County of Santa Barbara
Electric Vehicle Charging Stations
Calle Real/Downtown/Lompoc/Santa Barbara, Ca.

Project No. 19016

MANDATORY JOB WALK:
08:00am Thursday July 23, 2020
Only if you did not attend the first job walk.

BID DUE DATE:
Tuesday August 4, 2020
3:00 P.M.
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BIDDING DOCUMENTS
NOTICE TO BIDDERS

Notice is hereby given that the General Services Department, County of Santa Barbara will receive bids for:

COUNTY OF SANTA BARBARA
County of Santa Barbara
Electric Vehicle Charging Stations
Calle Real/Downtown/Lompoc/ Santa Barbara
CA 93110
Project No. 19016

MANDATORY JOB WALK:
08:00am Thursday July 23, 2020 only if you did not attend the first job walk.

BID DUE DATE:
3:00 P.M., Tuesday August 4, 2020

<table>
<thead>
<tr>
<th>PROJECT LOCATIONs</th>
<th>CONSTRUCTION COST ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>123 East Anapamu St, Santa Barbara, CA 93105</td>
<td>$200,000</td>
</tr>
<tr>
<td>315 Camino Del Remedio, Santa Barbara, CA 93105</td>
<td>$200,000</td>
</tr>
<tr>
<td>234 Camino Del Remedio, Santa Barbara, CA 93105</td>
<td>$100,000</td>
</tr>
<tr>
<td>1100 West Laurel St, Lompoc, CA 93436</td>
<td>$200,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$700,000</strong></td>
</tr>
</tbody>
</table>

MANDATORY JOB WALK: 08:00am Thursday July 23, 2020 Then County will be conducting a mandatory job walk for all contractors that did not attend/participate in the initial job walk conducted on May 5, 2020. Only those prime contractors attending this or the prior job walk shall be qualified to bid the work. The first location will be the parking lot at 105 East Anapamu St, Santa Barbara, CA 93105.

Due to the social distancing requirements outlined by the CA Department of Public Health and the Santa Barbara County Public Health Department Coronavirus, all attendees of the job walk will be required to wear face coverings and maintain at least a 10 foot of separation between all attendees.

PROJECT DESCRIPTION: Provide equipment and install electric vehicle charging stations at several parking lots. The County will be providing some of the equipment and the CONTRACTOR will provide the rest of the equipment. The equipment provided by the County is in the document call “County_Provided_Equipement.pdf.”

CONTRACTOR'S LICENSE: The CONTRACTOR shall possess either:

<table>
<thead>
<tr>
<th>CONTRACTORS LICENSES REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPTION #1: C-10 LICENSE</td>
</tr>
<tr>
<td>OPTION #2: A LICENSE W C-10 SUB</td>
</tr>
<tr>
<td>OPTION #3: B LICENSE W C-10 SUB</td>
</tr>
</tbody>
</table>
QUESTIONS: All questions should be submitted by July 27th on the Public Purchasing website https://www.publicpurchase.com/gems/co.santa-barbara,ca/buyer/public/home

BID DOCUMENTS: Please request plans, through the Public purchase website and submitted through public purchase https://www.publicpurchase.com/gems/co.santa-barbara,ca/buyer/public/home

BID SUBMITTAL INSTRUCTIONS: Each bid shall be in accordance with the plans and specifications approved by the General Services Department. The bid shall be submitted to the Purchasing Div.’s “Public Purchase” site https://www.publicpurchase.com/gems/co.santa-barbara,ca/buyer/public/home or three (3) hard copies to the General Services Purchasing department, on or before 3:00 P.M., Tuesday, August 4, 2020. Due to the Coronavirus, there will be no public bid opening.

SUBSTITUTION OF SECURITIES: Pursuant to Section 22300 of the Public Contract Code and the project specifications, the CONTRACTOR may substitute securities or request that the County make payment of retentions to an escrow agent for any money held by the COUNTY to ensure contract performance.

PREVAILING WAGES: The project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. Pursuant to the provisions of Section 1770 et seq. of the California Labor Code, the CONTRACTOR shall pay not less than the prevailing rate of per diem wages as determined by the Director of the Department of Industrial Relations. A copy of the prevailing rate of per diem wages is on file at the General Services Department.

QUALIFYING CONTRACTOR OR SUBCONTRACTOR: Pursuant to the provisions of Section 4104 of the California Public Contracting Code a contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal or engage in the performance of any contract for public work, as defined in Section 4104, unless currently registered with the Department of Industrial Relations and qualified to perform public work pursuant to Section 1725.5 California Labor Code.

WITHDRAWAL OF BIDS: The COUNTY reserves the right to reject any and or all bids or waive any informality in a bid. No bidder may withdraw his bid for a period of sixty (60) days after the date set for the opening thereof.

BID SELECTION: The COUNTY reserves the right to select any one or any combination of bids, whichever is in the best interest of the COUNTY.

CONSTRUCTION TIME: The successful CONTRACTOR (after receiving the Notice to Proceed) shall have 100 calendar days to complete all work called for under the Contract Documents.

LIQUIDATED DAMAGES: The liquidated damages will be $1,000 Dollars per day for project delays that are determined to be attributable to the CONTRACTOR.
**BID FORM**

1. Pursuant to and in compliance with your Notice to Bidders and the Contract Documents relating to the construction of:

   County of Santa Barbara  
   Electric Vehicle Charging Stations  
   Calle Real/Downtown/Lompoc/ Santa Barbara  
   CA 93110  
   Project No. 19016  
   Bid Date: 3:00 P.M., Tuesday August 4, 2020

   Including Addendum No(s). __, __, __, __, __, __, __, the undersigned bidder, having become thoroughly familiar with the terms and conditions of the Contract Documents and with local conditions affecting the performance and the costs of the Work at the place where the Work is to be done, hereby proposes and agrees to fully perform the Work within the time stated in and in strict accordance with the Contract Documents (including the furnishing of any and all labor, materials, tools, expendable equipment and utility and transportation services necessary to fully perform the work and complete it in a workmanlike manner) for the total sum of:

2. **BASE BID**

   **Administration**  
   $ ______ , ______ , ______ , ______

   **Health Services**  
   $ ______ , ______ , ______ , ______

   **Social Services**  
   $ ______ , ______ , ______ , ______

   **Lompoc Social Services**  
   $ ______ , ______ , ______ , ______

   **Total of the Four Locations (Administration, Health, Social, Lompoc)**  
   $ ______ , ______ , ______ , ______

   (Place figures in appropriate boxes.)
3. It is understood that Owner reserves the right to reject the proposal and that it shall remain open and not be withdrawn for a period of sixty (60) calendar days from the date prescribed for its opening.

4. Attached hereto and incorporated herein is the complete and entire list of subcontractors to be employed by the undersigned and in the performance of the Work.

5. It is understood and agreed that if written notice of the acceptance of this proposal is mailed or delivered personally to the undersigned bidder within thirty (30) calendar days after the opening of the proposal, or at any time thereafter before it is withdrawn, the undersigned bidder will execute and deliver the Contract Documents to Owner in accordance with the proposal as accepted, and will also furnish and deliver to Owner any Payment Bond required under the provisions of California Civil Code Section 3247 through 3252 and Performance Bond as required under the provisions of the California Government Code and/or California Public Contract Code all within fourteen (14) calendar days after personal delivery or deposit in the mails, as the case may be, of the notifications of award. The work under the contract shall be commenced by the undersigned bidder on the date stