. STATEMENT OF INTENT

It is the intent of the Board of Supervisors of the County of San Mateo to prohibit and eliminate employment discrimination and to further the opportunities for minority persons to be gainfully employed in the performance of County building contracts. The Bidder's attention is directed to all the provisions set forth herein. The Board of Supervisors has by Ordinance No. 2174 added Title 2, Chapter 2.50 to Division II of the San Mateo County Ordinance Code prohibiting discrimination in employment and providing for an Equal Employment Opportunity Program by Contractors doing business with the County of San Mateo. The following provisions are a part of the contract documents.

2. LOWEST RESPONSIBLE BIDDER

Award of contract to the low bidder shall not be made until the requirements set forth in these Supplementary General Conditions have been complied with and reviewed by the County Compliance Officer and a satisfactory Equal Employment Opportunity Program as submitted by the low bidder has been accepted.

A. Criteria for Determining Lowest Bidder. Criteria to determine the acceptability of bids on construction contracts requiring public bidding and involving an expenditure of \$6,500 or more shall include but not be limited to the following:

1. Criteria of Compliance with Federal and State Laws. Each bidder shall submit with his bid a certification that he is in compliance with the Equal Employment Opportunity Requirement of Executive Order 11246, Title VII of the Civil Rights Act of 1973, the California Fair Employment Practices Act and any other Federal or State Laws and regulations relating to Equal Employment Opportunities and the provisions of this article and the Board established guidelines implementing them. See report form entitled "Certification of Compliance with Laws Prohibiting Discrimination" bound herein after Form of Proposal.
2. Certification of Intent to Develop and Implement an Equal Employment Opportunity Program. Each bidder shall submit with his bid a certification that he will develop, implement and maintain, during the course of work concerned, an affirmative action program in employment conducted without regard to race, religion, color, national origin, ancestry, physical or mental disability, or sex of the applicants. With this certification he shall submit any and all information which

may be required by the County in connection with this program. As used in this Article, the term "minority" or "minority group" pertains to Latinos, Asians and Pacific Islanders, African Americans, American Indians, and women (regardless of her race or ethnicity). See report form entitled "Certification of Intent" bound herein after Form of Proposal.

3. Compliance by Subcontractors. The provision of this Section apply to any subcontractor engaged by the successful bidder, and each successful bidder shall notify his subcontractors of their obligations under the provisions of this Section.

3. PENALTIES FOR NON-COMPLIANCE WITH THE PROVISIONS OF THIS SECTION

- A. Any bidder who fails to submit a proposed Equal Employment Opportunity Program or who is unable to make the certifications required in this Section of the Supplementary General Conditions may be disqualified from consideration for the award of the contract.

- B. If, after an award is made, the Contractor is found by the County or by a Federal or State agency empowered to make such findings to be in substantial or material violation of the Fair Employment Practices Act of the State of California, the Equal Employment Opportunity Requirement of Executive Order 11246, Title VII of the Civil Rights Act of 1964, Section 503 of the Rehabilitation Act of 1973, or of the provisions of this Section, he may be found to be in material breach of his contract, and the County shall have the power to cancel the contract in whole or in part, or alternatively, to deduct for each working day during which the Contractor is found to have been in such non-compliance, two (2) percent of the total amount payable to the Contractor.

4. WAIVER OF COMPLIANCE

In the event that the requirements of this ordinance are found to work an undue hardship upon a low bidder, said bidder shall submit evidence of such hardship to the Board of Supervisors and shall petition the Board for a waiver of these requirements. This waiver shall only be granted by the Board of Supervisors and shall become an integral part of the contract.

5. DEFINITIONS

- A. Equal Employment Opportunity Program. Equal Employment Opportunity Program is a set of specific and result oriented procedures to which a Contractor commits himself in order to achieve equal employment opportunity.

- B. Compliance Officer. A Compliance Officer is the County official designated

by the County Manager to represent him in the administration of these guidelines and in the enforcement of the provisions of Title 2, Chapter 2.50 of the County Ordinance Code.

6. CERTIFICATION OF COMPLIANCE AND INTENT

Every bidder shall submit with his bid a Certificate of Compliance with laws prohibiting discrimination and a Certification of Intent to implement an equal employment opportunity program on a form furnished by the County, as required by Title 2, Chapter 2.50 of the County Ordinance Code.

7. EQUAL EMPLOYMENT OPPORTUNITY PROGRAM

In addition to furnishing the Certification of Compliance, each Contractor will submit his Equal Employment Opportunity Program with his bid.

The EEO shall contain the following information:

- A. Analysis of current work force:
 - 1. Total number of employees
 - 2. Numerical racial breakdown of employees by job classification
 - 3. Information on apprentices

These figures will provide the base by which the Contractor's EEO will be evaluated. Factors to be considered both in the original statistics and in any plans for future employment will include the percentage of minority population in San Mateo County, the availability of minority construction workers and the present minority representation in the various construction trades.

- B. The equal employment opportunity actions the Contractor has taken or will take to insure equal employment opportunity. These shall include:
 - 1. Recruiting and hiring minority persons. If non-union personnel are employed this would involve employment advertising through sources which serve areas of minority population. These include local minority newspapers, referral agencies, high schools, vocational schools, and community groups. Specific information on these sources may be obtained from the Compliance Officer. Union employees will be recruited in accordance with applicable labor agreements. The Contractor will seek to have included or will reaffirm clauses in all labor agreements prohibiting discrimination based on race, religion, color, national origin, age, ancestry, physical or mental handicap, or sex. Assistance for admission into

the craft of minorities over the traditional apprenticeship age is also suggested. The Contractor will support Bay Area Construction Opportunity Program or similar groups as recruiting sources and will urge all labor organizations with which he has agreements to use BACOP.

2. Providing adequate opportunity for the upgrading or further training of all employees to insure equal opportunity in advancement and promotion. This might include a counseling service, information and assistance with night classes, or special career-directed program information.
 3. Appointing an Equal Employment Opportunity Coordinator - full time or as an additional duty. He will have the responsibility of administering an active program, informing company personnel and union representatives of this company policy and advising all subcontractors of their obligation to this program.
 4. Establishing or maintaining an apprenticeship or training program designed to insure hiring of additional minority employees in the journeyman or skilled classes, if possible. The Contractor is urged to support the Joint Apprenticeship Committee on this trade.
 5. Selecting minority subcontractor or subcontractors who are known for their ongoing program of apprenticeship for minorities. This includes advising minority contractor associations of bids for subcontractors. Joint ventures with minority subcontractors are encouraged.
- C. The EEO should state any previous experience the Contractor has had with similar plans and result of that effort. Any current equal employment opportunity plans should be described in detail and a copy attached, if printed plan is available. The Compliance Office will review the EEO submitted by each bidder in order to determine whether the program submitted complies with Title 2, Chapter 2.50 of the County Ordinance Code and these guidelines.

The EEO as submitted will be kept on file by the Compliance Officer. If the Contractor bids for other county contracts, he may refer to the EEO on file and state any changes, but will not be required to refile his program.

The Compliance Officer may request additional information from the bidder and will be available to answer questions relative to the guidelines and to advise those seeking assistance of resources known to him. He will not be responsible for the service or lack of service rendered by the

resources recommended, nor will he develop an EEO for any bidder, or serve as a recruiter for any bidder.

Bidders may revise their EEO after consultation prior to award of contract. Deficiencies will be discussed and appropriate remedies suggested. If bidders withdraw their EEO for revision, their revised program must be submitted by a date established by the Compliance Officer.

The Compliance Officer will determine whether the low bidder's EEO is acceptable and will report to the appropriate county department. The EEO's of each subcontractor of the low bidder will also be evaluated by the Compliance Officer.

8. INCLUSION OF EEO AND CERTIFICATIONS

Upon award of the contract by the Board of Supervisors, the EEO and Certifications for the prime contractor and all subcontractors, which have been approved and accepted by the County, will become an integral part of the contract and subject to the provisions thereof.

9. PERFORMANCE OF CONTRACTOR

- A. The Contractor will post, in conspicuous places available to employees and applicants for employment, notices to be provided by the County, stating that the Contractor is obliged to comply with the provisions of these guidelines and Title 2, Chapter 2.50 of the County Ordinance Code. These notices will also be sent to all union and employee organizations and other recruiting sources providing employees to the Contractor.
- B. All announcements of job openings will include the statement: "An Equal Opportunity Employer".
- C. The Contractor will make written Progress Reports on a form provided by the County to illustrate the effectiveness of his EEO at intervals established by the County.
- D. The Compliance Officer will monitor the performance of the EEO until completion of the contract and will report the progress of the Contractor in living up to his EEO to the County Manager.
- E. The Contractor shall permit, during Contractor's normal business hours and at Contractor's place of business, access by the County to his records of employment, employment advertisements, application forms and other data and records pertaining to Contractor's employment practices, for the purpose of determining whether Contractor is complying with the Non-Discrimination and Equal Employment Opportunity rules of the County.

10. PERFORMANCE OF SUBCONTRACTORS

- A. All subcontractors listed in a general Contractor's bid are subject to all the provisions of these guidelines and Title 2, Chapter 2.50 of the County Ordinance Code.
- B. All subcontractors will file their Certifications of Compliance and Intent and their EEO with the Equal Employment Coordinator of the prime Contractor for transmittal to the County, after award of the contract has been made.

END OF DOCUMENT 00 73 36

DOCUMENT 00 73 73

SUPPLEMENTARY CONDITIONS

**COUNTY OF SAN MATEO
EQUAL BENEFITS COMPLIANCE ORDINANCE NO. 4324, CHAPTER 2.84**

2.84.010 Definitions

For the purposes of this chapter:

(a) "Contract" means a legal agreement between the County and a Contractor for public works, consulting, or other services, or for purchase of supplies, material or equipment for which the consideration is in excess of \$5,000.

(b) "Contractor" means a party who enters into a Contract with the County.

(c) "Contract Awarding Authority" means the Board of Supervisors or the individual authorized by the Board of Supervisors to enter into Contracts on behalf of the County.

(d) "Domestic Partner" means any person who is registered as a domestic partner with the Secretary of State, State of California registry or the registry of the state in which the employee is a resident.

(e) "Employee Benefits" means the provision of any benefit other than pension and retirement benefits provided to spouses of employees or provided to an employee on account of the employee's having a spouse, including but not limited to bereavement leave; disability, life, and other types of insurance; family medical leave; health benefits; membership or membership discounts; moving expenses; vacation; travel benefits; and any other benefits given to employees, provided that it does not include benefits to the extent that the application of the requirements of this chapter to such benefits may be preempted by federal or state law. (Ord. 4324, 08/15/06)

2.84.020 Discrimination in the provision of benefits prohibited

(a) No Contractor on a County Contract shall discriminate in the provision of Employee Benefits between an employee with a domestic partner and an employee with a spouse, subject to the following conditions:

1. In the event that the Contractor's actual cost of providing a particular benefit for the domestic partner of an employee exceeds that of providing it for the spouse of an employee, or the Contractor's actual cost of providing a particular benefit to the spouse of an employee exceeds that of providing it for the domestic partner of an employee, the Contractor shall not be deemed to discriminate in the provision of Employee Benefits if the Contractor conditions providing such benefit upon the employee's agreement to pay the excess costs.

2. The Contractor shall not be deemed to discriminate in the provision of Employee Benefits if, despite taking reasonable measures to do so, the Contractor is unable to extend a particular employee benefit to domestic partners, so long as the Contractor provides the employee with a cash payment equal to the Contractor's cost of providing the benefit to an employee's spouse.

(b) The Board of Supervisors may waive the requirements of this Chapter when it determines that it is in the best interests of the County. The County Manager may waive the requirements of this chapter for Contracts not needing the approval of the Board of Supervisors where waiver would be in the best interests of the County for such reasons as follows:

1. Award of a Contract or amendment is necessary to respond to an emergency;
2. The Contractor is a sole source;
3. No compliant Contractors are capable of providing goods or services that respond to the County's requirements;
4. The requirements are inconsistent with a grant, subvention or agreement with a public agency;
5. The County is purchasing through a cooperative or joint purchasing agreement.

(c) Contractors should submit requests for waivers of the terms of this Chapter to the Contract Awarding Authority for that Contract, or in the case of Contracts approved by the Board, the County Manager.

(d) The Contract Awarding Authority, or in the case of Contracts approved by the Board, the County Manager, may reject an entity's bid or proposals, or terminate a Contract, if the Contract Awarding Authority determines that the entity was set up, or is being used, for the purpose of evading the intent of this Chapter.

(e) No Contract Awarding Authority shall execute a Contract with a Contractor unless such Contractor has agreed that the Contractor will not discriminate in the provision of Employee Benefits as provided for in this Chapter. (Ord. 4324, 08/15/06)

2.84.030 Application of Chapter

The requirements of this Chapter shall only apply to those portions of a Contractor's operations that occur (a) within the County; (b) on real property outside of the County if the property is owned by the County or if the County has a right to occupy the property, and if the Contractor's presence at that location is connected to a Contract with the County; and (c) elsewhere in the United States where work related to a County Contract is being performed. The requirements of this Chapter shall not apply to subcontracts or subcontractors of any contract or Contractor. (Ord. 4324, 08/15/06)

2.84.040 Powers and duties of the County Manager

The County Manager's office shall have the authority to:

(a) Adopt rules and regulations, in accordance with this Chapter and the Ordinance Code of the County of San Mateo, establishing standards and procedures for effectively carrying out this Chapter.

(b) Receive notification from employees of Contractors regarding violations of this Chapter.

(c) Determine and recommend to the Board of Supervisors for final decision the imposition of appropriate sanctions for violation of this Chapter by Contractors including, but not limited to:

1. Disqualification of the Contractor from bidding on or being awarded a County contract for a period of up to 5 years; and;
2. Contractual remedies, including, but not limited to termination of contract;
3. Liquidated damages in the amount of \$2,500;

(d) Examine Contractors' benefit programs covered by this chapter;

(e) Impose other appropriate contractual and civil remedies and sanctions for violations of this chapter;

(f) Allow for remedial action after a finding of non-compliance, as specified by rule;

(g) Perform such other duties as may be required or which are necessary to implement the purposes of this Chapter. (Ord. 4324, 08/15/06)

2.84.050 Date of Application

The provisions of this Chapter shall apply to any Contract awarded or amended on or after July 01, 2001, provided that if the Contractor is then signatory to a collective bargaining agreement, this Chapter shall only apply to any Contract with that Contractor which is awarded or amended after the effective date of the next collective bargaining agreement. (Ord. 4324, 08/15/06)

END OF DOCUMENT 00 72 73

SECTION 02 41 00

GENERAL DEMOLITION

PART 1. GENERAL

1.01 Related Documents

- A. The Drawings and general provisions of the Contract, including General and Special Conditions and Division 01 00 00, General Requirements, apply to the work specified in this section.
- B. Parts 1,2,3,4,5,6, Title 24 of the California Code of Regulations (California Building Code) is to be considered an integral part of this section.
- C. All California Prevailing Wage Laws apply to the work of this section.

1.02 Work Included

- A. The following is a general description of the work included in this section. This description does not limit the scope of work shown in the drawings nor does it relieve the Contractor of any responsibility for coordination of **ALL** work of this Contract.

Item	Description
General	<ul style="list-style-type: none">• General Demolition Requirements
Special Coordination	<ul style="list-style-type: none">• Refer to Related Sections for specific project requirements not included herein.

- B. Related work may be described in other sections of this Project Manual. All sections of this Project Manual are related. Contractor shall coordinate the work of this section will all other sections.

1.03 Submittals

- A. Provide the following submittals per the requirements of Division 01 00 00.

Item	Description
Catalog Cuts	<ul style="list-style-type: none">• n/a
Product Data	<ul style="list-style-type: none">• n/a
Samples	<ul style="list-style-type: none">• n/a
Shop Drawings	<ul style="list-style-type: none">• n/a
Schedule	<ul style="list-style-type: none">• Include Schedule entry on Gantt Chart for General Demolition

1.04 References/Standards

A. The following References and Standards are incorporated into the requirements of this Section as they apply to products, assembly, manufacturing procedures and installation. References shall be utilized in determining “Industry Standards” and other acceptable manufacture and installation methods but shall not relieve the Contractor of any other responsibilities of the Contract. Where conflicts occur between multiple listed references, the Contractor shall assume that the more restrictive standard applies and shall seek determination from the Architect regarding applicable standard.

References	• n/a
Standard	• n/a

1.05 Quality Assurance

A. Provide the following per Division 01 00 00

Item	Description
Supervision	<ul style="list-style-type: none"> • Full time supervision and observation by the Contractor of all on-site Construction Activities. • Ensure that all items to be retained in good condition and turned over to owner are properly protected.
Qualifications of Workers	<ul style="list-style-type: none"> • General Contractor shall ensure that all workers providing labor on this project are fully competent and experienced in the area of work being performed. General Contractor shall require subcontractors to remove any unqualified workers from the project.
Product Acceptance Substrate Acceptance	<ul style="list-style-type: none"> • n/a • General Contractor (Superintendent) shall verify all substrates / conditions prior to allowing installation of any item.

1.06 Quality Control by Contractor

A. The following specific procedures shall be required to demonstrate adequate levels of quality provided for project components and systems. Exclusion of any item from this list does not relieve the Contractor of any responsibilities for quality procedures covered elsewhere in the Contract Documents.

Item	Description
Supervision	• Per Division 01 00 00
Testing	• n/a
Special Inspections	• n/a
Mock Ups	• n/a

1.07 Quality Control by Owner

- A. The following specific procedures shall be required to demonstrate adequate levels of quality provided for project components and systems. Exclusion of any item from this list does not relieve the Contractor of any responsibilities for quality procedures covered elsewhere in the Contract.

Item	Description
Observation	• Per Division 01 00 00
Inspection	• n/a
Testing	• n/a
Special Inspections	• n/a

1.08 Closeout

- A. Provide the following Close Out materials in accordance with Division 01 00 00.

Item	Description
Product Manuals	• n/a
System Manuals	• n/a
Maint. Tools/Materials	• n/a
Surplus Materials	• n/a
Training	• n/a

1.09 Warranty

- A. Provide written warranty in accordance with Division 01 00 01.

Item	Description
Warranty Form	• Per Division 01 00 00
Warranty Period	• 1 year
Warranty Start	• Date of Substantial Completion

PART 2. PRODUCTS

Not Used

PART 3. EXECUTION

3.01 Demolition Section of Other Disciplines

- A. This section shall apply to all demolition work defined under any other section of this Specification. Conflicts between this section and other sections shall be resolved by the Architect with favor to the most restrictive stipulation.
- B. All trades shall review all documents to determine the extent to which their demolition work may require support work from other trades.
- C. The Contractor shall be responsible to ensure that all trade work required for demolition tasks is provided regardless of the inclusion of that trade in any Plans or Demolition Sections.
1. Contractor shall provide complete service including specified demolition work as well as collateral requirements for repair, closure, termination or

re-routing. No claims shall be made for incidental or peripheral demolition work associated with any specified work.

3.02 Transfer of Responsibility and Disposition of Materials

- A. Contractor shall consult with Owner prior to commencing any demolition and determine which existing items and equipment are of value to the Owner. These items shall be carefully removed to avoid damage and shall be delivered to the Owner as directed.
- B. Title to all remaining items, equipment and fixtures required to be removed, shall be vested in the Contractor whereupon the Owner will not be responsible for the condition, loss or damage to said property. All such items shall be removed from the Owner's property.

3.03 Supervision Requirements

- A. Provide continuous supervision of all demolition activities. All demolition work shall be done in conjunction with the Contract Documents and shall accommodate provisions of all aspects of the Documents.
- B. Conduct demolition to minimize interference with adjacent structures.
- C. Conduct operations with minimum interference to public or private accesses.
- D. Maintain egress and access at all times. Do not close or obstruct roadways without permits.
- E. Cease operations immediately if adjacent structures appear to be in danger. Notify Architect.

3.04 Site Safety During Demolition Operations

- A. Contractor shall provide fire watch for the site or facility during temporary shutdown of fire alarm or fire suppression systems.
- B. Contractor shall provide security services for the site or facility during temporary shutdown of the security systems.
- C. Contractor shall provide traffic control during disruption of normal traffic flow on site due to temporary alterations in site circulation system.
- D. Contractor shall provide pedestrian control during demolition operations to ensure pedestrians are protected from equipment and materials.
- E. Contractor shall provide vision shielding to prevent observation by the public of cutting and welding torches or any other source of bright light that may damage vision.
- F. Refer to Site Safety Section of this specification.

3.05 Demolition Scheduling

- A. Contractor acknowledges that Demolition Scheduling shall be coordinated with the Architect for the beneficial operation of the County of San Mateo's

Site. Contractor shall place no limitation on the extent of coordination of Demolition activities for this purpose.

- B. Contractor acknowledges that Demolition work may occur in multiple and repetitive tasks and may occur at different locations at different times, dependent on the needs of the Site to maintain access, operation, utilities, systems and safety.
 - 1. Demolition tasks may be restricted to certain work times based on any one of the following:
 - (a) Occupancy of adjacent areas by the city and the need to minimize disruption at particular times.
 - (b) Need to maintain operation of critical systems and utilities at particular times
 - 2. Demolition tasks may be restricted to certain work areas based on the nature and scope of the task and its potential affect on the users of adjacent occupied spaces.
- C. All Demolition Scheduling shall be reviewed with the Architect prior to commencing operations.
 - 1. Demolition of any items that could affect daily operations of the site shall be scheduled with the County of San Mateo to occur and be replaced with new construction during non-business hours.
 - 2. Demolition Operations may be limited to weekends and holidays.
- D. Contractor shall provide allowance for multiple demolition exercises as may be required to facilitate the County's schedule. Coordination of demolition scheduling with County of San Mateo's operational needs shall not be allowed as the basis of delay claims.

3.06 Notification of Demolition

- A. Provide notification of the commencement of any demolition task or phase 48 hours in advance.
- B. Do not commence demolition until the Architect has approved the task or phase and coordinated the schedule with the County.

3.07 Demolition Equipment

- A. Contractor shall provide all equipment and materials as may be necessary to perform the demolition work within the limitations of this section. No claims shall be made for special equipment or processes based on limitations of this section.
- B. Contractor shall provide equipment and tools of appropriate size, operation and function to accomplish demolition tasks within the restrictions described herein.

1. Provide equipment of appropriate size to ensure the protection of existing facilities, materials and systems.

3.08 Preparation

- A. Provide, erect, and maintain temporary barriers and security devices. Include chain link fence around each phase of construction
 1. Include protection of all existing trees.
- B. Mark all items to be removed.
- C. Provide layout as required to direct slab and wall removal. Identify slab and walls requiring precise cutting and demolition for future fitting of new construction.

3.09 Dust Control

- A. All demolition activities shall include adequate measures for dust control. Contractor shall provide any and all means necessary to prevent the circulation of dust into adjacent buildings and site areas.
- B. Contractor shall provide the following as needed or at the request of the Architect:
 1. Watering shall occur over transit areas including equipment routes, equipment loads and parking areas.
 2. Opening protection at all areas that may include plastic barriers, fans and other means to prevent dust from spreading throughout building.
 3. Dust removal: Sweep or wash down of adjacent site and building areas that will be used by the public.
- C. Use all means necessary to prevent the spread of dust during performance of the work of this Section; provide dust curtains of fireproof polyethylene where indicated and where applicable, moisten surfaces as required.
- D. Provide sealed membranes with zipper operated doors over corridors and passageways separating the work zone from occupied spaces. Provide sealed membranes over windows and ventilation openings.
 1. Membranes shall not limit operability of windows and ventilation systems in areas occupied by the public.
 2. In no case shall barriers obstruct required exit routes.

3.10 Demolition

- A. Demolish and remove components in an orderly and careful manner, in sequence as indicated on Drawings or as determined by consultation with Architect.
- B. Coordinate all structural shoring and demolition to insure that no settling, deflection or other failure occurs as a result of removal or modification of

existing elements.

- C. Protect existing supporting structural members.
- D. Clearly direct demolition work so that items to remain are protected.
- E. Disconnect, cap and identify designated utilities.
 - 1. Cap utilities at appropriate locations for future service, reconnection.
 - 2. Architect may require removal of piping and raceway beyond specific work areas in order to achieve appropriate location for utility termination.
- F. Execute demolition work to ensure safety of persons and adjacent property against damage by falling debris or other causes in connection of this work.

3.11 Termination of Utilities

- A. All demolition of utility piping, wiring or ductwork shall include functional termination of piping, wiring and ductwork to remain such that:
 - 1. Operation of remaining systems is not affected or disrupted.
 - 2. Terminations can be accessed for reconnection or re-routing either as part of this work or as specified in other projects.
- B. Demolition of site and building utilities shall provide for termination and investigation regarding the operation of remaining components in adjacent buildings. Contractor shall explicitly ensure that removal of any component specified herein does not prevent remaining components from operating in occupied spaces.

3.12 Re-Installation / Reconstruction

- A. Demolition work may require the temporary removal of material, assemblies and equipment that is intended to remain. Demolition work shall require the re-installation of such items to their original condition
 - 1. Reinstallation may affect utility systems and components, electrical systems, communications and data systems and alarm systems.
 - 2. All critical systems shall be maintained in working order for the remainder of the site. No demolition work shall be allowed that will disable and system beyond the extent of a temporary shutdown.
 - 3. Contractor is responsible for returning any system to operation for adjacent areas where work of this contract has interrupted that operation.

3.13 Repair and Replacement of Damaged Assemblies, Utilities Systems

- A. Promptly repair damages caused to adjacent facilities by demolition operations, as directed by the Architect and at no cost to the County.
- B. Contractor is responsible for repair, replacement of any system or component damaged by demolition work.

3.14 Surface Restoration of Materials to Remain

- A. Where surfaces are to remain unfinished, as indicated on the drawings, Contractor shall restore such surfaces to be free of paint, plaster, fasteners, and holes.
 - 1. Contractor shall power-wash and/or sand/bead-blast all masonry and concrete surfaces indicated as to remain unfinished.
 - 2. Contractor shall extract all fasteners, including powder-driven fasteners, expansion anchors, and lead anchors, and patch resulting holes to match adjacent surface. Alternatively
- B. Surfaces receiving new finishes shall be prepared per Specifications and manufacturer's instructions for the specified finishes.

3.15 Disposal of Debris

- A. Remove from the site and legally dispose of all debris resulting from demolition operations.
- B. Provide certification that all materials have been disposed of at appropriate facilities via appropriate methods.
 - 1. Provide dump receipts describing yardage and material content.
 - 2. Provide certification for all hazardous materials.

3.16 Recycling

- A. Prepare a recycling plan describing the types and estimated quantities of materials to be removed that can be recycled.
- B. Dispose of all recyclable materials at appropriate disposal facilities as required by local regulatory agencies.
- C. Provide receipts from all facilities at which material was deposited for recycling purposes.

3.17 Cleaning

- A. Remove demolished materials from site as work progresses.
 - 1. Provide debris box or trucking as appropriate to task.
 - 2. Remove debris boxes upon filling to capacity.
 - 3. Remove partially filled boxes within one week of delivery.
 - 4. Prevent access to debris boxes by the public.
- B. Leave areas of work in clean condition.
 - 1. Provide sweeping, vacuuming, mopping and other janitorial services as required.

END OF SECTION 02 41 00

SECTION 03 10 00

FORMWORK

PART 1. GENERAL

1.01 Provisions

- A. All of the provisions of the General Conditions, Supplementary General Conditions and Special Conditions, Division 1 General Requirements, and any applicable provisions elsewhere in the Contract documents shall apply to work of this Section as fully as if repeated here.

1.02 Description

- A. Furnish and install all cast in place concrete formwork as shown and specified, including the following:
 - 1. Design of the formwork, shoring and falsework.
 - 2. Placement of all cast-in anchors, inserts, bolts, sleeves and similar items, including those furnished under other sections.
- B. Related work described elsewhere:
 - 1. See other sections of Division 3.

1.03 Quality assurance

- A. Comply with the following codes and standards by the California Building Standards Commission and American Concrete Institute (ACI):
 - 1. 2019 California Building Code (CBC).
 - 2. ACI 347, "Recommended Practice for Concrete Formwork".
 - 3. Applicable jurisdictional agency.

Where provisions of pertinent codes and standards conflict with this Specification, the more stringent will apply.

- B. Design and provide engineering services as required, for all formwork and related items such as bracing and blocking, required for the concrete work to be placed on the Project. Design shall be in accordance with the requirements of ACI 347, the requirements of these Contract Documents, and the applicable Building jurisdiction agency.

1.04 Sequencing/scheduling

- A. Coordinate installation of forms with other Sections, including but not limited to, Mechanical (Division 15), and Electrical (Division 16), to provide all required sleeves, blockouts, openings, reglets, chases, etc., required.

PART 2. PRODUCTS

2.01 Materials

- A. Forms: ACI 347, Table 4.1.
- B. Miscellaneous Materials
 - 1. Ties and spreaders: Factory fabricated, adjustable length, removable or snap-off metal ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal of forms. MeadowBurke, of a type which does not leave an open hole through the concrete and which permits neat, solid patching at every hole. Any metal shall be a minimum of 1-1/2 inches from the outer concrete surface. Site fabricated ties, wire ties, or wood spreaders are not permitted.
 - 2. Corner forms, recess and chamfer strips: Extruded polyvinyl chloride specially produced for concrete formwork; MeadowBurke, Dayton Superior or approved equal.
 - 3. Form coating and/or form release: VOC compliant, of a type which will not harmfully affect the appearance and/or utility of the concrete surface or the application of sealers, paint, vinyl fabric, or any other finishes; BASF MBT Rheofinish 211, Conspec By Dayton Superior, or approved equal.

PART 3. EXECUTION

3.01 Design & general construction

- A. Design and construct all forms, falsework, supports, etc. to be adequate in size and strength for safety, and to resist all loads imposed upon them without deformation, deflection, or settlement.
- B. Design and place shoring so the load from successive parts of the structure will be transmitted directly through the falsework to adequate support, without creating bending or shearing stresses in the concrete. Do not remove shores until supported members have attained sufficient strength to carry the imposed loads. Construct forms to permit their removal without disturbing the original shoring. Re shoring will not be permitted.
- C. Use wedges in pairs, or jacks to bring forms, shoring, or falsework for beams, girders, slabs and other parts of the structure to exact elevations, required camber and uniform bearing before pouring concrete.
- D. Construct formwork to the shape, lines and dimensions of the concrete members and tight enough to prevent cement paste leakage. Tie, brace shore, and support forms to resist pressure from any source. Deflection of any member shall not exceed one eighth inch (1/8 inch). Provide camber in formwork as required for anticipated deflections due to weight and pressures of fresh concrete and construction loads. Where possible, brace forms for exposed concrete without using form ties.

- E. Arrange formwork to allow erection in the proper sequence and permit removal without hammering, prying or damaging the concrete. Identify exposed surfaces so that plywood panel and form tie spacing can be carefully arranged.
- F. Leave temporary openings necessary for inspection and cleaning before depositing concrete.
- G. Form release agent:
 - 1. Thoroughly clean forms and coat with release agent prior to initial use and before each re-use.
 - 2. Apply release agent in strict accordance with manufacturer's directions and coverage recommendations.
 - 3. Avoid starved areas or excessive applications.
 - 4. Apply release agent before reinforcing steel is placed.

3.02 Installation

- A. Openings, reglets, inserts, etc.:
 - 1. Refer to the entire set of project drawings for locations, sizes, and types of all openings, reglets, inserts, anchors, sleeves, cans, electric boxes, conduit, etc.
 - 2. Frame for all openings.
 - 3. Install all cast-in items such as listed in 1 above which are not specifically required to be installed in other sections. Coordinate the installation of items to be installed by other sections.
 - 4. Install all cast-in items securely and in exact locations required. Verify that all required cast in items have been installed prior to pouring concrete.
- B. Set screeds for leveling of finish on slabs. Depress slabs where required to receive special floor finishes. Slope slabs to drain where required, or as shown. Check screed elevations frequently during the pour, for concrete elevations.
- C. Install 3/4-inch chamfer at all vertical and horizontal outside corners, unless shown otherwise.
- D. Before depositing concrete, remove all debris from the space to be occupied by the concrete and wet thoroughly. Verify that all reinforcement and inserts are secured in position. Remove all free-standing water. Do not leave wood in concrete, except nailers.
- E. During concrete placement, check formwork and related supports to ensure that forms are not displaced and that completed work will be within tolerances specified in ACI 347.

3.03 Removal & reuse of form

- A. Remove forms without damage to the concrete, only after concrete has hardened sufficiently to permit their removal with safety, and the members have attained sufficient strength to safely support the imposed loads. The minimum time before removing forms shall be:

Walls, columns, sides of beams and girders	24 hours*
Horizontal forms and joists, beams and girders (Spans 20 ft. and less)	14 days
Horizontal forms and joists, beams and girders (Spans greater than 20 ft.)	21 days
Slabs (Spans 20 ft. and less)	7 days
Slabs (Spans greater than 20 ft.)	10 days

*If forms also support formwork for other members, removal time for the latter will govern.

- B. Forms may be stripped in less than the specified days, provided all of the following are met:
1. Tests indicate an adequate strength as designated by the Structural Engineer at an earlier time,
 2. The Structural Engineer approves the time of stripping, and
 3. Immediately after stripping the concrete is sprayed with a clear sealer.
- C. Form material may be re-used providing it is straight, free from nails, hardened concrete, or other injurious matter, and has edges and surfaces in good condition.
- D. Clean and re oil or apply form release to wood forms after each reuse.
- E. Upon removal of forms, bolts, wires, clamps, rods, etc., not necessary to the work, shall be removed to minimum of 1-1/2 inches from the surface.
- F. Forms for exposed concrete surfaces shall be removed in such manner as to preclude damage to finish. Pinch bars and similar tools shall not be used for prying against exposed surfaces.

END OF SECTION 03 10 00

SECTION 03 20 00

REINFORCING STEEL

PART 1. GENERAL

1.01 Provisions

- A. All of the provisions of the General Conditions, Supplementary General Conditions and Special Conditions, Division 1 General Requirements, and any applicable provisions elsewhere in the Contract documents shall apply to work of this Section as fully as if repeated here.

1.02 Description

- A. Furnish and install all steel reinforcement and related items required for concrete work as shown and specified.
- B. All concrete shall be reinforced unless specifically marked "not reinforced" on the drawings. If no reinforcement is shown, reinforce in the same manner shown in similar places. Unless otherwise noted, all reinforcement shall be deformed.

1.03 Quality assurance

- A. Comply with the following codes and standards by the California Building Standards Commission, American Concrete Institute (ACI), Concrete Reinforcing Steel Institute (CRSI) and American Welding Society (AWS):
 - 1. 2019 California Building Code (CBC).
 - 2. ACI 117 "Standard Specification for Tolerances for Concrete Construction and Materials".
 - 3. ACI 301 "Specifications for Structural Concrete for Buildings".
 - 4. ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures".
 - 5. ACI 318 "Building Code Requirements for Structural Concrete".
 - 6. CRSI 63 "Recommended Practice for Placing Reinforcing Bars".
 - 7. CRSI 65 "Recommended Practice for Placing Bar Supports, Specifications and Nomenclature".
 - 8. CRSI "Manual of Standard Practice".
 - 9. AWS B2.1 "Welding Procedure and Performance Qualification".
 - 10. AWS D1.4 "Structural Welding Code-Reinforcing Steel".

Where provisions of pertinent codes and standards conflict with this Specification, the more stringent will apply.

- B. Comply with the referenced ASTM standards for materials.
- C. Qualifications for Welding Work:
 - 1. Qualify welding processes and welding operators in accordance with AWS B2.1.
 - 2. Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests and possess a current card.
 - 3. If re-certification of welders is required, re-testing will be Contractor's responsibility.
- D. Testing and Inspection:
 - 1. All material shall bear mill tags showing quantity, grade and heat number identification, mill analysis and test reports.
 - 2. Reinforcement placement shall be checked and inspected by the Project Inspector prior to placement of concrete.
 - 3. Perform tensile tests and bend tests per CBC Section 1910A.2.
 - 4. Reinforcement placement shall be checked and inspected by the Project Inspector prior to placement of concrete. See ACI 318 Section 26.13.3.3(a).

1.04 Delivery, storage and handling

- A. Deliver reinforcement to project site in bundles marked with metal tags indicating bar size, length and heat number.
- B. Store reinforcement off the ground on platforms, skids, or other supports.
- C. Store reinforcement in a manner that will avoid excessive rusting and coating with grease, oil, and other deleterious materials.
- D. Store reinforcement in separate piles or racks to avoid loss of identification after bundles are broken.

1.05 Submittals

- A. Submit shop drawings showing sizes, grades, schedules, splicing, bending and placing details of reinforcement necessary for complete and accurate location of reinforcement.
- B. Details of reinforcement not covered shall be in accordance with ACI 318 and ACI 315.
- C. Detailing, fabricating, and spacing of reinforcement shall be equal or superior to ACI 315, unless otherwise indicated.
- D. If welding reinforcing bars are indicated on the Drawings, or specified herein, submit the reinforcing bar manufacturer's Certificate of Weldability for each type of reinforcing steel.

- E. Contractor shall check all Drawings for anchor bolt sizes and locations, anchors, inserts, conduits, sleeves, and other items, which are required to be cast in concrete.
 - 1. Make necessary provisions as required so that reinforcing steel will not interfere with placement of such embedded items.
- F. Reinforcing steel shall not be fabricated or placed before Shop Drawings have been approved and returned to Contractor.
- G. Review of shop drawings will not relieve Contractor of responsibility for errors or for failure in accuracy and complete placing of the work.

PART 2. PRODUCTS

2.01 Materials

- A. General:
 - 1. All reinforcement material: new and free from scale, rust, or coatings, which will reduce bond to concrete.
 - 2. Unless otherwise noted, use only deformed reinforcement.
- B. Reinforcing steel: Deformed billet steel bars, ASTM A615, Grade 60, except stirrups and ties #3 or smaller may be Grade 40. ASTM A706 for reinforcement to be welded.
- C. Tie wire: 16 gauge or heavier, black annealed steel wire.
- D. Welded wire fabric: ASTM A185.
- E. Accessories:
 - 1. Chairs, spacers, ties, and other devices: as necessary for proper placement and to adequately support the reinforcing in conformance. Supports shall be steel or precast blocks designed and fabricated in accordance with CRSI standards.
 - 2. Devices such as chairs which will later be exposed: galvanized or otherwise corrosive resistant.

2.02 Fabrication

- A. Fabricate all reinforcement in strict accordance with the approved shop drawings. Do not use bars with kinks or bends not shown on the drawings or on the approved shop drawings.
- B. Reinforcing steel shall be cut and bent cold to exact lengths and shapes to comply with Drawings, reviewed shop drawings, and referenced codes and standards.
 - 1. Contractor is responsible to assure that reinforcement will comply with Drawings, reviewed shop drawings, and referenced codes and standards.

- C. Do not bend or straighten the reinforcing steel in a manner that will damage the material.

PART 3. EXECUTION

3.01 Preparation

- A. Prior to installation, carefully inspect the installed work of all other trades and verify that all such work is complete and to the point where this installation may properly commence. Verify that concrete reinforcement may be installed in strict accordance with all referenced standards, the approved shop drawings, and the drawings.
- B. In the event of discrepancy, immediately notify the Architect. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
- C. Before placing new reinforcing, clean all dirt, hardened concrete, loose rust, and all other materials which will hinder bond from existing reinforcing extending into the new work.

3.02 Installation

- A. Prior to placing reinforcing, verify that required formwork is properly and securely installed.
- B. Comply with the referenced standards. Place bars as shown, properly secured and supported, in the correct position and so as to prevent movement during concrete pouring. Support bars so that they will not displace when walked upon.
 - 1. Maintain reinforcement at proper distance from form face.
 - 2. Displacement of reinforcement shall be immediately corrected.
 - 3. Tie wires shall be bent away from form.
- C. Provide clearances, laps, and splices as shown, and as required in the referenced standards if not shown.
- D. Do not bend or straighten the reinforcing steel in a manner that will damage the material.
- E. When there has been a delay in placing concrete, reinforcement shall be inspected and, if necessary, cleaned, relocated, and tied at no additional cost to the Owner.
- F. Wherever reinforcing bars are moved more than one bar diameter to avoid interference with other reinforcement, conduits, piping, inserts, sleeves, etc., obtain Structural Engineer's approval for method of procedure before concrete is placed.
- G. Splices not shown on the Drawings shall be approved by Structural Engineer in writing.

- H. Unless permitted in writing by Structural Engineer or these specifications herein, reinforcement shall not be bent after being partially embedded in hardened concrete.
- I. Dowels shall be tied securely in place before concrete is deposited.
 - 1. In event there are no bars in position to which dowels may be tied, No. 3 bars (minimum) shall be added to provide proper support and anchorage.
 - 2. Bending of dowels larger than #5 after placement of concrete will not be permitted, unless otherwise indicated on Drawings.
- J. Lay welded-wire fabric flat in place. Lap splices shall be made in such a way that the overlapped area equals the distance between outermost crosswires plus two inches. Stagger laps to avoid continuous laps in either direction. Comply with ACI 318 Section 25.5.3 and 25.5.4.
- K. In the event of a discrepancy, immediately notify the Structural Engineer. Do not proceed until all such discrepancies are fully resolved.

END OF SECTION 03 20 00

SECTION 03 30 00

CAST IN PLACE CONCRETE

PART 1. GENERAL

1.01 Provisions

- A. All of the provisions of the General Conditions, Supplementary General Conditions and Special Conditions, Division 1 General Requirements, and any applicable provisions elsewhere in the Contract documents shall apply to work of this Section as fully as if repeated here.

1.02 Description

- A. Furnish and install all cast-in-place concrete and related work as shown and specified.

1.03 Related Work

- A. Concrete Formwork: Section 03 10 00.
- B. Reinforcing Steel: Section 03 20 00.
- C. Concrete Drilled Piers: Section 31 63 29.

1.04 Quality Assurance

- A. Except where different requirements are specified, comply with the following codes and standards by the California Building Standards Commission, American Concrete Institute (ACI), and American Welding Society (AWS):
 1. 2019 California Building Code (CBC).
 2. ACI 117 "Standard Specifications for Tolerances for Concrete Construction and Materials".
 3. ACI 211.1 "Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete".
 4. ACI 214R "Evaluation of Strength Test Results of Concrete".
 5. ACI 301 "Specifications for Structural Concrete".
 6. ACI 304R "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete".
 7. ACI 304.2R "Placing Concrete by Pumping Methods".
 8. ACI 305R "Hot Weather Concreting".
 9. ACI 306R "Cold Weather Concreting".
 10. ACI 308.1 "Standard Specification for Curing Concrete".
 11. ACI 318 "Building Code Requirements for Structural Concrete".
 12. AWS D1.4 "Structural Welding Code- Reinforcing Steel"

Where provisions of pertinent codes and standards conflict with this Specification, the more stringent will apply.

- B. Comply with the referenced ASTM standards for materials and testing.
- C. Coordination: The Contractor shall be responsible for installation of all accessories embedded in concrete and for provision of holes, etc., necessary for execution of the work of other trades.
- D. Testing and Inspection:
 - 1. Testing laboratory will be hired and paid for by Owner to:
 - (a) Review all concrete mixes.
 - (b) Test all concrete ingredients.
 - (c) Test all cylinders.
 - (d) Perform inspection services to meet code requirements for special inspection.
 - (e) Review certificates of compliance, and samples of materials proposed for use.
 - (f) Take samples as required from sources designated by Contractor.
 - 2. Contractor shall:
 - (a) Deliver all cylinders to laboratory carefully and at the proper time.
 - (b) Use weighmaster at batching plant.
 - (c) Hire and pay for testing agency to:
 - (i) Test extra cylinders for Contractor's use.
 - (ii) Retest when concrete does not meet specifications.
 - (d) Assist testing laboratory in making all cylinders and slump tests.
 - 3. Provide the testing laboratory free access to all places where concrete materials are stored, proportioned or mixed. All materials, equipment and methods used shall be subject to its inspection, test and approval.
 - 4. The following tests will be taken. Provide all materials to be tested.
 - (a) Cement will be tested at place of manufacturer if:
 - (i) Certification from cement manufacturer that the cement proposed for use on the project has been manufactured and tested in compliance with the requirements of specification is not available;
OR
 - (ii) Affidavit is not provided by the concrete supplier that identifies the cementitious material used for the project by the manufacturer's lot number, date of shipment from the manufacturer, date of receipt of

cementitious material.

- (b) Aggregate. See 1.5 below for submittal requirements.
 - (i) Sieve Analysis: In accordance with "Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregate", ASTM C-136.
 - (ii) Organic Impurities Test: In accordance with "Standard method of Test for Organic Impurities and Sands for Concrete", ASTM C-40-84.
 - (iii) Fineness Test: In accordance with "Standard Method of Test for Amount of Material Finer No. 200 Sieve in Aggregate", ASTM C-117.
- (c) Compressive Test Cylinders: Comply with CBC Section 1905A.1.16. Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, or not less than once for each 50 cubic yards of concrete, or not less than once for each 2,000 square feet of surface area for slabs or walls. Additional samples for seven-day compressive strength tests shall be taken for each class of concrete at the beginning of the concrete work or wherever the mix or aggregate is changed.
- (d) Slump tests: Take slump tests of concrete in accordance with "Tentative Methods of Test for Consistency of Portland Cement Concrete for Pavements or for Pavement Base", ASTM C 143, taken when cylinders are made and at any other time at testing laboratory's discretion.
- E. Record of Work: A record shall be kept by the Contractor listing the time and date of placement of all concrete for the structure. Such record shall be kept until the completion of the Project and shall be available to the Architect for examination at any time.

1.05 Submittals

- A. Submit list of all products to be used.
- B. Transit-mix delivery slips:
 - 1. Keep record at the job site showing time and place of each pour of concrete, together with transit-mix delivery slips certifying contents of the pour.
 - 2. Make the record available to the Architect for his inspection upon request.
 - 3. Upon completion of this portion of the work, deliver the record and the delivery slips to the Architect.
- C. Submit Materials for testing as follows:
 - 1. Aggregates: Submit to the testing laboratory at least 15 days before

concrete is required a fifty pound (50 #) sample of fine aggregate and a one hundred pound (100 #) sample of each size of coarse aggregate proposed for use. Select these samples to fairly represent the average quality and grading of the aggregate in question. When aggregates have been approved as acceptable for use, make no change without written permission of the Architect. Maintain stocks of accepted aggregates so that no pour need be interrupted.

2. Cement: Submit mill tests.
- D. Prepare on-site samples as specified below.
- E. Testing Laboratory will submit design mixes as evidence that the design requirements have been met, but not for formal review and approval.
- F. Submit temperature and placement records.
- G. Submit design mixes. Prior to pouring any concrete, the Contractor shall submit all concrete mixes to the Architect for approval. Separate mix designs shall be submitted for each type of concrete to be used in the Project. Submittals shall include all information used in designing the mixes. See 2.2 for design procedures.
- H. Test Reports: Testing Laboratory will submit reports on tests and inspections performed to Owner, Architect, Contractor, and organization being tested and inspected.
- I. Test Reports: "Special Inspection" reports of concrete compression, yield, air content, shrinkage, and slump test by Testing Laboratory.
- J. Certificates:
 1. Certification that materials meet requirements specified.
 2. Certification from vendors that samples originate from and are representative of each lot proposed for use.

1.06 Sequencing/Scheduling

- A. Schedule and coordinate with suppliers and other trades so that the embedment of items in concrete does not delay the project.
- B. Take all precautions to maintain alignment and prevent damage of such items during placement of concrete.
- C. Cutting and/or patching made necessary by failure or delay in complying with these requirements shall be at no cost to Owner.

1.07 Delivery, Storage, And Handling

- A. Hauling time: Discharge all concrete transmitted in a truck mixer, agitator, or other transportation device within 1-1/2 hours after the mixing water has been added.

- B. Extra Water: Deliver concrete to the job in exact quantities required by the design mix. Should extra water be required before depositing the concrete, the Contractor's Superintendent shall have sole authority to authorize the addition of water. Any additional water added to the mix after leaving the batch plant shall be indicated on the truck ticket and signed by the person responsible. Where extra water is added to the concrete, it shall be mixed thoroughly for forty revolutions of the drum or 3-1/2 minutes at mixing speed, whichever is greater. Samples for control tests shall be taken after additional water has been thoroughly mixed.
- C. Pre-wet lightweight aggregate and keep stockpiled after wetting for at least 12 hours before using.

PART 2. PRODUCTS

2.01 Materials

- A. General: Use ready-mix concrete conforming to ASTM C94 and ACI 318 Section 26.4.2 - 26.4.4. No on-job mixed concrete will be allowed.
- B. Cement: ASTM C150, Type II. Temperature delivered at plant not to exceed 150 degrees F. Use only one manufacturer for all cement unless approved by Architect.
- C. Pozzolan (Fly Ash): ASTM C618 Class F or N. Unless noted otherwise on Drawings, amount, measured by weight, shall not exceed 25% of the total cementitious content. Fly ash is not permitted in mixes receiving integral color additives.
- D. Aggregates:
 - 1. Fine aggregate: ASTM C33, natural, washed, clean sand. Use same sand for all concrete. Comply with gradation limits specified in standard.
 - 2. Coarse aggregate: ASTM C33. Footing concrete may use standard local aggregate. All other aggregate: Limestone or granite. Comply with the following:
 - (a) Use only hard, durable material from established sources with proven history of successful use in producing concrete with minimum shrinkage, free from harmful amount of clay, shale, or other deleterious substances in amounts greater than those permitted in ASTM C33.
 - (b) Use aggregate containing no thin or elongated pieces. Any piece having a major dimension more than 2 1/2 times the average thickness shall be considered thin or elongated.
 - (c) Comply with gradation limits specified in ASTM C33.
- E. Air-entraining Admixture: Conform to ASTM C260.
- F. Water Reducing Admixture: Conform to ASTM C494, Types A or D. High range water reducing admixtures types F & G shall not be used unless

approved in writing by the Structural Engineer.

- G. Accelerating Admixture: Conform to ASTM C494, Types C or E, except that calcium chloride or admixtures containing calcium chloride shall not be used.
- H. Water: Clean, potable, and free of deleterious substances.
- I. Miscellaneous Materials:
 - 1. Curing and sealing compound: ASTM C309, Type 1, Class B clear, dissipating, non-yellowing, resin based. W.R. Meadows 1000 series, BASF Kure-N-Seal WB, or approved equal.
 - 2. Grout: Non shrink to comply with Corps of Engineers Specification CRD C621 and ASTM C1107. BASF Embecco 885, Burke by Edoco NF NS Grout, or approved equal.
 - 3. Bonding Agent: Larsen Products Weldcrete, W.R. Meadows Intralok, or approved equal.
 - 4. Expansion Joint filler: Resilient and non-extruding type, pre- molded bituminous impregnated fiberboard units complying with ASTM D1751.
 - 5. Waterstops: Rubber type complying with Corps of Engineers Specification CRD – C513 or polyvinyl chloride (PVC) complying with Corps of Engineers Specification CRD – C572.
 - 6. Joint Sealer: ASTM D6690, hot poured type.
 - 7. Vapor Barrier: Polyethylene sheets not less than 10 mils thickness and are resistant to decay when tested in accordance with ASTM E154.
 - 8. Epoxy grout: Master Builder Concrecive Standard Liquid LPL.

2.02 Design & Mixes

- A. The quantity of cement and admixture required per cubic yard of concrete is given for estimating purpose only. The contractor shall base his bid on these quantities. The Owner reserves the right to vary the cement content upward or downward, and the contract price shall be adjusted if necessary based on the market price of bulk cement delivered to the batching plant.
- B. The exact amount of cement, fine and coarse aggregate, and water to be used shall be determined by the design mix. The actual slump used shall not exceed amounts listed in the table. These proportions shall produce concrete of maximum density, minimum shrinkage and required minimum strength. The concrete shall work readily into the corners and angles of the forms and reinforcement without excessive puddling, spading or vibration and without permitting the materials to segregate or free water to collect on the surface. The amount of water used shall be the minimum consistent with the requirements. In general, the workability shall be improved by adjusting the grading rather than by adding water.

C. A sample load of each of the specified mixes may be poured in the foundation at the earliest possible date to check workability of the concrete. Test cylinders shall be prepared and tested as specified to verify compliance of the concrete with the specifications. All concrete shall develop the specified minimum strength. Adjustments will be made if test results warrant changes.

D. Basis for mix designs shall be as follows:

Class	Max. Size Aggregate	28 Day Comp strength fc	Cement Sks/Yd/Min.	Maximum Slump
A	1 in.	5,000	6.60	4-1/2 in.
B	3/4 in.	5,000	7.10	4-1/2 in.

*Slump may be increased to 5 in. only if necessary in areas of congested bars.

Note: Listed quantity of cement per yard of concrete is for cost estimation purposes only.

E. Use the various classes of concrete mixes for the following locations:

1. Class A: All footings (at Contractor's option, Class B may be used).
2. Class B: All concrete not otherwise specified.

F. Class B concrete shall include 4% (plus or minus 1%) entrained air.

G. Measure fine and coarse aggregates separately. The method of measuring aggregates shall be subject to the approval of the testing laboratory and shall be such that all ingredients can be uniformly and accurately controlled and easily checked.

H. The batching plant shall be equipped with an electric metering device capable of determining moisture content of sand. This device shall be subject to the approval of the testing laboratory.

I. No admixtures will be allowed, except as specified herein, unless authorized by the Structural Engineer. All requests for approval or substitution must be made by the Contractor and be accompanied by sufficient information and test data for evaluation. No calcium chloride shall be added to concrete. Dosage shall be per manufacturer's recommendation.

PART 3. EXECUTION

3.01 Preparation

A. Examine units of work to be placed and verify that:

1. Construction of formwork is complete.
2. Required reinforcement, inserts, and embedded items are in place.
3. Form ties at construction joints are tight.
4. Areas to receive concrete are free of debris and excess water.

B. Thoroughly clean the areas to ensure proper placement and bonding of

concrete.

- C. Thoroughly clean all transporting and handling equipment.
- D. Notify Architect and Project Representative at least 48 hours before concrete will be placed.
- E. Ensure availability of sufficient labor personnel, equipment, and materials to place concrete correctly in accordance with schedule. Adequate scaffolding, ramps, and walkways shall be provided so that personnel and equipment are not supported by in- place reinforcement.
- F. Protect finished surfaces adjacent to areas to receive concrete.

3.02 Mixing

- A. In general, provide ready mixed concrete in compliance with the referenced ACI standards and ASTM C94, as modified herein.
- B. Mix all concrete mixed in transit mixer for a period of not less than 10 minutes at a peripheral drum speed of 200 ft. per minute. At least 3 minutes of the mixing period shall be at the job site.
- C. Start the discharge of concrete not more than 45 minutes after the introduction of mixing water. Complete placing of concrete within 90 minutes of the first introduction of water into the mix.
- D. Do not add water to the mix after leaving the plant without the specific approval of the Project Representative or Architect. Upon his approval, water may be added as long as slump does not exceed that specified and the designed water/cement ratio is not exceeded.
- E. Do not use lightweight concrete for which the fresh bulk density varies by more than four pounds per cubic foot from the required fresh bulk density.

3.03 Temperature Controls

- A. In general, comply with the following temperature limitations:
 - 1. Maximum temperature of concrete at time of placement: 85 degrees F.
 - 2. Minimum temperature of concrete at time of placement: 50 degrees F.
- B. Should the ambient temperature at time of concrete placement exceed 85 degrees F, or should it be expected to rise above this temperature for the 3 days following placement, submit a program for hot weather concreting as recommended in ACI 305R. Do not place concrete under these conditions unless such a program has been approved by the Structural Engineer. Do not add cement to the mix at a temperature higher than 150 degrees F. The program may include such treatment as follows:
 - 1. Cooling aggregates.
 - 2. Using cold water or crushed ice for mixing.

3. Limiting mixing speed.
 4. Special admixtures or curing procedures.
 5. Protecting or cooling reinforcement.
- C. Should the ambient temperature at time of concrete placement be below 50 degrees F or should it be expected to drop below this temperature for the 3 days following placement, submit a program for cold weather concreting as recommended in ACI 306R. Do not place concrete under these conditions unless such a program has been approved by the Structural Engineer. Do not permit concrete to freeze for 7 days following placement. The program may include such treatment as follows:
1. Heating aggregates.
 2. Heating water.
 3. Heating forms.
 4. Enclosing area of pour.
 5. Special admixtures or curing procedures.
- D. Keep accurate and detailed records of concrete pour locations, temperatures of air and concrete, and curing methods. Turn records over to Architect at completion of work.
- E. Cure some test cylinders under conditions same as the placed concrete is if so requested by Architect or testing laboratory.

3.04 Placing General

- A. Keep a record of the time and date of placing all concrete in each portion of the project. Make this record open to the inspection of the Architect at any time.
- B. Carry on concrete placing, once started, as a continuous operation until the section of approved reinforcement, size and shape is completed. Use pour cut offs of approved details and locations.
- C. Handle concrete as rapidly as practical from the mixer or transporting unit to the place of final deposit by methods which prevent segregation or loss of ingredients. Deposit it as nearly as practical, in its final position to avoid re-handling or flowing. Do not drop concrete freely where reinforcing bars will cause segregation, no more than five (5) feet. Deposit concrete to maintain a plastic surface approximately horizontal. Do not deposit concrete that has partially hardened.
- D. In pouring columns, use openings in the forms, elephant trunks, or other approved devices which will permit the concrete to be placed without segregation and the accumulation of hardening concrete.
- E. Install such devices so the concrete will be dropped vertically. Provide pour

holes in the forms to the extent necessary to insure filling or to allow necessary inspection.

- F. Consolidate all concrete thoroughly using approved mechanical vibrators.
 - 1. Use Mechanical vibrators, having a minimum frequency of 10,000 rpms, at each point of dump, and keep a stand by vibrator in good working condition, but not in use, on the job until all concrete is placed. Vibrators shall not be used to move concrete laterally.
 - 2. Internal vibration must be direct action in the concrete and not against forms or reinforcement. Vibrate each pour until the water shows indications of rising, but not until the water has risen.
 - 3. Along the faces of the forms, use suitable tools during the pour to force large particles away from the forms and bring mortar to the surface of the forms. In addition, when approved by the Structural Engineer, external form vibration may be used. Take all appropriate means to provide fully filled out, smooth, clean and properly aligned surfaces free from pockets and blemishes.
 - 4. Tamp slabs with a jitterbug to depress the rock and push float with a fill float as necessary. Take care at all times that the wet slab meets the screeds accurately and does not rise above or fall below them.
 - 5. Do not vibrate lightweight concrete to the extent that large particles of aggregate float to the surface.
- G. In general, place concrete only against firm surfaces which have been sufficiently dampened to prevent rapid absorption of water from freshly poured concrete.
- H. Moisten earth and spray forms and reinforcement with water before placing concrete.
- I. Keep forms and reinforcement clean above placement line by removing clinging concrete with wire brush before placing next lift.
- J. When temporary spreaders are used in the forms, the spreaders shall be removed as their service becomes unnecessary.

3.05 Construction/Control Joints

- A. Joints shall be located and constructed as indicated on the Drawings or as approved by the Structural Engineer.
- B. All reinforcement shall be continuous across joints; except that reinforcement or other fixed metal items shall not be continuous through expansion joints, or through construction joints in slabs on grade unless noted otherwise on the Drawings.
- C. Construction Joints:

1. Unit of operation shall not exceed eighty (80) feet in any horizontal location.
 2. Sandblast the entire top surface of all horizontal construction joints with coarse sand to clean and roughen the joint for bond to next mortar matrix. Clean away all drippings, sand, debris, etc., so next pour is placed on clean, solid, rough surface.
 3. Water-blasting or other means can be used in lieu of sandblasting.
 4. Fresh concrete shall not be placed against adjacent hardened concrete until it is at least twenty-four (24) hours old.
- D. Control Joints in slabs:
1. Control joints shall be produced by forming a weakened plane in the slab by the use of rigid inserts impressed in the concrete during placement, snap- out plastic joint forming inserts, or concrete sawing. Regardless of method used, it shall be 1/4 the depth of the slab thickness and between 1/8 and 3/16 inch wide.

3.06 Tolerances

- A. Unless otherwise specified herein or is shown on the Drawings, permissible deviations from established lines, grades, and dimensions shall be those specified in ACI 117.
- B. Unless otherwise noted, place slabs to the following tolerance: 1/8 inch in ten (10) feet. Also no more than 1/8-inch maximum deviation above or below the established datum lines.
- C. Areas with floor drains: Unless detailed otherwise, pitch floors carefully to floor drains so as to afford an even fall from all parts of the room using screed extending from the flow drain in fan shape.
- D. Construct new concrete columns to the following tolerances for all exposed surfaces:
 1. In any 10' of length: 1/4" out of plumb.
 2. Member thickness: -1/4", +1/2".

3.07 Grouting

- A. Grout where required; proportion and install in accordance with manufacturer's recommendations to produce a grout which will not shrink and which will attain a minimum compressive strength of 4000 pounds per square inch at seven (7) days.
- B. Where grout will not be encased in concrete, use non staining, non metallic type.
- C. Grout shall not be re-tempered or subjected to vibration from any source.

3.08 Sacking

- A. Perform where required immediately after forms are removed with a mixture of fine sand and cement, thoroughly rubbing the entire surface, filling all small holes and irregularities and producing a uniform appearance throughout the surface.
- B. Sacking is in addition to the patching and repair work required for all surfaces in Article 3.11 below.
- C. Architect may require sacking any concrete surfaces which he determines are unacceptable, at no extra cost to the Owner.

3.09 Curing, Protection & Sealing

- A. Protect concrete from injurious action of the elements and defacement of any nature during construction operations. Keep all forms sufficiently wet to prevent drying out of concrete. Protect slabs and exposed corners of concrete from traffic or use which will damage them in any way.
- B. Curing: Immediately following placing, keep concrete continuously moist by means of one of the following methods:
 - 1. Interior Slabs: Apply membrane curing compound to freshly poured concrete floors following manufacturer's directions. Surface must be clear and free of oil, grease, dirt or foreign matter. Spray apply to concrete surfaces for curing within approximately one to two hours after completion of finishing operations and/or immediately after disappearance of the "sheen" of surface moisture. Coat surfaces uniformly leaving no pinholes or gaps, at a rate not to exceed 200 sq. ft. per gallon for broom finished surfaces. Do not puddle or leave heavy surface film.
 - (a) At integrally colored or trowel applied color hardener curing shall be accomplished using Schofield "Colorwax" at exterior conditions and "Colorcure" at interior conditions, applied in accordance with the manufacturer's instructions.
 - 2. Interior Slabs, Concrete Finish: Near completion of job, remove dirt, grease, oil, etc., by sanding mopping and wet vacuuming. Allow to dry thoroughly. Apply membrane curing compound for sealing by brush, airless spray or Squeegee following manufacturer's directions. Apply small amount on surface and immediately work it into pores. Do not let it puddle and do not cover more area than can be worked in 10 15 minutes as setting will start. Use without thinning. Apply in two coats at the rate of 600 sq. ft. per gallon each. Allow first coat to dry a minimum of 24 hrs.
 - 3. Interior Slabs to Receive Finish Flooring or Carpet: Complete as in Item 1 above. No additional sealer required near job completion. Clean slabs of oil, grease, dirt, etc.
 - 4. Exterior Slabs: Complete as in Item 1 above. No additional sealer

required near job completion. Clean slabs of oil, grease, dirt, etc.

5. Walls, columns and other vertical surfaces of concrete that have had their formwork removed, shall be kept continuously moist for a period of 14 days, by means of water being mist applied a minimum of three times each day, or by application of a membrane as specified above for slabs and flatwork. Concrete that has had the formwork left in place for a minimum of 7 days will not require additional moisture application or membrane treatment.

3.10 Concrete Finishes

A. Slab Finish:

1. General: Uniformly spread, screed and float concrete.
2. Trowel: Apply two (2) steel troweling operations at surfaces to receive carpet, resilient materials, thin-set tile and where left exposed, finished to achieve burnished surface. Follow second troweling with light brooming perpendicular to direction of traffic to form non-slip surface.
3. Broom: Apply at exterior walks, perpendicular to direction of traffic flow.

- #### **B. Joints:** Mark off exposed joints, where indicated, with ¼ inch radius edging tool. Markings to be clean cut, straight and square with respect to border. Tool edges of exposed expansion and contraction joints, border edges, and wherever concrete adjoins other material or vertical surfaces.

3.11 Patching

- #### **A.** Repair defects in concrete work as follows: Chip voids to depth of at least one (1) inch or to remove all loose material with the edges perpendicular to the surface and parallel to form markings. Fill voids, surface irregularities, chipped areas, etc., by patching, gunite and/or rubbing, as directed. Duplicate the appearance of unpatched work. Prepare a sample of a repaired condition for approval by Architect before proceeding with all of this work.

END OF SECTION 03 30 00

SECTION 05 12 00

STRUCTURAL STEEL

PART 1. GENERAL

1.01 PROVISIONS

- A. All of the provisions of the General Conditions, Supplementary General Conditions and Special Conditions, Division 1 General Requirements, and any applicable provisions elsewhere in the Contract documents shall apply to work of this Section as fully as if repeated here.

1.02 Description

- A. Work Included:
 - 1. All structural steel, shop galvanizing and painting, field touch up, and cleaning of steel which is not painted.
 - 2. Include all steel items embedded in poured in place concrete such as anchor bolts, nuts, plates, etc.
 - 3. All labor, material and equipment required to supply and install structural steel, as indicated on the drawings and specified herein.
 - 4. Include miscellaneous metals to match existing, such as railings.

1.03 Related work

- A. Cast-in-Place concrete: Section 03 30 00.
- B. Paints and Stains: Section 09 90 00.
- C. Protective Coatings: Section 09 96 00.

1.04 Quality assurance

- A. Except where different requirements are specified, comply with provisions of following codes, specifications and standards by the California Building Standards Commission, American Institute of Steel Construction (AISC), American Welding Society (AWS), and The Society for Protective Coatings (SSPC):
 - 1. 2019 California Building Code (CBC).
 - 2. AISC 303 "Code of Standard Practice for Steel Buildings and Bridges".
 - 3. AISC 360 "Specification for Structural Steel Buildings", including the Commentary and Supplements thereto as issued.
 - 4. AISC 341 "Seismic Provisions for Structural Steel Buildings".
 - 5. AISC 358 "Pre-qualified Connections for Special and Intermediate Steel Moments Frames for Seismic Applications".
 - 6. AISC "Specifications for Structural Joints using ASTM A325 or A490

Bolts", approved by the Research Council on Structural Connections.

7. AISC "Architecturally Exposed Structural Steel", (supplement to Modern Steel Construction, May 2003).
8. AWS B2.1 "Welding Procedure and Performance Qualification".
9. AWS D1.1 "Structural Welding Code- Steel".
10. AWS D1.8 "Structural Welding Code for Seismic Applications".
11. SSPC PA-1 "Shop, Field, and Maintenance Painting".
12. SSPC SP-2 "Hand Tool Cleaning".

Where provisions of pertinent codes and standards conflict with this Specification, the more stringent will apply.

B. Comply with the referenced ASTM standards for materials and testing.

C. Qualifications for Welding Work:

1. Qualify welding processes and welding operators in accordance with AWS B2.1.
2. Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests and possess a current card.
3. If re-certification of welders is required, re-testing will be Contractor's responsibility.

D. Shop Fabrication:

1. Work shall be fabricated in an approved fabrication plant recognized by the project's local building jurisdiction per CBC Section 1704.2.2.

E. Testing and Inspection:

1. Contractor shall provide testing laboratory with complete identification, mill analysis and test reports of steel to be used. The testing laboratory will verify steel source and mill tests. In case of inadequate identification (judged by the testing laboratory), the contractor shall provide samples and pay for tests that would include tension and elongation test, bend or flattening test, and chemical analysis of unidentified steel material. See Section 2203.1 of the CBC.
2. The contractor shall notify the Owner and testing laboratory well in advance of the shop fabrication of any unit to allow time to arrange testing and inspection.
3. The testing laboratory shall inspect high strength bolting, check shop and field welding and may use any aid to visual inspection it considers necessary.
4. The testing laboratory shall check shop fabrication and field erection for conformance to the drawings and the referenced AISC documents.

5. In case of any failures of any tests made, the Contractor shall pay for further testing until material or work meets requirements.
6. Testing laboratory will inspect prime paint for thickness, coverage and compliance with specifications.

F. Verification of Accuracy:

1. Engage and pay for a registered civil engineer or licensed land surveyor to check the alignment, plumbness, elevation, and overall accuracy of the erected framing at an appropriate stage during construction and at completion of erection. He shall submit written verification that the entire installation is in accordance with the contract documents.

G. Allowable Tolerances:

1. Unless otherwise specified, furnish and install all structural steel to comply with ASTM A6 and AISC Code of Standard Practice.
2. Unless otherwise specified, install all steel which remains exposed to comply with the referenced AISC Specification "Architecturally Exposed Structural Steel."
3. Further, for all columns and beams, the attention of the Contractor is directed to Section 6.4.2 of the referenced "Code of Standard Practice for Steel Buildings and Bridges" which states that "completed members shall be free of twists, bends, and open joints. Sharp kinks or bends shall be cause for rejection." Take special care that column base plates are parallel and perpendicular to faces of columns and that bolt holes are accurately placed.

1.05 Submittals

A. Product data: Submit producer's or manufacturer's specifications and installation instructions for following products. Include laboratory test reports and other data to show compliance with specifications (including specified standards).

1. Structural steel (each type), including certified copies of mill reports covering chemical and physical properties.
2. High-strength bolts (each type), including nuts and washers.
3. Structural steel primer paint.
4. Shrinkage-resistant grout.
5. Load indicating washers at high-strength bolted connections.

B. Shop Drawings:

1. Contractor shall submit shop drawings prepared under supervision of a professional engineer registered in the State of California, including complete details and schedules for fabrication and assembly of structural

steel members' procedures and diagrams. No work shall be started until shop drawings have been reviewed and returned.

2. Include details of cuts, connections, camber, holes, and other pertinent data. Indicate welds by standard AWS symbols, and show size, length, and type of each weld.
 - (a) Designate members and connections that are specified as "SLRS" on the Drawings.
 - (b) Designate locations of shop welds that are specified as "Demand Critical Welds" on the Drawings.
 - (c) Designate locations and dimensions of "protected zones".
 - (d) Gusset plates shall be drawn to scale.
3. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed by others.

C. Certificates:

1. Structural Steel: Submit certified copies of mill test reports indicating the physical and chemical properties of all structural steel used. Correlate individual heat numbers with each specified structural section.
2. High Strength Bolts (A325): Submit certified copies of inspection test reports for bolts by the Production Lot Method, indicating proof load, tensile load, tensile strength (wedge test), and hardness. Any lot without satisfactory test reports shall be re-tested at the Contractor's expense.
3. Direct tension indicator washers: Submit certified copies of inspection test reports for washers by the Production Lot Method, showing compliance with ASTM F959.
4. Submit two (2) copies of certified verification of accuracy.

D. Submit Welding Procedure Specifications (WPS) for all welding, including welding done using AWS pre-qualified procedures.

E. Record Drawings:

1. After all work of this section has been completed, correct or revise the shop drawings and erection diagrams to correspond with the actual installation made. Provide two sets of prints showing the corrected condition to the Architect for the Owner's use.

F. See Section 01 30 00 for Submittal General Requirements.

1.06 Delivery, storage and handling

- A. Deliver materials to site at such intervals to insure uninterrupted progress of work.
- B. Deliver anchor bolts and anchorage devices, which are to be embedded in

cast-in-place concrete, in ample time to not delay work.

- C. Store materials to permit easy access for inspection and identification. Keep steel members off ground, using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration.
- D. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

1.07 Job coordination

- A. Steel contractor shall cooperate and coordinate his work with other contractors for anchor bolts and other required inserts, templates, etc. Align this work prior to installation of other materials.

PART 2. PRODUCTS

2.01 Materials

- A. Metal Surfaces, General: For fabrication of work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness. Remove such blemishes by grinding, or by welding and grinding, prior to cleaning, transient and application of surface finishes.
- B. Structural Steel Wide-flange Shapes: ASTM A992, Grade 50.
- C. Other Rolled Shapes, Plates and Bars: ASTM A36m unless stated otherwise..
- D. Structural Tubing: ASTM A500 Grade B.
- E. Anchor Bolts: ASTM F1554, Grade 55, unless stated otherwise.
- F. Threaded Rods: ASTM A193, Grade B7.
- G. High Strength Bolts: ASTM F3125/F3125M, Grade A325 (Grade A325M), Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH (ASTM A563M, Class 10S), heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers; all with plain finish.
 - 1. Direct-Tension Indicators: ASTM F959/F959M, Type 325-1 (Type 8.8-1), compressible-washer type with plain finish
- H. Machine Bolts: Where machine bolts (M.B.) are called for, they are to be ASTM A307 with full shank bearing wherever possible. Where this is impracticable, threads of not more than 2/3rds of the thickness of the piece on one side of the shear plane will be permitted.
- I. Electrodes for Welding: Comply with AWS Code, E70xx.
- J. Structural Steel Primer Paint: Submit fabricator's standard rust-inhibiting primer for approval.

1. Exposed steel: Tnemec V10-99, Rust-Oleum 1069 Heavy Duty Primer, or approved equal. Finish paint color per Owner.
- K. Non-shrink Grout: Comply with Corps of Engineers Specification CRD C621 and ASTM C1107; BASF Embeco 885 or Masterflow 928, Dayton Superior Edoco NF NS Grout, or approved equal.
- L. Galvanizing: ASTM A123.
- M. Galvanized Steel Bar Grating: As manufactured by McMaster-Carr, McNichols, or approved equal.
- N. Galvanizing Repair Paint: High zinc dust content paint for re-galvanizing welds in galvanized steel, complying with the Military Specification MIL-P-21035 (Ships).

2.02 Fabrication

- A. Shop Fabrication and Assembly:
 1. Fabricates and assemble structural assemblies in shop to greatest extent possible. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on final shop drawings. Provide camber in structural members where indicated.
 2. Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence which will expedite erection and minimize field handling of materials.
 3. Where finishing is required, complete assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in final structure free of markings, burrs, and other defects.
- B. Welded Construction: Comply with AWS Code for procedures, appearance and quality of welds, and methods used in connecting welding work.
- C. Holes for Other Work:
 1. Provide holes required for securing other work to structural steel framing as shown on final shop drawings.
 2. Threaded nuts welded to framing, and other specialty items to as indicated to receive other work.
 3. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame cut holes or enlarge holes by burning. Drill holes in bearing plates.

2.03 Shop painting

- A. General: Shop prime paint structural steel, except as follows:
 1. Members or portions of members to be embedded in concrete. Paint embedded steel which is partially exposed or exposed portion and initial 2" of embedded areas only.

2. Surfaces to be galvanized.
 3. Within 1/2 inch of the toe of welds prior to welding.
- B. Surface preparation: After inspection and before shipping, clean steel work to be painted in compliance with SSPC SP-2 "Hand Tool Cleaning", SP-3 "Power Tool Cleaning", or SP-6 "Commercial Blast Cleaning". Remove oil, grease, and similar contaminants in compliance with SSPC SP-1 "Solvent Cleaning".
- C. Painting: Immediately after surface preparation, apply structural steel primer in accordance with manufacturer's instructions and at a rate to provide a uniform dry film thickness of not less than 2.0 mils. Use painting methods which result in full coverage of joints, corners, edges and exposed surfaces.

PART 3. EXECUTION

3.01 Inspection

- A. Erector must examine areas and conditions under which structural steel work is to be installed and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until satisfactory conditions have been corrected in a manner acceptable to the Erector.
- B. Erector shall inspect and approve the location and alignment of all structural embedments and templates prior to pouring of concrete.

3.02 Hoisting and erection

- A. Steel contractor shall include provision for all hoisting and erection equipment necessary to complete his operations.
- B. Owner will provide electrical power. Steel contractor shall provide any additional electrical devices, equipment, and conductors from that point necessary to perform his work and shall be responsible for their compliance with all regulations.
- C. Steel contractor shall provide and maintain any and all safety railings, toe boards, etc. required for the erection of steel framing floor plates and shall leave the safety devices around all perimeters of floor areas for the contractor's use during the remainder of construction as required. Contractor will disassemble and store this material, when not required, for pick up by the Steel Contractor.
- D. Temporary Shoring and Bracing: Steel Contractor shall be responsible for bracing the erected frame in a manner which will assure proper alignment for the steel frame. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds. Remove temporary members and connections when permanent members are in place and final connections are made.

- E. Temporary Planking: Provide temporary planking and working platforms as necessary to effectively complete work.
- F. Anchor Bolts:
 - 1. Furnish anchor bolts and other connections required for securing structural steel to in-place concrete work as indicated on drawings to be part of this contract.
 - 2. Furnish templates and other devices as necessary for pre-setting bolts and other anchors to accurate locations.
- G. Setting Bases and Bearing Plates:
 - 1. Clean concrete bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surfaces of base and bearing plates.
 - 2. Set loose and attached base plates and bearing plates for structural member on wedges or other adjusting devices.
- H. Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims, but if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.
- I. Pack grout solidly between bearing surfaces and bases or plates to ensure that no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure.
- J. Field Assembly:
 - 1. Set structural frames accurately to lines and elevations indicated. Align and adjust various members forming a part of a complete frame or structure before permanently fastened. Clean bearing surfaces and other surfaces which will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 2. Level and plumb individual members of structure within specified AISC tolerances.
 - 3. Establish required leveling and plumbing measurements on mean operating temperature of structure. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be when completed in service.
 - 4. Splice members only where indicated and accepted on shop drawings.
- K. Erection Bolts: On exposed welded construction, remove erection bolts, fill holes with plug welds and grind smooth at exposed surfaces.
- L. Comply with AISC Specifications for bearing, adequacy of temporary

connections, alignment, and removal of paint on surfaces adjacent to field welds. Do not enlarge unfair holes in members by burning or by use of drift pins, except in secondary bracing members. Ream holes that must be enlarged to admit bolts.

M. Gas Cutting: Do not use gas-cutting torches in field for correcting fabrication errors in primary structural framing. Cutting will be permitted only in secondary members which are not under stress, as acceptable to Engineer. Finish gas-cut sections equal to a sheared appearance when permitted.

N. Touch-up Painting:

1. Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint. Apply paint to exposed areas using same material as used for shop painting.
2. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.

3.03 Workmanship

- A. Fabrication and erection of all steel shall conform to the tolerances and other provisions of the AISC Code of Standard Practice. Where members are permanently exposed, conform also to the provisions of the AISC Specification for Architecturally Exposed Structural Steel.
- B. It is specifically stipulated that burned holes are not acceptable.
- C. All details shall conform to details shown on the drawings or, where not shown, shall be consistent with those shown or based on the specifications already referred to and as illustrated in the handbook "Steel Construction" of the American Institute of Steel Construction, latest edition.
- D. Provide all temporary bracing, shoring, planking, etc. required to erect the frame. The contractor shall coordinate the work and provide the temporary supports necessary for completing the work safely and without unnecessary delays.
- E. Damage to members in shipment or handling shall be corrected as directed by the Structural Engineer.

3.04 Welding

- A. Follow applicable sections of A.W.S. specifications.
- B. Welds shall be made by operators whose qualifications have been approved by Owner's testing laboratory representative and as prescribed in A.W.S. "Qualification Procedure: (except welds which do not carry calculated stress). Details of joints shall comply with requirements for A.W.S. joints accepted without qualification tests.

- C. Unless noted otherwise, weld thickness is minimum size specified in Section J2 of AISC 360. Butt welds are full penetration welds (use back up plate or chip and back weld). Welds not required to be full penetration welds are specifically noted on drawings.

END OF SECTION 05 12 00

SECTION 09 96 00

PROTECTIVE COATINGS

PART 1. GENERAL

1.01 Related Documents

- A. The Drawings and general provisions of the Contract, including General and Special Conditions and Division 1, General Requirements, apply to the work specified in this section.
- B. Parts 1,2,3,4,5,6, Title 24 of the California Code of Regulations (California Building Code) is to be considered an integral part of this section.

1.02 Work Included

- A. The following is a general description of the work included in this section. This description does not limit the scope of work shown in the drawings nor does it relieve the Contractor of any responsibility for coordination of ALL work of this Contract.

Item	Description
Protective Coatings	<ul style="list-style-type: none">• Work under this section consists of surface preparation, priming and painting necessary to complete work.• Use coating systems specified in this section to finish all steel components in a shop environment, unless otherwise indicated. Coatings at contact points, welding locations are to be applied and touched-up in the field. Without restricting volume or generality, work to be performed under this section may include, but is not limited to: Structural steel and support braces.

- B. Related work may be described in other sections of this Project Manual. All sections of this project manual are related. Contractor shall coordinate the work of this section with all other sections.

1.03 Submittals

- A. Provide the following submittals per the requirements of Division 1.

Item	Description
Product Data:	<ul style="list-style-type: none">• Submit manufacturer's literature describing products to be provided, giving manufacturer's name, product name, and product line number for each material.• Submit technical data sheets for each coating, giving descriptive data, curing times, mixing, thinning, and application requirements.

Item	Description
Quality Assurance Submittals:	<ul style="list-style-type: none">• Submit color charts showing manufacturer's full range of standard colors.• Certificates:• Provide manufacturer's certification that products to be used comply with specified requirements and are suitable for intended application. Submit listing of not less than 5 of applicator's most recent applications representing similar scope and complexity to Project requirements. List shall include information as follows:<ul style="list-style-type: none">(a) Project name and address(b) Name of Owner(c) Name of Contractor(d) Name of Engineer/Architect(e) Date of completion
Manufacturer's Instructions	<ul style="list-style-type: none">• Submit manufacturer's installation procedures, if not on product data sheets, which shall be basis for accepting or rejecting actual installation procedures.
Samples	<ul style="list-style-type: none">• Submit samples for Architect's review of color and texture only. Compliance with all other requirements is the exclusive responsibility of the Contractor. Provide a listing of the materials and application for each coat of each finish sample• On 12" x 12" hardboard, provide two samples of each color and material, with texture to simulate actual conditions. Resubmit each sample as requested until required sheen, color, and texture is achieved• Samples shall be created utilizing the same process that will be used in the field. If painting is to be sprayed, then samples shall be sprayed. If painting is to be brushed, then samples shall be brushed. If painting is to be rolled, then samples shall be rolled
Paint Schedule	<ul style="list-style-type: none">• Submit a paint schedule that is tied to the heat number logs.

1.04 References / Standards

- A. The following References and Standards are incorporated into the requirements of this Section as they apply to products, assembly, manufacturing procedures and installation. References shall be utilized in determining “Industry Standards” and other acceptable manufacture and installation methods but shall not relieve the Contractor of any other responsibilities of the Contract. Where conflicts occur between multiple listed references, the Contractor shall assume that the more restrictive standard applies and shall seek determination from the Architect regarding applicable standard.
1. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2008.
 2. ASTM D16 Terminology Relating to Paint, Varnish, Lacquer, and Related Products.
 3. ASTM D3359 Test Method for Measuring Adhesion by Tape Test.
 4. ASTM D4263 Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
 5. ASTM D4541 Test Method for Pull Off Strength of Coatings Using Portable Adhesion-Testers.
 6. ASTM D1005 Test for determining dry film thickness.
 7. ASTM D4417 Test for determining surface profile.
 8. SSPC-SP1 - Specification for Solvent Cleaning.
 9. SSPC-SP2 - Hand Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2004).
 10. SSPC-SP3 - Power Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2004).
 11. SSPC-SP5 - White Metal Blast Cleaning; Society for Protective Coatings; 2006.
 12. SSPC-SP6 - Commercial Blast Cleaning; Society for Protective Coatings; 2006.
 13. SSPC-SP7 - Brush-Off Blast Cleaning; Society for Protective Coatings; 2006.
 14. SSPC-SP10 - Near-White Blast Cleaning; Society for Protective Coatings; 2000 (Ed. 2004).
 15. SSPC-SP11 - Power Tool Cleaning to Bare Metal; Society for Protective Coatings; 1987 (Ed. 2004).
 16. SSPC-SP16 – Surface Preparation of Galvanized and Non-Ferrous Metals

17. SSPC-PA1 - Painting Application Specification.

18. SSPC-PA2 - Measurement of Dry Paint Thickness with Magnetic Gages.

19. SSPC-SP12 - Water Jetting.

1.05 Definitions

- A. Terms PAINT shall in a general sense have reference to, zinc primers, acrylic, polyurethane and epoxy type coatings and application of these materials.
- B. DRY FILM THICKNESS (DFT): Thickness, measured in mils (1/1000 inch), of a coat of paint in cured state.

1.06 Quality Assurance

- A. Provide the following per Division 1

Item	Description
Documents	<ul style="list-style-type: none"> • Maintain one copy of each referenced document that applies to application on site.
Qualifications of Workers	<ul style="list-style-type: none"> • Applicator shall be trained in application techniques and procedures of coating materials and shall demonstrate a minimum of 5 years successful experience in such application. <ol style="list-style-type: none"> 1. Maintain, throughout duration of application, a staff of painters who are fully qualified per SSPC QP-3 requirements.(Option) 2. Coating inspection shall be performed by qualified third-party NACE level II coating inspector.
Single Source Responsibility:	<ul style="list-style-type: none"> • Provide secondary materials, which are produced or are specifically recommended by coating system manufacturer to ensure compatibility of system.
Pre-Installation Meeting:	<ul style="list-style-type: none"> • Schedule a meeting to be held on-site before shop application of coating systems begins. • Meeting shall be attended by Contractor, Owner's representative, 3rd Party Inspector, Coating Applicators, and Manufacturer's representative. • Topics to be discussed at meeting shall include but not be limited to: <ol style="list-style-type: none"> 1. A review of Contract Documents shall be made and deviations or differences shall be resolved. 2. Review items such as environmental conditions, surface conditions, surface preparation, application procedures, protection following application, and during shipping.

Item	Description
Product Acceptance	3. Establish which areas on-site will be available for use as storage areas and working area to conduct QA/QC of application. <ul style="list-style-type: none"> • Prepare and submit, to parties in attendance, a written report of pre-installation meeting discussions. Report shall be submitted within 5 days following meeting. • Architect reserves the right to reject any material not installed per current industry standards or recommended installation instructions of the Manufacturer, or not installed per these Specifications.

1.07 Delivery & Storage

A. Provide the following per Division 1

Item	Description
Packing and Shipping: Include on label for each container: Storage and Protection:	<ul style="list-style-type: none"> • Deliver products in manufacturer's original unopened containers. Each container shall have manufacturer's label, intact and legible. • Manufacturer's name • Type of paint • Manufacturer's stock number • Color name and number • Instructions for thinning, where applicable • Store materials in a designated protected area, per manufacturer's printed data sheet instructions.

1.08 Project Conditions

A. Provide the following per Division 1

Item	Description
Environmental Requirements:	<ul style="list-style-type: none"> • Apply coating materials per manufacturer's printed data sheet instructions: <ol style="list-style-type: none"> 1. Refer to specific product data sheets for minimum surface temperature requirements. Surface temperatures shall be at least 5 degrees F (15 degrees C) above dew point and in a rising mode. 2. Provide for proper ventilation using explosion-proof equipment. Allow to run during the complete cure cycle of the coating. 3. Adequate illumination shall be provided using explosion-proof lights and equipment. 4. Atmosphere shall be free of airborne dust.

1.09 Quality Control by Owner

- A. The following specific procedures shall be required to demonstrate adequate levels of quality provided for project components and systems. Exclusion of any item from this list does not relieve the Contractor of any responsibilities for quality procedures covered elsewhere in the Contract.

Item	Description
<p>1.10 Close Out Inspection</p>	<ul style="list-style-type: none"> • Per field quality control section

- A. Provide the following Close Out materials in accordance with Division 1.

Item	Description
Product Manuals	<ul style="list-style-type: none"> • Maintenance and Operations instructions / manuals provided by all product / material manufacturers.
System Manuals	<ul style="list-style-type: none"> • Maintenance and Operations instructions / manuals provided by subcontractors for assemblies / systems.
Surplus Materials	<ul style="list-style-type: none"> • Provide (1) full gallon kit of Urathane for each site on the project.
Training	<ul style="list-style-type: none"> • As per Manufacturer's instructions.

1.11 Warranty

- A. Provide written warranty in accordance with Division 1.

Item	Description
Warranty	<ul style="list-style-type: none"> • Correct defective Work within a one-year period after Date of Substantial Completion at no cost to the Owner. • Include coverage for bond to substrate.
Warranty Period	<ul style="list-style-type: none"> • 1 year
Warranty Start	<ul style="list-style-type: none"> • Date of Substantial Completion

PART 2. PRODUCTS

2.01 Manufacturers

- A. Protective Coating Acceptable Manufacturer:
1. Sherwin-Williams Protective & Marine Group.
- B. Equivalent materials shall be submitted to Engineer for consideration and shall be made at least ninety (90) days prior to the date of bids.
1. Requests for substitution shall include evidence of satisfactory past performance on similar projects.
 2. Substitutions shall meet minimum performance requirements per ASTM performance standards listed on the accepted manufacturer's product data sheet.
 3. Substitutions will not be considered that change number of coats or do not

meet specified total dry film thickness.

4. Contractor shall state in the bid the amount of deduct to use equivalent materials to those specified.

2.02 Materials

- A. Coatings - General: Provide complete multi-coat systems formulated and recommended by manufacturer for the applications indicated, in the thicknesses indicated; number of coats specified does not include primer or filler coat.
 1. Lead content: Not greater than 0.06 percent by weight of total nonvolatile content.
 2. Maximum volatile organic compound (VOC) content: As required by applicable regulations.
 3. Colors: Selected from manufacturer's standard colors.
- B. Prime Coat – Ferrous Metal - Shop Only
 1. Product: Zinc Clad II Plus Inorganic Zinc Primer.
 2. Dry film thickness, per coat: 2.0 to 4.0 mils.
- C. Prime Coat – Ferrous and Galvanized Metal – Repair Primer
 1. Product: Corothane I, Galvapak One Pack Zinc Primer.
 2. Dry film thickness, per coat: 2.0 to 4.0 mils.
- D. Prime Coat – Galvanized Metal Surfaces – Shop and Field
 1. Macropoxy 646 SE or 846 PW
 2. Dry film thickness, per coat: 4.0 to 8.0 mils.
- E. Intermediate Coat – Ferrous and Galvanized Metal Surfaces - Shop and Field
 1. Macropoxy 646 SE or 846 PW
 2. Dry film thickness, per coat: 4.0 to 8.0 mils.
- F. Finish Coat – Ferrous and Galvanized Metal Surfaces - Shop and Field
 1. Waterbased Acrolon -100.
 2. Dry film thickness, per coat: 2.0 to 4.0 mils.
- G. Stripe Coat- Ferrous and Galvanized Metal Surfaces - Shop and Field
 1. Product: Macropoxy 646 SE or 846 PW
 2. Dry film thickness, per coat: 4.0 to 8.0 mils.

2.03 Material Quality

- A. Provide premium quality grade of the various types of coatings as regularly manufactured by approved paint materials manufacturers. Materials not

displaying the manufacturer's identification as a standard, premium-grade product will not be acceptable.

- B. Provide undercoat paint (Primer) produced by the same manufacturer as the finish coats. Use only thinners approved by the paint manufacturer, and use only within recommended limits.

2.04 Accessories

A. Coating Application Accessories:

1. Provide application accessories as indicated in coating manufacturer's application instructions, including but not limited to cleaning agents, etching agents, cleaning cloths, sanding materials, and clean-up materials.
2. Material not specifically identified but needed for proper application shall be of a quality not less than specified products.
3. Specific product mixing and thinning instructions are to be found in the manufacturer's printed data sheets.

PART 3. EXECUTION

3.01 Contractor's Examination

- A. Verify existing conditions each day before starting work. Ambient conditions shall be verified minimum of three times per eight-hour shift.
- B. Verify that substrate surfaces are ready to receive work as instructed by the coating manufacturer. Obtain and follow manufacturer's instructions for examination and testing of substrates.
- C. Examine areas and conditions under which application of coating systems shall be performed for conditions that will adversely affect execution, permanence, or quality of coating system application.
- D. Correct conditions detrimental to timely and proper execution of work.
- E. Do not proceed until unsatisfactory conditions have been corrected.
- F. Commencement of installation constitutes acceptance of conditions and responsibility for satisfactory performance.

3.02 Surface Preparation

A. Protection

1. Take precautionary measures to prevent fire hazards and spontaneous combustion.
2. Provide drop cloths, shields, and other protective equipment.
3. Protect elements surrounding work from damage or disfiguration.
4. As Work proceeds, promptly remove spilled, splashed, or splattered

materials from surfaces. Leave storage area neat and clean at all times.

B. Surface preparation procedure

1. General requirement:

- (a) Prior to application of primer, surfaces shall be prepared to receive specified paintings system in compliance with manufacturer's recommendations and specifications of The Society of Protective Coatings as indicated in Schedule below.
- (b) All surfaces to be coated shall be free of oils, grease, and other similar contaminants and rinsed, as necessary, in accordance to SSPC-SP1 Solvent Cleaning and or Pressure Washing (3500 psi) before proceeding with further surface preparation or coating operations.
- (c) Surface contamination levels will be tested in randomly selected areas after the washing of steel and or coatings with 3500 psi has been completed. Levels must be less than 8 $\mu\text{g} / \text{sq cm}$ for chlorides. If any of the test data indicates levels in excess of the specifications, rewashing will be required following the same original process until required salt levels have been achieved.

2. Ferrous metal surfaces:

- (a) For shop-primed-surfaces feather edges to make touch-up areas inconspicuous. Field welds and touch-ups shall be prepared to conform to original surface preparation standards.
- (b) Shop applied finishes that are damaged during transportation, construction or installation shall be thoroughly cleaned and touched up in field. Use repair procedures which insure complete protection of adjacent finish.
- (c) Remove all weld spatter and hard edges by grinding per NACE RP 188.

3. Galvanized steel surfaces:

- (a) Solvent clean metal to remove contamination and oils in compliance with SSPC-SP1.
- (b) Brush blast clean all surfaces per SSPC SP16, Surface Preparation of Galvanized and Non-Ferrous metals.

C. Surface preparation application

1. New Metal: Remove all visible oil, grease, soil, dirt and other soluble contaminants in accordance with SSPC-SP1. All exterior surfaces shall be abrasive blast cleaned to a Commercial Finish, removing all existing paint, rust, dirt, mill scale and foreign matter by the recommended methods outlined in The Society for Protective Coatings Specification SSPC-SP10 (NACE No. 2).

2. New Metal: Field Repair of Mechanical Damage: Remove all visible oil, grease, soil, dirt and other soluble contaminants in accordance with SSPC-SP1. All exterior surfaces shall be machine tool cleaned to a Commercial Finish, removing all existing paint, rust, dirt, mill scale and foreign matter by the recommended methods outlined in The Society for Protective Coatings Specification SSPC-SP11.

3.03 Priming/ Materials Preparation

- A. Apply primer to all surfaces, unless specifically not required by coating manufacturer. Apply in accordance with coating manufacturer's instructions.
- B. New Ferrous Metal: Ferrous metal items including (Specifier to list items required) shall be primed immediately after blasting and before any rusting occurs. Apply one coat of Zinc-rich primer Zinc Clad II Plus.
- C. Field Repair of Mechanical Damage: Items or areas damaged by mechanical damage means or other damage shall be primed immediately after blasting and before any rusting occurs. Apply one coat of Corothane I for field application to all bare steel surfaces. This coating shall be applied at a dry film thickness of 2.0 to 4.0 mils.
- D. Galvanized Metal: Galvanized metal items shall be primed within 8 hours after completion of surface preparation. Ensure that the metal surfaces are not exposed to deleterious atmospheric conditions. Apply one coat of Macropoxy 646 Epoxy primer to all primed surfaces. This coating shall be applied at a dry film thickness of 5.0 to 10.0 mils.
- E. Mix and prepare painting materials in accordance with manufacturer's directions.
- F. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.
- G. Stir materials before application to produce a mixture of uniform density and stir as required during the application of the materials. Do not stir surface film into the material. Remove the film, and if necessary, strain the material before using.

3.04 Application

- A. General requirements
 1. Apply coatings in accordance with manufacturer's instructions, to thicknesses specified.
 2. Apply in uniform thickness coats, without runs, drips, pinholes, brush marks, or variations in color, texture, or finish. Finish edges, crevices, corners, and other changes in dimension with full coating thickness.
 3. Apply primer, intermediate, and finish coats to comply with wet and dry

film thicknesses and spreading rates for each type of material as recommended by manufacturer and in accordance with SSPC-PA2.

4. Number of coats specified shall be minimum number acceptable. Apply additional coats as needed to provide a smooth, even application to meet or exceed dry film thicknesses. Closely adhere to re-coat times recommended by manufacturer. Allow each coat to dry thoroughly before applying next coat.
5. Employ only application equipment that is clean, properly adjusted, and in good working order, and of type recommended by coating manufacturer.
6. Thinning requirements for specified products are to be found in the paint manufacturer's printed data sheets and are to be strictly adhered to.

B. Stripe Coat- Ferrous Metal and Galvanized Metal

1. Prior to finish coat, stripe coat all welds, edges of metal cut-out, pits, rough surfaces and steel edges with one complete coat of epoxy. This involves applying a separate coat via brushes or rollers. Stripe coat via spray application is not permitted nor is applying the stripe coat and primer / intermediate coat together.

C. Intermediate Coat – Ferrous Metal and Galvanized Metal

1. Apply one complete coat of epoxy intermediate coat at a dry film thickness of 5.0 to 10.0 mils. To achieve complete finish coat coverage, the intermediate coat color should be noticeably different than the specified finish coat color. When feasible, the field intermediate coat should be in the same finish coat color family (blue, beige, etc.) with a difference in light reflectance value of 10-25%.
2. Ensure that primed surfaces remain clean and free of any surface defects prior to the application of intermediate coats.

D. Finish Coat – Ferrous Metal and Galvanized Metal

1. Apply one complete coat of Polyurethane finish coat at a dry film thickness of 3.0 to 4.0 mils. The Engineer/Owner shall select color. Certain finish coat colors may require two-coats depending upon the method of application and color of the intermediate coat.

3.05 Repair/Restoration

- A. At completion of Work, touch-up and restore finishes where damaged.
- B. Defects in Finished Surfaces:
 1. When stain, dirt, or undercoats show through final coat, correct defects and cover with additional coats until coating is of uniform finish, color, appearance and coverage.
- C. Touch-up of minor damage shall be acceptable where result is not visibly

different from surrounding surfaces. Where result is visibly different, either in color, sheen, or texture, recoat entire surface.

- D. All surface preparation methods and coatings shall conform to the requirements specified herein. Prior to repairing coatings, the contractor shall perform representative repair procedures on identified areas in the witness of a third party inspector or engineers representative. Repair procedure must be approved by engineer's representative prior to completing all coating repairs.

3.06 Cleaning

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.
- B. Clean surfaces immediately of overspray, splatter, and excess material.
- C. After coating has cured, clean and replace finish hardware, fixtures, and fittings previously removed.
- D. During progress of work, keep premises free from unnecessary accumulation of tools, equipment, surplus materials and debris.
- E. Upon completion of work, leave premises neat and clean.

3.07 Field Quality Control

- A. Manufacturer's Service:
 - 1. A representative of the paint manufacturer shall be available to provide on-site technical assistance, and guidance for application of the paint system as needed.
- B. Inspector's Services:
 - 1. Documents:
 - (a) Review Contract Documents and applicable sections of referenced standards.
 - 2. Painting Inspection:
 - (a) Verify cleaning operations to surfaces are to condition specified.
 - (b) Verify conformance of paint to specification.
 - (c) Check for thickness of each coating, and final DFT.
 - (d) Check touch-up for final finish.
 - (e) Contractor will have both wet and dry film gauges onsite for inspector's use.
 - (f) All coated surfaces shall be holiday tested as per NACE SPO-188. After holidays or voids are repaired, they shall be re-tested to ensure all areas are corrected according to this specification.
 - (g) Coating inspector shall perform the visual inspection, anchor profile

measurement, surface cleanliness, dry film thickness measurement between coats and the holiday detection, for all lining and coating. Coating applicator shall touch up areas, where coating inspection was performed, to the satisfaction of the coating inspector and/or the owner representative

(h) If the test fails the coating the coating shall be repaired to the satisfaction of the Coating Inspector and the Owner Representative. Coating inspector will have the right to perform additional tests as necessary.

3. Reports:

(a) Submit written progress reports, which coordinate with the steel heat logs, describing inspections made and showing action taken to correct non-conforming work. Report uncorrected deviations from Contract Documents.

(b) Inspector shall maintain a record of all daily activities and all information is accessible to all parties, including but not limited to Architect, DSA inspector & EOR.

3.08 Protection

A. Protect painted areas against damage until paint system is fully cured and during transportation.

3.09 One Year Anniversary Inspection

- A. Owner shall set a date for a one-year inspection.
- B. Inspection will be attended by an owner's representative, engineer, and painting contractor.

3.10 Schedule

A. In general, apply coatings to surfaces of (specifier to include items), including surfaces to be embedded in concrete or consealed in gypsum and metal flashing.

B. Ferrous Metal Surfaces

1. Prime Coat

(a) Product: Zinc Clad II Plus Inorganic Zinc Primer.

(b) Dry film thickness, per coat: 2.0 to 4.0 mils.

2. Intermediate Coat

(a) Product: Macropoxy 646 SE or 846 PW

(b) Dry film thickness, per coat: 4.0 to 8.0 mils.

3. Finish Coat
 - (a) Product: Waterbased Acrolon - 100.
 - (b) Dry film thickness, per coat: 2.0 to 4.0 mils.
 4. Stripe Coat
 - (a) Product: Macropoxy 646 SE or 846 PW
 - (b) Dry film thickness, per coat: 4.0 to 8.0 mils.
- C. Galvanized Metal Surfaces
1. Prime Coat
 - (a) Product: Macropoxy 646 SE or 846 PW
 - (b) Dry film thickness, per coat: 4.0 to 8.0 mils.
 2. Intermediate Coat
 - (a) Product: Macropoxy 646 SE or 846 PW
 - (b) Dry film thickness, per coat: 4.0 to 8.0 mils.
 3. Finish Coat
 - (a) Product: Waterbased Acrolon -100.
 - (b) Dry film thickness, per coat: 3.0 to 4.0 mils.
 4. Stripe Coat
 - (a) Product: Macropoxy 646 SE or 846 PW
 - (b) Dry film thickness, per coat: 4.0 to 8.0 mils.
- D. Repair of Damaged Coating – Ferrous & Galvanized Metal
1. Prime Coat
 - (a) Product: Corothane I Galvapak Zinc Rich Primer
 - (b) Dry film thickness, per coat: 2.0 to 4.0 mils.
 2. Intermediate Coat
 - (a) Product: Macropoxy 646 SE or 846 PW
 - (b) Dry film thickness, per coat: 4.0 to 8.0 mils.
 3. Finish Coat
 - (a) Product: Waterbased Acrolon - 100.
 - (b) Dry film thickness, per coat: 2.0 to 4.0 mils
 4. Stripe Coat
 - (a) Product: Macropoxy 646 SE or 846 PW
 - (b) Dry film thickness, per coat: 4.0 to 8.0 mils.

END OF SECTION 09 96 00

SECTION 26 05 10

GENERAL ELECTRICAL REQUIREMENTS

PART 1. GENERAL

1.01 Description of Work

- A. The work of this Section consists of providing all required labor, supervision, materials and equipment to satisfactorily complete all electrical installations that are shown on the Drawings, included in these specifications, or otherwise needed for a complete and fully operating facility.
- B. Furnish and install all required in-place equipment, conduits, conductors, cables and any miscellaneous materials for the satisfactory interconnection and operation of all associated electrical systems.

1.02 Related Work

- A. This Section provides the basic Electrical Requirements which supplement the General Requirements of Division 1 and apply to all Sections of Division 26.

1.03 Submittals

- A. As specified in Division 1. Submit to the Architect shop drawings, manufacturer's data and certificates for equipment, materials and finish, and pertinent details for each system specified. Information to be submitted includes manufacturer's descriptive literature of cataloged products, equipment, drawings, diagrams, performance and characteristic curves as applicable, test data and catalog cuts. Obtain written approval before procurement, fabrication, or delivery of the items to the job site. Partial submittals are not acceptable and will be returned without review. Furnish manufacturer's name, trade name, catalog model or number, nameplate data, size, layout dimensions, capacity, project specification and paragraph reference, applicable Federal, Industry and Technical Society Publication References, and years of satisfactory service of each item required to establish contact compliance. Photographs of existing installations and data submitted in lieu of catalog data are not acceptable and will be returned without approval.
- B. Organize submittals for equipment and items related to each specification section together as a package.
- C. Proposed substitutions of products will not be reviewed or approved prior to awarding of the Contract.
- D. Substitutions shall be proven to the Architect or Engineer to be equal or superior to the specified product. Architect's decision is final. The Contractor shall pay all costs incurred by the Architect and Engineer in reviewing and

processing any proposed substitutions whether or not a proposed substitution is accepted.

- E. If a proposed substitution is rejected, the contractor shall furnish the specified product at no increase in contract price.
- F. If a proposed substitution is accepted, the contractor shall be completely responsible for all dimensional changes, electrical changes, or changes to other work which is a result of the substitution. The accepted substitution shall be made at no additional cost to the owner or design consultants.

1.04 Quality Assurance

- A. Codes: All electrical equipment and materials, including installation and testing, shall conform to the latest editions following applicable codes:
 - 1. California Electrical Code (CEC).
 - 2. Occupational Safety and Health Act (OSHA) standards.
 - 3. All applicable local codes, rules and regulations.
 - 4. Electrical Contractor shall possess a C-10 license and all other licenses as may be required. Licenses shall be in effect at start of this contract and be maintained throughout the duration of this contract.
- B. Variances: In instances where two or more codes are at variance, the most restrictive requirement shall apply.
- C. Standards: Equipment shall conform to applicable standards of American National Standards Institute (ANSI), Electronics Industries Association (EIA), Institute of Electrical and Electronics Engineers (IEEE), and National Electrical Manufacturers Association (NEMA).
- D. Underwriter Laboratories (UL) listing is required for all equipment and materials where such listing is offered by the Underwriters Laboratories. Provide service entrance labels for all equipment required by the NEC to have such labels.
- E. The electrical contractor shall guarantee all work and materials installed under this contract for a period of one (1) year from date of acceptance by owner.
- F. All work and materials covered by this specification shall be subject to inspection at any and all times by representatives of the owner. Work shall not be closed in or covered before inspection and approval by the owner or his representative. Any material found not conforming with these specifications shall, within three (3) days after being notified by the owner, be removed from premises; if said material has been installed, entire expense of removing and replacing same, including any cutting and patching that may be necessary, shall be borne by the contractor.

1.05 Drawings

- A. Drawings: The electrical Drawings shall govern the general layout of the completed construction.
1. Locations of equipment, panels, pullboxes, conduits, stub-ups, ground connections are approximate unless dimensioned; verify locations with the Architect prior to installation.
 2. Review the Drawings and Specification Divisions of other trades and perform the electrical work that will be required for those installations.
 3. Should there be a need to deviate from the Electrical Drawings and Specifications, submit written details and reasons for all changes to the Architect for approval.
 4. The general arrangement and location of existing conduits, piping, apparatus, etc., is approximate. The drawings and specifications are for the assistance and guidance of the contractor, exact locations, distances and elevations are governed by actual field conditions. Accuracy of data given herein and on the drawings is not guaranteed. Minor changes may be necessary to accommodate work. The contractor is responsible for verifying existing conditions. Should it be necessary to deviate from the design due to interference with existing conditions or work in progress, claims for additional compensation shall be limited to those for work required by unforeseen conditions as determined by the Architect.
 5. All drawings and divisions of these specifications shall be considered as whole. This contractor shall report any apparent discrepancies to the Architect prior to submitting bids.
 6. The contractor shall be held responsible to have examined the site and compared it with the specifications and plans and to have satisfied himself as to the conditions under which the work is to be performed. He shall be held responsible for knowledge of all existing conditions whether or not accurately described. No subsequent allowance shall be made for any extra expense due to failure to make such examination.

1.06 Closeout Submittals

- A. Manuals: Furnish manuals for equipment where manuals are specified in the equipment specifications or are specified in Division 1.

1.07 Coordination

- A. Coordinate the electrical work with the other trades, code authorities, utilities and the Architect.
- B. Provide and install all trenching, backfilling, conduit, pull boxes, splice boxes, etc. for all Utility Company services to the locations indicated on the Drawings. All materials and construction shall be in accordance with the

- requirements for all the Utility Companies. Prior to performing any work, the Electrical Contractor shall coordinate with the various Utility Companies to verify that all such work and materials shown on the Drawings are of sufficient sizes and correctly located to provide services on the site. The Electrical Contractor shall verify with all the Utility Companies that additional contractor furnished and installed work is not required. If additional work, materials, or changes are required by any of the Utility Companies, the Electrical Contractor shall advise the Architect of such changes and no further work shall then be performed until instructed to do so by the Architect.
- C. Utility Company charges shall be paid by the Owner.
 - D. Contractor shall pay all inspection and other applicable fees and procure all permits necessary for the completion of this work.
 - E. Where connections must be made to existing installations, properly schedule all the required work, including the power shutdown periods.
 - F. When two trades join together in an area, make certain that no electrical work is omitted.
 - G. The contractor shall obtain the PG&E substructure package prior to any related work. The contractor shall coordinate all PG&E installation requirements with PG&E Greenbook and PG&E substructure package. Contractor is responsible for attending PG&E construction meetings, etc.

1.08 Job Conditions

- A. Operations: Perform all work in compliance with Division 1
 - 1. Keep the number and duration of power shutdown periods to a minimum.
 - 2. Show all proposed shutdowns and their expected duration on the construction schedule. Schedule and carry out shutdowns so as to cause the least disruption to operation of the Owner's facilities.
 - 3. Carry out shutdown only after the schedule has been approved, in writing, by the owner. Submit power interruption schedule 15 days prior to date of interruption.
- B. Construction Power: Unless otherwise noted in Division 1 of these specifications, contractor shall make all arrangements and provide all necessary facilities for temporary construction power from the owner's on site source. Energy costs shall be paid for by the Owner
- C. Storage: Provide adequate storage for all equipment and materials which will become part of the completed facility so that it is protected from weather, dust, water, or construction operations.

1.09 Damaged Products

- A. Notify the Architect in writing in the event that any equipment or material is damaged. Obtain approval from the Architect before making repairs to

damaged products.

1.10 Locations

- A. General: Use equipment, materials and wiring methods suitable for the types of locations in which they are located.
- B. Dry Locations: All those indoor areas which do not fall within the definition below for Wet Locations and which are not otherwise designated on the Drawings.
- C. Wet Locations: All locations exposed to the weather, whether under a roof or not, unless otherwise designated on the Drawings.

1.11 Safety and Indemnity

- A. The Contractor is solely and completely responsible for conditions of the job site including safety of all persons and property during performance of the work. This requirement will apply continually and not be limited to normal working hours. The contractor shall provide and maintain throughout the work site proper safeguards including, but not limited to, enclosures, barriers, warning signs, lights, etc. to prevent accidental injury to people or damage to property.
- B. No act, service, drawing review or construction review by the Owner, the Engineer or their Consultants is intended to include reviews of the adequacy of the Contractors safety measures in or near the construction site.
- C. The Contractor performing work under this Division of the Specifications shall hold harmless, indemnify, and defend the Owner, the Engineer, their consultants, and each of their officers, agents and employees from any and all liability claims, losses, or damage arising out of or alleged to arise from bodily injury, sickness, or death of a person or persons and for all damages arising out of injury to or destruction of property arising directly or indirectly out of or in connection with the performance of the work under this Division of the Specifications, and from the Contractor's negligence in the performance of the work described in the construction contract documents, but not including liability that may be due to the sole negligence of the Owner, the Engineer, their Consultants or their officers, agents and employees.
- D. The project work area does not contain asbestos materials. However, if a work area is encountered that does contain asbestos materials, the contractor is advised to coordinate with the owner and its asbestos abatement consultant all measures necessary to provide installation of conduit, and hangers. All asbestos containing materials related work shall conform to the directions given by the owner. Nothing herein shall be construed to create a liability for American Consulting Engineers regarding asbestos abatement measures.

1.12 Access Panels and Doors

- A. The Contractor shall install access panels as required where floors, walls or ceilings must be penetrated for access to electrical, control, fire alarm or other specified electrical devices. The minimum size panel shall be 14" x 14" in usable opening. Where access by a service person is required, minimum usable opening shall be 18" x 24".
- B. All access doors installed lower than 7'-0" above finished floor and exposed to public access shall have keyed locks.
- C. Where specific information or details relating to access panels differ from these specifications, shown on drawings and or details or on other Divisions of work, these requirements shall supersede these specifications.
- D. Approved Manufacturers: Subject to compliance with requirements under Architectural Specifications, Milcor, Karp, Nystrom or Cesco.
 - 1. Milcor Style K (plaster)
 - 2. Milcor Style DW (gypsum board)
 - 3. Milcor Style M (masonry)
 - 4. Milcor Style "Fire Rated" where required.

PART 2. PRODUCTS

2.01 Standard of Quality

- A. Products that are specified by manufacturer, trade name or catalog number establish a standard of quality and do not prohibit the use of equal products of other manufacturers provided they are approved by the Architect prior to installation.
- B. Material and Equipment: Provide materials and equipment that are new and are current products of manufacturers regularly engaged in the production of such products. The standard products shall have been in satisfactory commercial or industrial use for two years prior to bid opening. The two-year period includes use of equipment and materials of similar size under similar circumstances. For uniformity, only one manufacturer will be accepted for each type of product.
- C. Service Support: Submit a certified list of qualified permanent service organizations including their addresses and qualification for support of the equipment. These service organizations shall be convenient to the equipment installation and able to render service to the equipment on a regular and emergency basis during the warranty period of the contract.
- D. Manufacturer's Recommendations: Where installation procedures are required to be in accordance with manufacturer's recommendations, furnish printed copies of the recommendations prior to installation. Installation of the item shall not proceed until recommendations are received. Failure to furnish

recommendation shall be cause for rejection of the equipment or material.

2.02 Nameplates

- A. For each piece of electrical equipment, provide a manufacturer's nameplate showing his name, location, the pertinent ratings, the model designation, and shop order number.
- B. Identify each piece of equipment and related controls with a rigid laminated engraved plastic nameplate. Unless otherwise noted, nameplates shall be melamine plastic 0.125 inch thick, white with black center core. Surface shall be matte finish. Corners shall be square. Accurately align lettering and engrave into the core. Minimum size of nameplates shall be 0.5 by 2.5 inches unless otherwise noted. Where not otherwise specified, lettering shall be a minimum of 0.25 inch high normal block style. Engrave nameplates with the inscriptions indicated on the Drawings and, if not so indicated, with the equipment name. Securely fasten nameplates in place using two stainless steel or brass screws.

2.03 Fasteners

- A. Fasteners for securing equipment to walls, floors and the like shall be either hot-dip galvanized after fabrication or stainless steel.

2.04 Finish Requirements

- A. Equipment: Refer to each electrical equipment section of these Specifications for painting requirements of equipment enclosures. Repair any final paint finish which has been damaged or is otherwise unsatisfactory, to the satisfaction of the Architect.
- B. Wiring System: In finished areas, paint all exposed conduits, boxes and fittings to match the color of the surface to which they are affixed.

PART 3. EXECUTION

3.01 Workmanship

- A. Ensure that all equipment and materials fit properly in their installation.
- B. Perform any required work to correct improperly fit installation at no additional expense to the owner.
- C. All electrical equipment and materials shall be installed in a neat and workmanship manner in accordance with the NECA Standard of Installation Manual and Workmanship of the entire job shall be first class in every respect.

3.02 Equipment Installations

- A. Provide the required inserts, bolts and anchors, and securely attach all equipment and materials to their supports.
- B. Do all the cutting and patching necessary for the proper installation of work

and repair any damage done.

- C. Earthquake restraints: all electrical equipment, including conduits over 2 inches in diameter, shall be braced or anchored to resist a horizontal force acting in any direction as per Title 24, part 2, table 16a-o, part 3.
- D. Structural work: All core drilling, bolt anchor insertion, or cutting of existing structural concrete shall be approved by a California registered structural consulting engineer prior to the execution of any construction. At all floor slabs and structural concrete walls to be drilled, cut or bolt anchors inserted, the contractor shall find and mark all reinforcing in both faces located by means of x-ray, pach-ometer, or prof-ometer. Submit sketch showing location of rebar and proposed cuts, cores, or bolt anchor locations for approval.

3.03 Field Tests

- A. Test shall be in accordance with Acceptance testing specifications issued by the National Electrical Testing Association (NETA).
- B. Perform equipment field tests and adjustments. Properly calibrate, adjust and operationally check all circuits and components, and demonstrate as ready for service. Make additional calibration and adjustments if it is determined later that the initial adjustments are not satisfactory for proper performance. Perform equipment field test for equipment where equipment field tests are specified in the equipment Specifications. Give sufficient notice to the Architect prior to any test so that the tests may be witnessed.
- C. Provide instruments, other equipment and material required for the tests. These shall be of the type designed for the type of tests to be performed. Test instrument shall be calibrated by a recognized testing laboratory within three months prior to performing tests.
- D. Operational Tests: Operationally test all circuits to demonstrate that the circuits and equipment have been properly installed and adjusted and are ready for full-time service. Demonstrate the proper functioning of circuits in all modes of operation, including alarm conditions.
- E. Re-testing will be required for all unsatisfactory tests after the equipment or system has been repaired. Re-test all related equipment and systems if required by the Architect. Repair and re-test equipment and systems which have been satisfactorily tested but later fail, until satisfactory performance is obtained.
- F. Maintain records of each test and submit five copies to the Architect when testing is complete. All tests shall be witnessed by the Architect. These records shall include:
 - 1. Name of equipment tested.
 - 2. Date of report.

3. Date of test.
 4. Description of test setup.
 5. Identification and rating of test equipment.
 6. Test results and data.
 7. Name of person performing test.
 8. Owner or Architect's initials.
- G. Items requiring testing shall be as noted in the additional electrical sections of these specifications.

3.04 Cleaning Equipment

- A. Thoroughly clean all soiled surfaces of installed equipment and materials.

3.05 Painting of Equipment

- A. Factory Applied: Electrical equipment shall have factory applied painting system which shall, as a minimum, meet the requirements of NEMA ICS 6 corrosion-resistance test and the additional requirements specified in the technical section.
- B. Field Applied: Paint electrical equipment as required to match finish of adjacent surfaces.

3.06 Records

- A. Maintain one copy of the contract Drawing Sheets on the site of the work for recording the "as built" condition. After completion of the work, the Contractor shall carefully mark the work as actually constructed, revising, deleting and adding to the Drawing Sheets as required. The following requirements shall be complied with:
1. Cable Size and Type: Provide the size and type of each cable installed on project.
 2. Substructure: Where the location of all underground conduits, pull boxes, stub ups and etc. where are found to different than shown, carefully mark the correct location on the Drawings. Work shall be dimensioned from existing improvements.
 3. Size of all conduit runs.
 4. Routes of concealed conduit runs and conduit runs below grade.
 5. Homerun points of all branch circuit.
 6. Location of all switchgear, panels, MCC, lighting control panels, pullcans, etc.
 7. Changes made as a result of all approved change orders, addendums, or field authorized revisions.

8. As Built: At the completion of the Work the Contractor shall review, certify, correct and turn over the marked up Drawings to the Architect for his use in preparing "as built" plans.
9. As built Drawings shall be delivered to the Architect within ten (10) days of completion of construction.

3.07 Clean Up

- A. Upon completion of electrical work, remove all surplus materials, rubbish, and debris that accumulated during the construction work. Leave the entire area neat, clean, and acceptable to the Architect.

3.08 Mechanical and Plumbing Electrical Work

- A. The requirements for electrical power and/or devices for all mechanical and plumbing equipment supplied and/or installed under this Contract shall be coordinated and verified with the following:
 1. Mechanical and Plumbing Drawings.
 2. Mechanical and Plumbing sections of these Specifications.
 3. Manufacturers of the Mechanical and Plumbing equipment supplied.
- B. The coordination and verification shall include the voltage, ampacity, phase, location and type of disconnect, control, and connection required. Any changes that are required as a result of this coordination and verification shall be a part of this Contract.
- C. The Electrical Contractor shall furnish and install the following for all mechanical and plumbing equipment:
 1. Line voltage conduit and wiring.
 2. Disconnect switches.
 3. Manual line voltage controls.
- D. Automatic line voltage controls and magnetic starters unless otherwise noted, shall be furnished by the Mechanical and/or Plumbing Contractor and installed and connected by the Electrical Contractor. All line voltage control wiring installed by the Electrical Contractor shall be done per directions from the Mechanical and/or Plumbing Contractor.
- E. All low voltage control wiring for Mechanical and Plumbing equipment shall be installed in conduit. Furnishing, installation and connection of all low voltage conduits, boxes, wiring and controls shall be by the Mechanical and/or Plumbing Contractor.
- F. Manual motor starters, where required, shall have toggle type operators with pilot light and melting alloy type overload relays, SQUARE D COMPANY, Class 2510, Type FG-1P (surface) or Type FS-1P (flush) or ITE, WESTINGHOUSE or GENERAL ELECTRIC equal.

3.09 Access Doors

- A. The Electrical Contractor shall furnish and install access doors wherever required whether shown or not for easy maintenance of electrical systems: As an example, fire alarm devices, controls, junction boxes, etc. Access doors shall provide for complete access to equipment for both removal and replacement of equipment.

END OF SECTION 26 05 10

SECTION 26 05 11

ELECTRICAL DEMOLITION

PART 1. GENERAL

1.01 Description of Work

- A. General - Remove all material designated to be removed on the drawings and that is surplus to the needs of the system as may be designated by the Owner's Representative. Specific work shall be provided as specified below:
- B. Remove Existing Equipment - Electrical Equipment to be removed shall include but not be limited to switchboards, panel boards, concrete foundations, equipment supports, lighting fixtures, conductors, conduit, raceway and other items as shown on the drawings or specified.
- C. Clean Surface Areas - Clean all floors, streets, sidewalks, driveways, parking lots and landscaped areas of all trash and debris deposited as a result of the work. Clean daily and maintain the property free of trash and debris.

1.02 Related Work

- A. See the following specification sections for work related to the work of this section.
 - 1. 26 05 12 Shutdowns, Switching, Phasing and Cutovers

1.03 Standards and Codes

- A. Work and material shall be in compliance with and according to the requirements of the latest revision of the following standards and codes.
 - 1. California Electrical Code (CEC).

PART 2. PRODUCTS

NOT USED

PART 3. EXECUTION

3.01 Disposal

- A. Except where specifically noted otherwise on the drawings or elsewhere in these specifications, the contractor assumes ownership of all material removed from the project site and assumes all responsibility for its proper disposal.

3.02 Cleanup

- A. Contractor shall maintain the work site in a neat and orderly state. Contractor shall remove demolition material from the job site daily. No demolition material shall be left on the job site after working hours without written approval from the Owner's Representative.

END OF SECTION 26 05 11

SECTION 26 05 19

LOW VOLTAGE WIRE AND CABLE

PART 1. GENERAL

1.01 Description of Work

- A. The work of this Section consists of providing all wire and cable rated 600 volts or less, including splices and terminations, as shown on the Drawings and as described herein.

1.02 Related Work

- A. See the following Specification Section for work related to the work in this Section:
 - 1. 26 05 33 Conduits, Raceways and Fittings.
 - 2. 26 05 34 Junction and Pull Boxes.

1.03 Submittals

- A. In accordance with Division 1.
- B. Submit complete material list with the manufacturer's specifications and published descriptive literature for all materials proposed for use.

1.04 Quality Assurance

- A. Field tests shall be performed as specified in paragraph 3.04 of this Section.

PART 2. PRODUCTS

2.01 Conductors

- A. Conductors shall be copper, type THHN/THWN/MTW oil and gasoline resistant, 600 volt rated insulation. Minimum power and control wire size shall be No. 12 AWG unless otherwise noted.
- B. Conductors shall be stranded except that sizes #10 and smaller for receptacle circuits shall be solid and of the sizes indicated.
- C. Minimum power and control wire size shall be No. 12 AWG unless otherwise noted.
- D. All conductors used on this Project shall be of the same type and conductor material.

2.02 Cables

- A. All individual conductors shall be copper with type THHN/THWN, 600 volt rated insulation.
- B. Insulation Marking - All insulated conductors shall be identified with printing colored to contrast with the insulation color.

- C. Color Coding - As specified in paragraph 3.03.
- D. Special Wiring - Where special wiring is proposed by an equipment manufacturer, submit the special wiring requirements to the Owner's Representative and, if approved, provide same. Special wire shall be the type required by the equipment manufacturer.
- E. Other Wiring - Wire or cable not specifically shown on the Drawings or specified, but required, shall be of the type and size required for the application and as approved by the Owner's Representative.
- F. Manufacturer - Acceptable manufacturers including Cablec, Southwire, or equal.

2.03 Terminations

- A. Manufacturer - Terminals as manufactured by T&B, Burndy or equal.
- B. Cable Termination for Copper - Crimp style two-hole NEMA spade terminals designed and rated for copper cable.
- C. Wire Terminations - Crimp on ring-tongue terminals, insulated sleeve, of proper size for the wire used.
- D. End Seals - Heat shrink plastic caps of proper size for the wire on which used.

2.04 Tape

- A. Tape used for terminations and cable marking shall be compatible with the insulation and jacket of the cable and shall be of plastic material.

PART 3. EXECUTION

3.01 Cable Installation

- A. Clean Raceways - Clean all raceways prior to installation of cables as specified in Section 26 05 33 - Conduits Raceway and Fittings.
- B. Cable Pulling - Exercise care in pulling wires and cables into conduit or wireways so as to avoid kinking, putting undue stress on the cables or otherwise abrading them. No grease will be permitted in pulling cables. Only soapstone, talc, or UL listed pulling compound will be permitted. The raceway construction shall be complete and protected from the weather before cable is pulled into it. Swab conduits before installing cables and exercise care in pulling, to avoid damage to conductors.
- C. Bending Radius - Cable bending radius shall be per applicable code. Install feeder cables in one continuous length.
- D. Equipment Grounding Conductors - Provide an equipment grounding conductor, whether or not it is shown on the Drawings, in all conduits or all raceways.

- E. Panelboard Wiring - In panels, bundle incoming wire and cables which are No. 6 AWG and smaller, lace at intervals not greater than 6 inches, neatly spread into trees and connect to their respective terminals. Allow sufficient slack in cables for alterations in terminal connections. Perform lacing with plastic cable ties or linen lacing twine. Where plastic panel wiring duct is provided for cable runs, lacing is not necessary when the cable is properly installed in the duct.
- F. Provide #10awg conductors for all 20 amp 120v branch circuits over 100 feet.

3.02 Cable Terminations and Splices

- A. Splices - UL Listed wirenuts.
- B. Terminations - Shall comply with the following:
 - 1. Make up and form cable and orient terminals to minimize cable strain and stress on device being terminated on.
 - 2. Burnish oxide from conductor prior to inserting in oxide breaking compound filled terminal.

3.03 Circuit and Conductor Identification

- A. Color Coding - Provide color coding for all circuit conductors. Insulation color shall be white for neutrals and green for grounding conductors. Ungrounded conductor colors shall be as follows:

<u>VOLTAGE</u>	<u>208/120V</u>	<u>480/277V</u>
Phase A	Black	Brown
Phase B	Red	Orange
Phase C	Blue	Yellow
Neutral	White	Grey
Ground	Green	Green

- B. Color coding shall be in the conductor insulation for all conductors #10 AWG and smaller; for larger conductors, color shall be either in the insulation or in colored plastic tape applied at every location where the conductor is readily accessible.
- C. Circuit Identification - All underground distribution and service circuits shall be provided with plastic identification tags in each secondary box and at each termination. Tags shall identify the source transformer of the circuit and the building number(s) serviced by the circuit.

3.04 Field Tests

- A. All systems shall test free from short circuits and grounds, shall be free from mechanical and electrical defects, and shall show an insulation resistance between phase conductors and ground of not less than the requirements of the CEC. All circuits shall be tested for proper neutral connections.

END OF SECTION 26 05 19

SECTION 26 05 26

GROUNDING

PART 1. GENERAL

1.01 Description of Work

- A. The work of this section consists of furnishing, installing, connection and testing of all grounding systems as specified herein and as shown on the Drawings.

1.02 Related Work

- A. See the following specification sections for work related to work in this section.
 - 1. Section 26 05 10 - Electrical General Requirements.
 - 2. Section 26 05 19 - Low Voltage Wire and Cable

1.03 Submittals: In accordance with Section 26 05 10 Submittals.

- A. Submit manufacturer's literature for review.

1.04 Standards and Codes

- A. American Society for Testing and Materials (ASTM) Publication:
 - 1. B8-1986, Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.
 - 2. B228-1988, Copper Clad Steel Conductors Specification.
- B. The latest editions following applicable codes:
 - 1. California Electrical Code (CEC).
 - 2. Occupational Safety and Health Act (OSHA) standards.
 - 3. All applicable local codes, rules and regulations.

1.05 Quality Assurance

- A. Each and every concealed connection must be inspected by the Owner's Representative before it is covered up by the Contractor.

PART 2. PRODUCTS

2.01 General

- A. The grounding system shall consist of the grounding conductors, ground bus, ground fittings and clamps, and bonding conductors as shown on the Drawings and as required by codes and local authorities.

2.02 System Components

- A. A. Ground Rods: Ground rods shall be cone pointed copper clad Grade 40

- HS steel rods conforming to ASTM B228. The welded copper encased steel rod shall have a conductivity of not less than 27% of pure copper. Rods shall be not less than 3/4-inch in diameter and ten feet long, unless otherwise indicated. Rods longer than ten feet shall be made up of ten foot units joined together with threaded couplings. The manufacturer's trademark shall be stamped near the top.
- B. Ground Conductors: Buried conductors shall be medium-hard drawn bare copper; other conductors shall be soft drawn copper. Sizes over No. 6 AWG shall be stranded conforming to ASTM B8. In all conduit runs, a green insulated copper ground wire, sized to comply with codes, shall be installed.
 - C. Ground Connections: Exposed ground connections shall be high copper alloy bolted pressure types or exothermically welded type as notes. Buried connections shall be either exothermically welded type or approved compression types for connection of copper to copper or copper to steel, as required. Lug for attachment of cables to steel enclosures shall be of the binding post type with a 1/2-13NC stud. Each post shall accommodate cables from #4 AWG to #2/0 AWG.
 - D. Ground Rod Boxes: Boxes shall be nine-inch diameter precast concrete units with cast iron traffic covers. Units shall be 12 inches deep. Covers shall be embossed with the wording "Ground Rod".
 - E. Ground Bus: 2" x 1/4" x (length as specified on drawings) copper busbar. Provide isolation stand off bushings. Provide drilled and tapped 3/8" diameter holes on 2 foot centers. Provide "ALCU" lugs and bronze bolts. Connect busbar to main grounding system and bond to metallic domestic cold water pipe with #8 ground conductor.

PART 3. EXECUTION

3.01 Installation

- A. Ground all equipment, including, but not limited to, panel boards, terminal cabinets and outlet boxes, for which a ground connection is required per the NEC, even though not specifically shown on the Drawings.
- B. The ground pole of receptacles shall be connected to their outlet boxes by means of a copper ground wire connecting to a screw in the back of the box.
- C. Provide a ground rod box for each ground rod so as to permit ready access for the connection and/or removal of any pressure connectors to facilitate testing.
- D. Where ground rods must be driven to depths over ten feet, increase rod diameter used, sufficiently to prevent the rod from bending or being damaged.
- E. Make embedded or buried ground connections, taps and splices with exothermically welded connections or approved compression type connectors.

- F. Make connections of grounding conductors to equipment ground buses and enclosures using binding post type connectors.
- G. Effectively bond structural steel for buildings to the grounding system, "UFER" ground.
- H. Install a ground rod in each primary handhole. Connect the ground conductor installed for each primary duct bank to the ground rod in each handhole. Bond metal conduits to handhole ground rod.

3.02 Testing

- A. Conduct ground resistance tests using a ground resistance tester with a scale reading of 25 ohms maximum.
- B. Test methods shall conform to IEEE Standard 81 using the three-electrode method. Conduct test only after a period of not less than 48 hours of dry weather.
- C. Take resistance readings for each ground rod individually and for each system as a whole without benefit of chemical treatment or other artificial means. Ground resistance readings shall not exceed 25 ohms. If readings are not to the Contracting Officer's approval, provide lengthened or additional ground rods (maximum of two additional rods).
- D. Furnish to the Owner's Representative a test report with recorded data of each ground rod location and each system.

END OF SECTION 26 05 26

SECTION 26 05 33

CONDUITS, RACEWAYS AND FITTINGS

PART 1. GENERAL

1.01 Description of Work

- A. The work of this section consists of furnishing and installing conduits, raceways and fittings as shown on the Drawings and as described herein.

1.02 Related Work

- A. See the following specification sections for work related to the work in this section:
 - 1. 26 05 43 Underground Ducts.
 - 2. 26 05 44 In Grade Pull Boxes
 - 3. 26 05 19 Low Voltage Wire and Cable.
 - 4. 26 05 34 Junction and Pull Boxes

1.03 Submittals

- A. As specified in Division 1.
 - 1. Catalog Data: Provide manufacturer's descriptive literature.
 - 2. Single Submittal: A single complete submittal is required for all products covered by this Section.

PART 2. PRODUCTS

2.01 Conduits, Raceways

- A. Electrical Metallic Tubing (EMT) shall be hot-dip galvanized after fabrication. Couplings shall be compression or setscrew type.
- B. Flexible Conduit: Flexible metal conduit shall be galvanized steel.
- C. Galvanized Rigid Steel Conduit (GRS) shall be hot-dip galvanized after fabrication. Couplings shall be threaded type.
- D. Rigid Non-metallic Conduit: Rigid non-metallic conduit shall be PVC Schedule 40 (PVC-40 or NEMA Type EPC-40) conduit approved for underground use and for use with 90°C wires.
- E. The use of "MC Cable shall not be permitted without written approval.

2.02 Conduit Supports

- A. Supports for individual conduits shall be galvanized malleable iron one-hole type with conduit back spacer.
- B. Supports for multiple conduits shall be hot-dipped galvanized Unistrut or Superstrut channels, or approved equal. All associated hardware shall be

hot-dip galvanized.

- C. Supports for EMT conduits shall be galvanized pressed steel single hole straps.
- D. Clamp fasteners shall be by wedge anchors. Shot in anchors shall not be allowed.

2.03 Fittings

- A. Provide threaded-type couplings and connectors for rigid steel conduits. Provide compression (watertight) steel type (die-cast zinc or malleable iron type fittings not allowed), or setscrew type for EMT. Provide threaded couplings and Meyers hubs for rigid steel conduit exposed to weather.
- B. Fittings for flexible conduit shall be Appleton, Chicago, IL, Type ST, O-Z Gedney Series 4Q by General Signal Corp., Terryville, CT, T & B 5300 series, or approved equal.
- C. Fittings for use with rigid steel shall be galvanized steel or galvanized cast ferrous metal; access fittings shall have gasketed cast covers and be Crouse Hinds Condulets, Syracuse, NY, Appleton Unilets, Chicago, IL, or approved equal. Provide threaded-type couplings and connectors; setscrew type and compression-type are not acceptable.
- D. Fittings for use with rigid non-metallic conduit shall be PVC and have solvent-weld-type conduit connections.
- E. Union couplings for conduits shall be the Erickson type and shall be Appleton, Chicago, IL, Type EC, O-Z Gedney 3-piece Series 4 by General Signal Corp., Terryville, CT, or approved equal. Threadless coupling shall not be used.
- F. Bushings
 - 1. Bushings shall be the insulated type.
 - 2. Bushings for rigid steel shall be insulated grounding type, O-Z Gedney Type HBLG, Appleton Type GIB, or approved equal.
- G. Conduit Sealants
 - 1. Fire Retardant Types: Fire stop material shall be reusable, non-toxic, asbestos-free, expanding, putty type material with a 3-hour rating in accordance with UL Classification 35L4 or as specified on the Drawings.

PART 3. EXECUTION

3.01 Conduit, Raceway and Fitting Installation

- A. For conduit runs exposed to weather provide rigid metal (GRS).
- B. For conduit run underground, in concrete or masonry block walls and under concrete slabs, install minimum ¾" size nonmetallic (PVC) with PVC elbows. Where conduits transition from underground or under slab to above grade

- install wrapped rigid metal (GRS) elbows and risers.
- C. For conduit runs concealed in steel or wood framed walls or in ceiling spaces or exposed in interior spaces above six feet over the finished floor, install EMT.
 - D. Flexible metal conduit shall be used only for the connection of recessed lighting fixtures and motor connections unless otherwise noted on the Drawings. Liquid-tight steel flexible conduit shall be used for motor connections.
 - E. The minimum size raceway shall be 3/4-inch unless indicated otherwise on the Drawings.
 - F. Installation shall comply with the CEC.
 - G. From pull point to pull point, the sum of the angles of all of the bends and offset shall not exceed 270 degrees.
 - H. Conduit Supports: Properly support all conduits as required by the NEC. Run all conduits concealed except where otherwise shown on the drawings.
 - 1. Exposed Conduits: Support exposed conduits within three feet of any equipment or device and at intervals not exceeding NEC requirements; wherever possible, group conduits together and support on common supports. Support exposed conduits fastened to the surface of the concrete structure by one-hole clamps, or with channels. Use conduit spacers with one-hole clamps.
 - (a) Conduits attached to walls or columns shall be as unobtrusive as possible and shall avoid windows. Run all exposed conduits parallel or at right angles to building lines.
 - (b) Group exposed conduits together. Arrange such conduits uniformly and neatly.
 - 2. Support all conduits within three feet of any junction box, coupling, bind or fixture.
 - 3. Support conduit risers in shafts with Unistrut Superstrut, or approved equal, channels and straps.
 - I. Moisture Seals: Provide in accordance with NEC paragraphs 230-8 and 300-5(g).
 - J. Where PVC conduit transitions from underground to above grade, provide rigid steel 90's with risers. Rigid steel shall be half-lap wrapped with 20-mil tape and extend minimum 12" above grade.
 - K. Provide a nylon pull cord in each empty raceway.
 - L. Provide galvanized rigid steel factory fittings for galvanized rigid steel conduit.
 - M. Slope all underground raceways to provide drainage; for example, slope

conduit from equipment located inside a building to the pull box or manhole located outside the building.

N. Conduits shall be blown out and swabbed prior to pulling wires.

END OF SECTION 26 05 33

SECTION 26 05 34

JUNCTION AND PULL BOXES

PART 1. GENERAL

1.01 Description of Work

- A. The work of this Section consists of providing all required labor, supervision, materials and equipment to satisfactorily complete all electrical installations shown on the drawings, included in these Specification, or otherwise needed for a complete and fully operating facility. The work shall include but not be limited to the following:
- B. Furnish and install all required material, supports and miscellaneous material for the satisfactory interconnection of all associated electrical systems.

1.02 Related Work

- A. See the following specification sections for work related to the work of this section.
 - 1. 26 05 10 General Electrical Requirements.
 - 2. 26 05 33 Conduits, Raceway and Fittings.
 - 3. 26 05 19 Low Voltage Wire and Cable.

1.03 Standards and Codes

- A. Submit in accordance with the requirements of Section 26 05 10: Electrical General Provisions, the following items:
 - 1. Pull boxes larger than 6"x 6"x 4".

PART 2. PRODUCTS

2.01 Outlet boxes, Junction and Pull boxes

- A. Standard Outlet Boxes: Galvanized, one-piece die formed or drawn steel, knock-out type of size and configuration best suited to the application indicated on the Drawings. Minimum box size shall be 4 inches square by 1-1/2 inches deep with mud rings as required.
- B. Switch boxes: Minimum box size shall be 4 inches square by 1-1/2 inches deep with mud rings as required. Install multiple switches in standard gang boxes with raised device covers suitable for the application indicated.
- C. Conduit bodies: Cadmium plated, cast iron alloy. Conduit bodies with threaded conduit hubs and neoprene gasketed, cast iron covers. Bodies shall be used to facilitate pulling of controls or to make changes in conduit direction only. Splices are not permitted in conduit bodies. Crouse-Hinds Form 8 Condulets, Appleton Form 35 Unilets or equal.
- D. Sheet Metal Boxes: Use standard outlet or concrete ring boxes wherever

possible; otherwise use a minimum 16 gauge galvanized sheet metal, NEMA I box sized to Code requirements with covers secured by cadmium plated machine screws located six inches on centers. Circle AW Products, Hoffman Engineering Company or equal.

- E. Flush Mounted Pull boxes and Junction boxes: Provide overlapping covers with flush head cover retaining screws, prime coated.

PART 3. EXECUTION

3.01 Outlet Boxes

A. General:

1. All outlet boxes shall finish flush with building walls, ceilings and floors except in mechanical and electrical rooms above accessible ceiling or where exposed work is called for on the Drawings.
2. Install raised device covers (plaster rings) on all switch and receptacle outlet boxes installed in masonry or stud walls or in furred, suspended or exposed concrete ceilings. Covers shall be of a depth to suit the wall or ceiling finish.
3. Leave no unused openings in any box. Install close-up plugs as required to seal openings.

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. Locate switch outlet boxes on the latch side of doorways.
3. Outlet boxes shall not be installed back to back nor shall through-wall boxes be permitted.
4. For outlets mounted above counters, benches or backsplashes, coordinate location and mounting heights with built-in units. Adjust mounting height to agree with required location for equipment served.

C. Supports:

1. Outlet Boxes installed in metal stud walls shall be equipped with brackets designed for attaching directly to the studs or shall be mounted on specified box supports.
2. Fixture outlet boxes installed in suspended ceiling of gypsum board or lath and plaster construction shall be mounted to 16 gauge metal channel bars attached to main ceiling runners.
3. Fixture outlet boxes installed in suspended ceilings supporting acoustical tiles or panels shall be supported directly from the structure above where

pendant mounted lighting fixture are to be installed on the box.

4. Fixture Boxes above tile ceilings having exposed suspension systems shall be supported directly from the structure above.
5. Outlet and / or junction boxes shall not be supported by grid or fixture hanger wires at any locations.

3.02 3.02 Junction and Pull Boxes

A. General:

1. Install junction or pull boxes 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. Note that these boxes are not shown on the Drawings.
2. Locate pull boxes and junction boxes in concealed locations above removable ceilings or exposed in electrical rooms, utility rooms or storage areas.
3. Install raised covers (plaster rings) on boxes in stud walls or in furred, suspended or exposed concrete ceilings. Covers shall be of a depth to suit the wall or ceiling finish.
4. Leave no unused openings in any box. Install close-up plugs as required to seal openings.
5. Identify circuit numbers and panel on cover of junction box with black marker pen.

B. Box Layouts:

1. Boxes above hung ceilings having concealed suspension systems shall be located adjacent to openings for removable recessed lighting fixtures.

C. Supports:

1. Boxes installed in metal stud walls shall be equipped with brackets designed for attaching directly to the studs or shall be mounted on specified box supports.
2. Boxes installed in suspended ceilings of gypsum board or lath and plaster construction shall be mounted to 16 gauge metal channel bars attached to main ceiling runners.
3. Boxes installed in suspended ceilings supporting acoustical tiles or panels shall be supported directly from the structure above.
4. Boxes mounted above suspended acoustical tile ceilings having exposed suspension systems shall be supported directly from the structure above.

END OF SECTION 26 05 34

SECTION 26 05 43

UNDERGROUND DUCTS

PART 1. GENERAL

1.01 Description of Work

- A. The work of this section consists of furnishing and installing raceways, raceway spacers and encasing material with necessary excavation for underground ducts.
- B. Encasement - Encasement shall be sand for all other raceways.
- C. Where required - All raceways, where run underground in and excavation shall be installed in compliance with the requirements of this Section. Conduits run underground without encasement shall be as indicated in the Drawings.

1.02 Related Work

- A. See the following specification sections for work related to the work of this section.
 - 1. 31 23 00 Excavation and Backfill
 - 2. 26 05 33 Conduit Raceway and Fittings

1.03 Standards and Codes

- A. Work and material shall be in compliance with and according to the requirements of the latest revision of the following standards and codes.
- B. National Fire Protection Association (NFPA), National Electrical Code (NEC) - Latest Revision:
 - 1. Underground Installations NEC - Article 300
 - 2. Rigid Nonmetallic Conduit NEC - Article 347
- C. California Electrical Code (CEC).
- D. Construction of Underground Electric Supply and Communication Systems, State of California Public Utilities Commission, General Order No. 128.

1.04 Submittals

- A. As specified in Division 1 and Section 26 05 10.
- B. Catalog Data: Provide manufacturer's descriptive literature.
- C. Single Submittal: A single complete submittal is required for all products covered by this Section.

PART 2. PRODUCTS

2.01 Raceways

- A. As specified in Section 26 05 33 Conduits, Raceways and Fittings.

2.02 Spacers

- A. Molded plastic as furnished by the raceway manufacturer, to cradle and position the raceways in the excavation for placing the encasement.
- B. Shape to accurately fit the raceway, provide the correct raceway spacing, to interlock in place and stack.

PART 3. EXECUTION

3.01 Excavation

- A. As specified in Section 31 23 00, Excavation and Backfill and as required for the work shown on the Drawings.

3.02 Raceway

- A. Install raceways in spacers. Spacers installed at intervals of five feet and within one inch each side of all bends and joints.
- B. Solvent weld connections.

3.03 Sand Encasement

- A. As shown on drawings and specified in Section 31 23 00 - Excavation and Backfill.

3.04 Backfill

- A. As shown on drawings and specified in Section 31 23 00 - Excavation and Backfill.

END OF SECTION 26 05 34

SECTION 26 05 44

IN GRADE PULL BOXES

PART 1. GENERAL

1.01 Description of Work

- A. The work of this section consists of providing all labor, supervision, tools, materials, and performing all work necessary to furnish and install pre-cast concrete vaults and pull boxes with necessary excavation.

1.02 Related Work

- A. See the following specification sections for work related to the work of this section.
 - 1. 31 23 00 Excavation and Backfill.
 - 2. 03 00 00 Concrete.
 - 3. 26 05 43 Underground Ducts.

1.03 Standards and Codes

- A. Work and material shall be in compliance with and according to the requirements of the latest revision of the following standards and codes.
 - 1. National Fire Protection Association (NFPA), National Electrical Code (NEC) - Latest Revision.
 - 2. California Electrical Code (CEC).
 - 3. American Society for Testing and Materials (ASTM):
 - (a) A 185 - Welded Steel Wire Fabric for Concrete Reinforcement.
 - (b) A 615 - Deformed and Plain Billet - Steel Bars for Concrete Reinforcement.
 - (c) C 33 - Concrete Aggregates.
 - (d) C 478 - Pre-cast Reinforced Concrete Vault Sections, Specification for.

1.04 Submittals

- A. As specified in Division 1 and Section 26 05 10.
 - 1. Catalog Data: Provide manufacturer's descriptive literature.
 - 2. Single Submittal: A single complete submittal is required for all products covered by this Section.

PART 2. PRODUCTS

2.01 Materials and Equipment

A. General Requirements

1. Concrete vaults and pull boxes for electrical power, controls and other communication circuits shall consist of pre-cast reinforced concrete boxes, extensions' bases, and covers as specified herein and as indicated on the Drawings. Pre-cast units shall be the product of a manufacturer regularly engaged in the manufacture of pre-cast vaults and pull boxes. Acceptable manufacturers are Christy, Utility Vault, Brooks, Associated Concrete or equal.

B. Construction

1. Pre-cast concrete vaults and pull boxes for electrical power distribution and communication circuits with associated risers and tops shall conform to ASTM C478 and ACI 318. Vaults and pull boxes shall be the type noted on the Drawings and shall be constructed in accordance with the applicable details as shown. Tops, walls and bottoms shall consist of reinforced concrete. Walls and bottom shall be of monolithic concrete construction. Duct entrances and windows shall be located near the corners of structures to facilitate cable racking. Provide all necessary lugs, rabbets, and brackets. Set pulling-in irons and other built-in items in place prior to pouring concrete. A pulling-in iron shall be installed in the wall opposite each duct entrance. All steel other than "rebar" shall be hot dipped galvanized after fabrication.

C. Cable Racks

1. Vaults shall be provided with galvanized cable racks, including rack arms and insulators, and shall be adequate to accommodate the indicated cables; porcelain insulators shall be provided for electrical vaults only.

D. Covers

1. The word "ELECTRICAL" shall be cast in the top face of all electrical power vault and cable boxes.
2. The words "FIRE ALARM" shall be cast in the top face of all fire alarm vault and cable boxes.
3. The word "SIGNAL" shall be cast in the top face of all telecom, intercom, CATV, data, EMS, security and/or clock vault and cable boxes.

E. Sumps

1. Where indicated on the drawings, drain sumps shall be provided.

F. Concrete

1. Aggregates used in the concrete mix, either coarse or fine, excluding light weight aggregates, shall conform to ASTM C 33. Aggregates shall be properly graded and free of deleterious substances to produce a homogeneous concrete mix when blended with cement.

G. Cement

1. The cement shall be Type II low alkali Portland cement and shall meet the requirement of ASTM C 150.

H. Compressive Strength

1. Sufficient cement content shall be used per batch to produce a minimum compressive strength of 3,000 psi at 28 days.

I. Reinforcing Steel

1. Welded wire mesh for street lighting boxes shall conform to ASTM A 185.
2. Reinforcing bars for primary and secondary electrical vaults and pull boxes, and communication vaults and pull boxes shall be intermediate grade billet steel conforming to ASTM A 615.

J. Ladders

1. Ladders for vaults shall be sized as required, stationary galvanized steel.

PART 3. EXECUTION

3.01 Installation

- A. Pre-cast vaults and pull boxes shall be installed approximately where indicated on the Drawings. The exact location of each vault or pull box shall be determined after careful consideration has been given to the location of other utilities, grading, and paving. All vaults, cable boxes and secondary pull boxes shall be installed with a minimum of 6-inch thick crushed rock or sand bedding.
- B. Paved areas
1. Vaults and pull boxes located in areas to be paved shall be installed such that the top of the cover shall be flush with the finished surface of the paving.
- C. Unpaved Areas
1. In unpaved areas, the top of vaults and pull box covers shall be approximately 2 inches above finished grade.
- D. Joint Seals
1. Section joints of pre-cast vaults and pull boxes shall be sealed with compound as recommended by the manufacturer.

E. Trenching, Backfilling, and Compaction:

1. Trenching, backfilling and compaction shall be as specified in Section 31 23 00 - Excavation and Backfill.

F. Grounding:

1. Ground rods and associated copper ground loop shall be installed in all vaults. Ground loop shall be properly connected to the cable shielding, at each cable joint or splice by means of a minimum number 4 AWG or equivalent braided tinned copper wire. Ground rods shall be protected with a double wrapping of pressure-sensitive plastic tape for a distance of two inches above and six inches below concrete penetrations. Ground wires shall be neatly and firmly attached to vault cable support racks.

END OF SECTION 26 05 44

SECTION 26 24 16

PANELBOARDS AND DISTRIBUTION PANELS

PART 1. GENERAL

1.01 Description of Work

- A. The work of this Section consists of providing panelboards and circuit breakers as shown on the Drawings and as described herein.

1.02 Related Work

- A. See the following specification sections for work related to the work in this Section.
 - 1. 26 05 10 General Electrical Requirements
 - 2. 26 05 26 Grounding
 - 3. 26 05 19 Line Voltage Wire and Cable
 - 4. 26 08 16 Circuit Breakers

1.03 Submittals

- A. Shop Drawings - As specified in Division 1 and Section 26 05 10. For each panelboard and distribution panels furnished under this Contract, submit manufacturer's name, catalog data, and the following information:
 - 1. Panelboard / distribution panel type.
 - 2. Main bus and terminal connection sizes.
 - 3. Location of line connections.
 - 4. Cabinet dimension.
 - 5. Gutter space.
 - 6. Gauge of boxes and fronts.
 - 7. Finish data.
 - 8. Voltage rating.
 - 9. Breaker manufacturer, types, trip rating, and interrupting ratings.
 - 10. When information is available on the Drawings, show breaker circuit numbers and locations along with trip ratings on a panelboard layout.
- B. Single Submittal - A single complete submittal is required for all products covered by this Section.
- C. Closeout Submittals: Submit operation and maintenance data for panelboards and circuit breakers including nameplate data, parts lists, factory and field-test reports, recommended maintenance procedures and typewritten as-built panel schedules. Submit in accordance with Division 1.

1.04 Warranty

- A. Manufacturer shall warrant specified equipment free from defects in materials and workmanship for the lesser of one (1) year from the date of installation or eighteen (18) months from the date of purchase.

PART 2. PRODUCTS

2.01 Panelboards

- A. General: Lighting and Receptacle Panelboards shall be the automatic circuit breaker type. The number and arrangement of circuits, trip ratings, spares and blank spaces for future circuit breakers shall be as shown on the Drawings or, if not shown, 42 circuits. All circuit breakers shall be quick-make, quick-break, thermal-magnetic bolt-on type, with 1, 2 or 3 poles as shown, each with a single operating handle. Tandem or piggyback breakers shall not be used.
- B. Nameplates:
 - 1. Each panelboard shall have a field mounted identifying, rigid, plastic nameplate giving the panel identification as shown on the Drawings. Nameplates shall be laminated with black characters minimum 3/16" high on a white laminated background. Nameplates shall be attached with screws.
 - 2. Each panelboard shall have a manufacturer's nameplate showing the voltage, bus rating, number of phases, frequency and number of wires.
- C. Construction:
 - 1. Door and trim shall be finished to match color of surrounding wall. Box shall be hot-dip galvanized, field finished to match the front.
 - 2. Panelboards and enclosures shall conform to requirements of all relevant codes. Panelboards shall be suitable for use as service equipment.
 - 3. Panelboards shall be furnished with door-in-door or hinged trim fronts with key latch, on inner door and a typed directory card and holder. Panelboard circuits shall be arranged with odd numbers on the left and even numbers on the right. Provide weatherproof, NEMA type 3R enclosures for outdoor installation.
- D. Busbars: Panelboard busbars shall be phase sequence type suitable for bolt-on circuit breakers. All busbars shall be copper. Panelboard bus current ratings shall be determined by heat-rise tests conducted in accordance with UL 67.
 - 1. Busbars shall be braced for the indicated short circuit level scheduled.
 - 2. Busbars shall be installed completely throughout the panel for installation

of both required and future breakers. Schedules indicate spaces for future breakers.

3. Busbars shall be designed so circuit breakers may be changed without machining, drilling or tapping.
 4. Separate isolated Neutral and Ground busbars shall be provided. If called for on panel schedules, Neutral busbar may be oversized. Ground busbar shall be identified with green stripe and fully bonded to enclosure.
- E. Circuit Breakers: Circuit breakers shall be the molded case type with trip and interrupting ratings as shown on the Drawings.
- F. Series ratings shall not be allowed unless specifically noted on drawings.
- G. Typed Circuit Directories: All panelboards shall have typed directories identifying all circuits installed behind plastic cover provided by the panelboard manufacturer.
- H. Manufacturer:
1. Panelboards shall be Square D, Siemens or approved equal.

2.02 Distribution Panels

- A. General: Distribution panels shall be the automatic circuit breaker type. The number and arrangement of circuits, trip ratings, spares and blank spaces for future circuit breakers shall be as shown on the Drawings. All circuit breakers shall be quick-make, quick-break, thermal-magnetic bolt-on type, with 1, 2 or 3 poles as shown, each with a single operating handle. Tandem or piggyback breakers shall not be used.
- B. Nameplates:
1. Each distribution board shall have a field mounted identifying, rigid, plastic nameplate giving the panel identification as shown on the Drawings. Nameplates shall be laminated with black characters minimum 3/16" high on a white laminated background. Nameplates shall be attached with screws.
 2. Each distribution panel shall have a manufacturer's nameplate showing the voltage, bus rating, number of phases, frequency and number of wires.
- C. Construction:
1. Door and trim shall be finished to match color of surrounding wall. Box shall be hot-dip galvanized, field finished to match the front.
 2. Distribution panels and enclosures shall conform to requirements of all relevant codes. Distribution panels shall be suitable for use as service.
 3. Distribution panels shall have a front door with key latch and a typed directory card and permanently attached holder. Adhesive backed holders are not acceptable. Distribution panel's circuits shall be arranged with odd

numbers on the left and even numbers on the right. Provide weatherproof, NEMA type 3R enclosures for outdoor installation.

- D. Busbars: Distribution panel's busbars shall be phase sequence type suitable for bolt-on circuit breakers. All busbars shall be copper. Panelboard bus current ratings shall be determined by heat-rise tests conducted in accordance with UL 67.
 - 1. Busbars shall be braced for the indicated short circuit level scheduled.
 - 2. Busbars shall be installed completely throughout the panel for installation of both required and future breakers. Schedules indicate spaces for future breakers.
 - 3. Busbars shall be designed so circuit breakers may be changed without machining, drilling or tapping.
 - 4. Separate isolated Neutral and Ground busbars shall be provided. If called for on panel schedules, Neutral busbar may be oversized. Ground busbar shall be identified with green stripe and fully bonded to enclosure.
- E. Circuit Breakers: Circuit breakers shall be the molded case type with trip and interrupting ratings as shown on the Drawings.
- F. Series rating shall not be allowed unless specifically noted on drawings.
- G. Manufacturer:
 - 1. Distribution panels shall be Square D, Siemens or approved equal.

PART 3. EXECUTION

3.01 Installation: Panelboards and Distribution Panels shall be installed where indicated on the Drawings, and in accordance with the manufacturer's instructions.

3.02 Installation

- A. Panelboards and Distribution Panels shall be installed with the top of the box 6'-6" above the floor. Panelboards and Distribution Panels shall be plumb within 1/8-inch. The highest breaker-operating handle shall not be higher than 72 inches above the floor.
- B. Floor mounted Panelboards and Distribution Panels shall be installed on a concrete housekeeping slab. The concrete slab shall be a minimum of 4" above finished floor, with minimum of 6" extension beyond equipment. The concrete slab shall have a 1/2" chamfer. See Division 3 for concrete work requirements.

3.03 Field Tests

- A. Insulation Resistance Tests: Perform insulation resistance tests on circuits with #2 AWG and larger conductors to be energized with a line-to-neutral voltage of 120 volts or more. Make these tests after all equipment has been

- connected, except that equipment, which may be damaged by the test voltage, shall not be connected. Test the insulation with a 500Vdc insulation resistance tester with a scale reading 100 megohms. The insulation resistance shall be 2 megohms or more. Submit results for review.
- B. Grounding: Grounding shall conform to Section 26 05 26.
- C. Continuity: Panelboard and Distribution Panel circuits shall be tested for continuity prior to energizing. Continuity tests shall be conducted using a dc device with a bell or buzzer.

END OF SECTION 26 24 16

SECTION 26 28 16

CIRCUIT BREAKERS

PART 1. GENERAL

1.01 Description of Work

- A. The work of this Section consists of providing circuit breakers as shown on the Drawings and as described herein.

1.02 Related Work: See the following Specification Sections for work related to the work in this Section.

- A. Section 26 05 10 - General Electrical Requirements

1.03 Submittals

- A. Shop Drawings - Submittals shall be in accordance with Division 1. For each circuit breaker furnished under this Contract, submit manufacturer's name, catalog data, and the following information:
 - 1. Terminal connection sizes.
 - 2. Voltage rating.
 - 3. Breaker manufacturer, types, trip ratings and interrupting ratings.
- B. Single Submittal - A single complete submittal is required for all products covered by this Section.
- C. Closeout Submittals: Submit in accordance with Division 1 and Section 26 05 10 operation and maintenance data for circuit breakers including nameplate data, parts lists, manufacturer's circuit breaker timer, current, coordination curves, factory and field test reports and recommended maintenance procedures.

1.04 Warranty

- A. Manufacturer shall warrant specified equipment free from defects in materials and workmanship for the lesser of one (1) year from the date of installation of eighteen (18) months from the date of purchase.

PART 2. PRODUCTS

2.01 2.01 Circuit Breaker: Each circuit breaker shall consist of the following

- A. A molded case breaker with an over center toggle-type mechanism, providing quick-make, quick-break action. Each circuit breaker shall have a permanent trip unit containing individual thermal and magnetic trip elements in each pole. Circuit breakers shall have variable magnetic trip elements which are set by a single adjustment to assure uniform tripping characteristics in each pole.
- B. Breaker shall be calibrated for operation in an ambient temperature of 40°C.

- C. Each circuit breaker shall have trip indication by handle position and shall be trip-free.
- D. Three pole breakers shall be common trip.
- E. The circuit breakers shall be constructed to accommodate the supply connection at either end of the circuit breaker. Circuit breaker shall be suitable for mounting and operation in any position.
- F. Breakers shall be rated as shown on Drawings.
- G. Series rating of circuit breakers shall not be allowed unless specifically noted on drawings.
- H. Breakers shall be UL listed. Circuit breakers shall have removable lugs.
- I. Lugs shall be UL listed for copper and aluminum conductors.
- J. Breakers shall be UL listed for installation of mechanical screw type lugs.
- K. Circuit breakers serving HACR rated loads shall be HACR type. Circuit breakers serving other motor loads shall be motor rated.
- L. Breakers indicated as “current limiting “ (CL), shall be of the non-fused type; Square D I-Limiter, Cutler Hammer Limit-R, or ITE Sentron only.

PART 3. EXECUTION

3.01 Mounting

- A. The highest breaker operating handle shall not be higher than 72 inches above the floor.

END OF SECTION 26 28 16

SECTION 26 31 00

PHOTOVOLTAIC SYSTEM

PART 1. GENERAL

1.01 Scope of Work

- A. Provide a complete turnkey installation of a building integrated photovoltaic PV power system. Furnish all labor, material, tools, equipment, and services required for the complete installation of the PV power system.
- B. The photovoltaic PV power system shall supply alternating current, complete with PV modules, supports, power panels, inverters, equipment supports, related wiring and other items required to provide a complete operational system. The complete photovoltaic system, including all major balance of system components must be designed and supplied by PV manufacturer for integration.
- C. Provide and install a 186.12KW complete photovoltaic systems including but not limited to Sun Power photovoltaic solar panel, SMA string and disconnects and support as shown on the drawings.
- D. Contractor shall provide all equipment and materials required to construct the photovoltaic array and interconnect it to the utility grid. See drawings for additional requirements.
- E. Contractor shall provide all equipment and materials required to ground the photovoltaic panels to the building grounding wire. See Array Grounding and electrical drawings for additional requirement.
- F. Provide the application to Utility company for the net metering agreement and Utility company rebates. The system shall be designed to meet all of the requirements of the Utility company in order to obtain the rebates and proper net metering agreement.

1.02 Section Includes

- A. General installation requirements
- B. Photovoltaic system requirements

1.03 Related Sections

See the following Specification Sections for work related to the work in this Section.

- A. 26 05 10 General Electrical Requirements
- B. 26 05 26 Grounding
- C. 26 05 19 Low Voltage Wire and Cable

1.04 References

- A. California Electric Code
- B. California Building Code
- C. IEEE 1262
- D. IEEE 929-2000
- E. UL 1703 – Flat-Plate Photovoltaic Modules and Panels; 2002
- F. NEC Article 690, Photovoltaic Systems
- G. NEMA WD 6-Wiring Device, dimensional Requirements
- H. NEMA WD 1-General Requirements for Wiring Devices
- I. Photovoltaic Power Systems and the 2008 NEC: Suggested Practices

1.05 Submittals

- A. Electrical Diagram and installation drawing of the complete photovoltaic components: including photovoltaic modules, inverter/transformer, fuses, cables, conductors, connectors and all other related equipment.
- B. Complete Photovoltaic material list as provided by photovoltaic manufacturer.
- C. Installation Schedule and Plan of Work.
- D. Equipment data sheets and installation/operation manuals for all major components.
- E. Shop drawings and complete system diagram indicating all components.
- F. Prior to bid award, Contractor shall provide additive and deductive unit pricing for photovoltaic module installation, per module. This price to include module material and mounting hardware cost.
- G. Contractor shall provide product technical data for all equipment required but not precisely specified including product catalog sheets, standard specifications and details.

1.06 Quality Assurance

- A. CONTRACTOR QUALIFICATIONS
 - 1. Contractor shall possess at least one of the following State of California Contractor Licenses: C46 – Solar Contractor, C10 – Electrical Contractor.
 - 2. Preferential bid status shall be granted to bidders providing active U.S. customer references representing successful grid-connected PV projects completed under the California Self Generation Incentive Program.
 - 3. Preferential bid status shall be granted to bidders providing evidence that the superintendent and foreman selected for supervision of this job have maintained positions of similar responsibility in at least one photovoltaic

project.

4. The installer of the PV power system shall have a minimum of 5 years of experience installing photovoltaic systems.
5. The installer of the PV power system shall be a certified manufacturer's representative of the PV panels to be installed. The installer shall have factory trained staff, certified by the photovoltaic manufacturer, familiar with the installation of the specified PV panels, inverters, etc.

B. INSTALLATION WARRANTY

1. Contractor shall provide a 5-year comprehensive warranty on all labor and parts supplied.
2. Provide written limited warranty, executed by manufacturer, agreeing to repair or replace components of the entire building integrated photovoltaic system against defects in materials and or manufacturing workmanship for a period of five years from the date of complete installation.

C. Installation and equipment shall comply with all applicable codes, including but not limited to Articles 690, 705, and 250 of the 2002 NEC. All products that are listed, tested, identified, or labeled by UL, FM, ETL, Photovoltaic modules shall be certified to meet IEEE standard 1262, IEEE 929-2000 and listed to UL standard 1703. All inverters shall be certified as meeting the requirement of UL 1741.

D. Prior to installation of Panels, manufacturer must certify installer and approve installation procedures. Contractor must supply certification from manufacturer prior to start of installation.

E. Manufacturer of photovoltaic panels is required to have a minimum of ten (10) years of successful experience continuously manufacturing solar electric panels.

F. The installer of the PV power system shall be a certified manufacturer's representative of the PV panels to be installed. The installer shall have factory trained staff, certified by the photovoltaic manufacturer, familiar with the installation of the specified PV panels, inverters, etc.

1.07 Delivery, Storage, and Handling

- A. Deliver photovoltaic system to job site properly packaged to provide protection against transportation damage.
- B. Contractor shall be responsible for transferring the photovoltaic modules from the module manufacturer's truck to on-site storage containers.
- C. Adequately protect equipment placed in storage at the construction site that can be affected by weather conditions, dirt or other contaminants.
- D. Panels are the responsibility of the Contractor while they are on-site storage container during the construction period. Before installation each photovoltaic

module shall be kept in approved storage until it is required for fabrication.

- E. Contractor shall assure that photovoltaic panels stacked on a rooftop do not exceed the rooftop live load limit. Live load limits shall be obtained from the Structural Engineer of Record.
- F. Photovoltaic modules shall be protected from dirt and physical damage at all times. Contractor must follow care instructions provided by the module manufacturer.
- G. Once module is removed from storage, module quick-connects shall be mated or capped at the daily time of work-cessation in order to reduce corrosion of contacts.

PART 2. PRODUCTS

2.01 Building Integrated Photovoltaic Generating System

- A. The complete BIPV system shall be designed, supplied and installed by single contractor that is certified by the photovoltaic module manufacturer for the installation of their product. The contractor shall be responsible for the complete design and installation of the photovoltaic modules, compatible integration of system components, and for optimum system performance.

- B. Photovoltaic Modules:

- 1. Photovoltaic Modules:

- (a) Photovoltaic Modules shall be Polycrystalline Silicon Modules as Manufactured by Sun Power

- (b) Modules shall be Sun Power 470 Watt Module

- 2. Module Electrical Characteristics:

- (a) Maxim Power (Pmax): 470 Watts
 - (b) Tolerance of Pmax: +5%/-0%
 - (c) Cell Configuration: 60 in Series
 - (d) Open Circuit Voltage(Voc): 91.5V
 - (e) Max Power at Voltage(Vpm): 77.6V
 - (f) Short Circuit Current(Isc): 6.45A
 - (g) Max Power at Current(Ipm): 6.06A
 - (h) Module Efficiency (%): 21.7%
 - (i) Max System (DC) Voltage: 600V
 - (j) Series Fuse Rating: 15A
 - (k) NOCT: 47 °C
 - (l) Temp. Coefficient(Pmax): -0.29% / °C

(m) Temp. Coefficient(Voc): -223.2mV / °C

(n) Temp. Coefficient(Isc): 2.9.mA / °C

3. Module Mechanical Characteristics:

(a) Dimensions: 41.2" x 81.4" x 1.8"

(b) Cable Length (l): 1230mm

(c) Output Interconnect Cable: 10AWG with MC4 Locking Connector

(d) Weight: 56 lbs

(e) Max Load: 50 lbs/sf

4. Qualifications:

(a) UL Listed: UL 1703

(b) Fire Rating: Class C

(c) NEC: NEC 2008 Compliant

5. Warranty: 25-year limited warranty on power output.

C. Inverter:

1. The inverter system will convert the DC power from the photovoltaic arrays to commercial AC power.

(a) The inverter shall be sized to match the capacity of the photovoltaic array and deliver the maximum energy to the load (grid).

(b) Peak efficiency shall not be less than 95%.

(c) The inverter shall have a power-conditioning transformer built into the unit.

(d) The inverter shall have a built-in load break rated AC and DC disconnect switches.

(e) The inverter shall be provided with the RS-485 Communications port.

2. The inverter shall meet the following requirements:

(a) IEEE, UL 1741

(b) IEEE 1547

(c) CEC's Eligible Equipment List

(d) NEC

3. Manufacturer:

(a) SMA.

D. Disconnect Switch Located Adjacent to the Main Switchboard

1. Provide AC disconnect switch adjacent to the Main Switchboard. AC

disconnect shall be as follows:

- (a) Size AC disconnect as indicated on the drawings.
- (b) AC disconnect shall be approved type and model meeting all of the requirements of the Utility company. Prior to installation the contractor shall submit the disconnect switch catalog data to the Utility company for approval.
- (c) AC disconnect switch shall be mounted in a location acceptable to the Utility company, no further than 15' from the main switchboard.
- (d) AC disconnect switch shall be accessible to the Utility company at all times.
- (e) AC disconnect switch shall be capable of being locked in a visibly open position by a standard Utility Company Lock.
- (f) Provide a placards with the following words in 1/4" high lettering per CEC 690-17:

“WARNING – ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS – TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION”

“PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH”

- (g) Disconnect switches shall be rated for 600VAC.
- (h) Provide fuses as required by system.
- (i) Manufacturer: Square D

E. Metering/Monitoring

1. Provide ethernet based metering system.
2. System shall provide web-based monitoring of the photovoltaic system.
3. Connections to the inverters shall be via RS485 connection.
4. All cabling, network cabling, network connections shall be provided for a complete metering/monitoring system.
5. Manufacturer: FatSpaniel.

F. Net Generation Output Meter(NGOM):

1. Provide NGOM meter adjacent to the inverter.
2. NGOM shall meet the requirements of PG&E CSI rebate requirements.
3. Provide CT's as required to connect the meter.

PART 3. EXECUTION

3.01 Preparation

- A. Contractor must field-confirm locations of new and existing equipment and other obstructions and perform pre-construction system layout to assure array conformity to as-built roof dimensions.

3.02 Examination

- A. Do not begin installation until all mounting surfaces have been properly prepared.
- B. If preparation of mounting surfaces is the responsibility of another installer, notify Owner/Engineer of unsatisfactory preparation before proceeding with installation.

3.03 Photovoltaic Array Installation

- A. Project design drawings shall be approved by the Architect/Engineer and are to be followed as closely as possible during installation of photovoltaic modules and performance of all electrical work. If the Contractor determines that actual site conditions do not accommodate a particular aspect of the approved design, the Architect/Engineer must approve all Contractor-proposed design changes in writing before deviation from the original design occurs.

B. PHOTOVOLTAIC MODULE MOUNTING

- 1. Contractor shall install photovoltaic modules per the architectural drawings and utilizing a commercial racking system. Contractor shall also follow solar module installation instructions provided by the module manufacturer, except where these instructions conflict with the commercial racking system installation sheet.
- 2. Photovoltaic module shall be Sun Power or equal as shown on the drawings.

C. ARRAY WIRING

- 1. Where conflict arises, this section shall supersede Division 26 00 00.
- 2. Photovoltaic array wiring configurations shall be as shown in the electrical drawings.
- 3. All conductors shall be 90° C rated stranded Cu.
- 4. All above-roof and exterior conduit shall be GRS, all interior conduit shall be EMT conduit.
- 5. All conductors exposed to direct or indirect sunlight shall be of type USE-2 or approved equivalent. All DC conductors in above-ground conduit shall be THHN or equivalent. All DC conductors in below-ground conduit shall be THWN-2 or equivalent.

6. Where outside of conduit, conductors shall be secured to array mounting structure with UV-rated wire ties or UL-listed power wiring securing means. Such securing shall prevent conductors from moving due to wind or contacting the roof surface.
7. All PV source circuit conductors shall enter conduit through rain-tight gland fittings and junction boxes. Gland fitting may be Heyco M4516 or approved equivalent. All components shall be UL-listed, and shall be used in their approved manner.
8. All photovoltaic source circuit conductors shall be routed as directly as possible to junction boxes.
9. All conductor splices unprotected by j-boxes shall employ MC-connectors or approved equivalent.
10. Contractor shall assure that system DC voltage drop does not exceed 1% of nominal voltage. If necessary, Contractor shall increase installed DC conductor size in order to meet this specification.
11. All array wiring and wiring methods shall comply with CEC Article 690.

D. DC ELECTRICAL EQUIPMENT

1. Combiner boxes and DC disconnects shall be mounted on carport structure nearest to the connected photovoltaic modules. Combiner box manufacturer and part number shall be as specified in the electrical drawings or approved equivalent.
2. DC electrical equipment shall be labeled as indicated in the electrical drawings.
3. Inverter shall have built in isolation transformer and AC DC disconnect as shown on the drawings.

E. ARRAY GROUNDING

1. All photovoltaic module frames shall be grounded and bonded to a continuous #6 AWG bare Cu ground conductor using a UL listed outdoor rated ground clamp.
2. Grounding lug may be IlSCO GBL-4DBT or approved equivalent.
3. One #6 AWG ground conductor shall bond and ground one module frame per source circuit to the equipment ground conductor.
4. Array grounding shall comply with CEC Articles 690 and 250.

F. SHADING PREVENTION

1. Contractor shall verify the location of existing equipment and objects that will cause shading on the PV array and notify the Architect/Owner/Engineer of any obstructions that will cause shadows on PV array. The contractor shall be responsible for making any minor

adjustments necessary in order to install the array avoiding any existing equipment shadows that may fall on the array.

G. AESTHETICS

1. Photovoltaic modules shall be installed in straight, planar rows and columns to the greatest extent possible.
2. Photovoltaic array conduit runs shall be routed so as to minimize visibility from the ground.

H. DC/AC POWER CONVERTER

1. The Power Converters with isolation transformer shall be installed according to the manufacturer's installation.
2. Contractor shall provide all equipment needed to physically install, interconnect and operate the Power Converters in compliance with CEC and utility requirements. See Summary of Work for scope.

I. SIGNAGE

1. All photovoltaic system components shall be labeled per the electrical drawings and CEC Article 690.
2. Utility AC safety switch shall be labeled as required by utility, and site directory plaque shall be installed as required by utility.
3. All combiner boxes and DC disconnects shall be labeled with consecutive identifiers per the single-line diagram.
 - (a) Combiner boxes shall be labeled CB "1", CB "2", etc.
 - (b) DC disconnects shall be labeled DCD "1", DCD "2", etc.

3.04 Photovoltaic Array Commissioning

- A. All electrical wiring for connection to the photovoltaic array to power converter and grid shall be performed by a licensed, certified, electrical contractor.
- B. When measured at mid-day, all photovoltaic module open-circuit voltages shall be within 10% of one another. Contractor shall mark all photovoltaic modules not in compliance, defer installation of these modules, and notify the District immediately.

C. SYSTEM STARTUP GUIDELINES

1. Check all electrical and mechanical fasteners for tightness. Check the polarity of all electrical connections. Ensure that all system components are isolated from each other electrically by removal of fuses or setting appropriate breakers or switches to OFF position.
2. Using combiner box terminals, check and record all photovoltaic source circuit open-circuit voltages.
3. If voltage and current readings are within specifications, proceed with

- system startup. If not, troubleshoot system wiring as needed.
4. Using a fuse puller, insert photovoltaic source circuit fuses into combiner boxes.
 5. Power up Power Converter according to manufacturer's instructions.
- D. Provide the service of the manufacture trained certifier who shall visit the job site and verify the following:
1. Component Level: Check voltages and polarities at selected locations. Array strings are checked at the last module of the string. Combiner boxes, main array junction boxes; inverter and transformer are checked for physical damage.
 2. Array Level: Check voltages, polarities and short circuit currents at combiner boxes. Module wiring is inspected and module output is tested at the combiner box. The combiner box is checked to ensure that it is mounted properly and fasteners are tight. Check voltages, polarities and short circuit currents at main combiner boxes. Check that inverter input voltage levels and polarities are correct. Sub-array wiring is inspected and sub-array output (Voc and polarity) is tested at the main array junction boxes. Main array junction boxes are checked to ensure that they are mounted properly and fasteners are tight. Test BOS housing ventilation systems.
 3. Electrical Inspection and Approval: Using a post-installation checklist and the maintenance checklist included in the Operations and Maintenance Manual, the entire system is physically inspected and electrically tested.
- E. Contractor shall assure that all construction debris including materials packaging is removed from all rooftops and work areas, and that photovoltaic modules are clean.

3.05 Rebates And Utility Metering Applications

- A. The Contractor shall prepare and submit the Utility company's net metering application and provide/obtain all approvals required by the utility company for grid-tied solar applications.
1. The Contractor shall prepare and submit the application for the approval of the Pacific Gas and Electric company.
 2. The Contractor shall coordinate all requirements with the Owner and Owner's Representative.
- B. The Contractor shall prepare and submit the Utility company's rebate application and provide/obtain all approvals required by the utility company.
1. The Contractor shall prepare and submit the application for all rebates for approval to the Pacific Gas and Electric company.
 2. The Contractor shall coordinate all requirements with the Owner and the

Owner's Representative.

3. All rebates shall be provided to the Owner.
4. The Contractor shall be responsible for meeting all of the requirements of the utility company in order to obtain the rebate for the installed product.

END OF SECTION 26 31 00

SECTION 26 50 00

LIGHTING

PART 1. GENERAL

1.01 Description of Work:

- A. The work of this section consists of providing a lighting system complete, including fixtures, lamps, hangers, reflectors, glassware, lenses, auxiliary equipment, ballasts and sockets.

1.02 Related Work

- A. See the following specification sections for work related to the work of this section:
 - 1. 26 05 10 General Electrical Requirements.
 - 2. 26 05 33 Conduit, Raceway and Fittings.
 - 3. 26 05 19 Low Voltage Wire and Cable.
 - 4. 26 05 34 Junction and Pull Boxes.

1.03 Submittals: In accordance with Division 1.

- A. Submit descriptive data, photometric curves for each fixture configuration proposed.
- B. Submit shop drawings showing proposed methods for mounting lighting fixtures.
- C. Seismic Requirements: Submit:
 - 1. Sketch or description of the anchorage system.
- D. Submit Operation and Maintenance Data per Division 1.

1.04 Warranty: High Intensity Discharge lamps which fail within the first year after final acceptance shall be replaced by the Contractor with the warranty clause of the General Provisions.

PART 2. PRODUCTS

2.01 Fixtures

- A. Fixtures shall be of the types, wattages and voltages shown on the Drawings and be UL classified and labeled for the intended use.
- B. Substitutions will not be considered unless the photometric distribution curve indicates the proposed fixture is equal to or exceeds the specified luminaire.
- C. Luminaire wire, and the current carrying capacity thereof shall be in accordance with the CEC.
- D. Luminaires and lighting equipment shall be delivered to the project site

complete, with suspension accessories, aircraft cable, stems, canopies, hickey, castings, sockets, holders, ballasts, diffusers, frames, and related items, including support and braces.

2.02 Ballasts:

- A. Ballasts shall be of the types shown on the drawings. Ballasts shall be CBM certified and bear the UL label. Magnetic ballasts shall be the high power factor type. Electronic ballasts shall be suitable for lamps specified by Advance, Magnatek/Universal, Triad or approved equal. Electronic ballast shall be CBM certified and have 15% total harmonic distortion or less.
- B. All ballasts for fixtures installed outdoors shall provide reliable starting of lamps at 0°F at 90% of the nominal line voltage.
- C. Ballasts producing excessive noise (above 36 dB) or vibration will be rejected and shall be replaced at no expense to the Owner.

2.03 Lamps:

- A. Lamps shall be new at the time of acceptance and shall be General Electric, Osram /Sylvania, Phillips, or approved equal.
- B. Unless otherwise noted on the drawings, lamps shall be T8, 3500°K, and 85 CRI minimum.

2.04 LED:

- A. LEDs shall be new at the time of acceptance and shall be Cree, Samsung, Phillips or approved equal.
- B. Unless otherwise noted on the drawings, lamps shall be 3500°K, and 85 CRI minimum.
- C. Drivers shall be 0-10V dimming drivers compatible with the LED system.

PART 3. EXECUTION

3.01 Installation:

- A. General:
 - 1. All fixtures and luminaires shall be clean and lamps shall be operable at the time of acceptance.
 - 2. Install luminaires in accordance with manufacturer's instructions, complete with lamps, ready for operation as indicated.
 - 3. Align, mount, and level the luminaires uniformly.
 - 4. Avoid interference with and provide clearance for equipment. Where an indicated position conflicts with equipment locations, change the location of the luminaire by the minimum distance necessary.
- B. Mounting and Supports:

1. Mounting heights shall be as shown on the Drawings. Unless otherwise shown, mounting height shall be measured to the centerline of the outlet box for wall mounted fixtures and to the bottom of the fixture for suspended fixtures and to the bottom of the fixture for all other types.
 2. Luminaire supports shall be anchored to structural members.
 3. Pendant luminaires shall be provided with ball aligners to assure a plumb installation and shall have a minimum 25-degree clean swing from horizontal in all directions. Sway bracing shall be installed as required to limit the movement of the fixture. Fixtures shall be allowed to sway a maximum of 45° without striking any object.
 4. Fixture supports shall be designed to resist earthquake forces of seismic zone 4.
 5. Refer to fixture mounting details on drawings for installation requirements.
- C. Pendant Fixture Mounting: Provide flexible fixture hangers unless otherwise noted on Drawings.

END OF SECTION 26 50 00

SECTION 31 63 29

CONCRETE DRILLED PIERS

PART 1. GENERAL

1.01 Conditions & requirements

- A. All of the provisions of the General Conditions and Division 1 - General Requirements, and any applicable provisions elsewhere in the Contract documents shall apply to work of this Section as fully as if repeated here.

1.02 Description

- A. Furnish and install all drilled piers (caissons) as shown and specified.
- B. Related work described elsewhere:
 - 1. Formwork: Section 03 10 00.
 - 2. Concrete reinforcement: Section 03 20 00.
 - 3. Cast-in-place concrete: Section 03 30 00.
- C. Comply with all requirements of Section 03 10 00, 03 20 00, and 03 30 00 for the work of this section, except where different requirements are stated below. Comply with all additional requirements included below. In case of conflict, the requirements of this section take precedence.

1.03 Quality assurance

- A. Except where different requirements are specified, comply with the following codes and standards by the California Building Standards Commission and American Concrete Institute (ACI):
 - 1. 2019 California Building Code (CBC).
 - 2. ACI 117 "Standard Specifications for Tolerances for Concrete Construction and Materials".
 - 3. ACI 336.1 "Specification for the Construction of Drilled Piers".
- B. Comply with the referenced ASTM standards for materials and testing.
- C. Perform this work by a qualified contractor regularly engaged in constructing the type of foundation piers required.
- D. Examine the Soils report, test borings, and the site to determine all conditions affecting the work.
- E. Drilling test shafts is not permitted without prior approval from the Owner's Representative. All test shafts must be properly backfilled with suitable material outlined in the Soils report.

PART 2. PRODUCTS

2.01 Materials

- A. Reinforcing: As specified in Section 03 02 00.
- B. Concrete: As specified in Section 03 30 00, Class A or B.

PART 3. EXECUTION

3.01 Drilling piers

- A. Cross-stake locations of drilled piers so that centerlines may be retained after drilling for use in placing dowels.
- B. Make pier excavations using whatever equipment, of an approved type, that may be required for doing the work. Drill piers plumb and true, of diameter and to depth shown on drawings. Bottom of all pier excavations shall be free of all loose dirt and debris. Take every precaution to prevent loose earth from falling into excavation before and during placing of concrete. Provide de-watering as necessary to maintain caisson holes in dry condition with no more than 2 inches of water at the bottom.
- C. Excavate each shaft at location shown on drawings in a plumb condition. Place the center point of the top of each pier within 3 inches of its true location. Maximum acceptable tolerance from plumb in any shaft, measured at center of shaft, shall not exceed 2 inches for first 10 feet, and 1 inch additional for every 10 feet in depth.
- D. Case pier holes with steel casing to protect sides of holes from sloughing, to assist de-watering, wherever a questionable condition exists, or as directed in the Soils report. In addition, provide casing if required by applicable regulations of governmental regulating boards or any other authorities having jurisdiction. Each bidder is responsible for determining for himself the extent of metal casing required.
 - 1. Wherever metal casing must be used, it shall consist of 1 piece extending upwards from bottom of drilling. Inside diameter of metal casings shall not be less than scheduled diameter of pier.
- E. If slurry displacement method is used due to soil conditions or as directed in the Soils report, submit proposed mix design or manufacturer's product data to Owner's Representative for approval.
 - 1. Maintain slurry levels above any unstable zones a distance sufficient to prevent sloughing.
 - 2. Where piers are installed below groundwater or in caving holes, maintain the slurry level in the excavation not less than five feet above the groundwater level.
- F. All work in connection with drilling of holes shall be subject to inspection and approval of the Architect and Soils Engineer. Provision shall be made to

permit inspection and approval. Any drilled pier excavation which must be entered by workmen, Architect's representative or Building Inspector shall be cased with metal casing before anyone enters excavation.

- G. Material excavated from drilled piers shall be removed from building pad area. Material suitable for backfill shall be stockpiled where directed. Material unsuitable for backfill shall be removed from site.
- H. Anticipated elevations of pier bottoms are shown on structural drawings. Base bid shall be based on concrete piers being installed as shown and scheduled on structural drawings. Architect or his representative shall verify and approve depth.

3.02 Placing concrete

- A. Place reinforcement and pour concrete immediately after piers are drilled, inspected, and approved by Architect. Pour piers continuously for length of piers. Place concrete in pier holes not cased by means of a hopper centered over hole. Overall length of hopper and chute shall be a minimum of 6'-0" long. Pump concrete or use placing devices to prevent free fall greater than six (6) feet.
- B. When used, withdraw casing from excavation as concrete is placed. Bottom of casing shall be at least 4 feet below top of concrete level at all times during placement. Top of metal casing must extend a minimum of six (6) inches above grade at top of excavation.
- C. If the water depth at the bottom of the excavation cannot be reduced to two (2) inches, concrete may be placed but the mix shall have the cement content increased by one (1) sack per cubic yard and the slump decreased correspondingly for the portion of concrete placed in the water and at a point at least 1'-0" above the water level. This concrete mix shall be placed through a tremie maintained at or below the level of the concrete until a point 1'-0" above the water level is reached.
- D. Place reinforcement centered in hole. Use devices to maintain reinforcement in its true position before and during concrete placement.
- E. Vibrate top five (5) feet of concrete, after temporary casing has been withdrawn or when casing is permanent.
- F. Place concrete in pier in one continuous operation. If a construction joint is unavoidable, level, roughen, and clean surface prior to re-commencement of concrete placement. Provide reinforcing dowels or a shear key as required by the Structural Engineer. The Structural and Soils Engineers shall approve construction joint elevation.

END OF SECTION 31 63 29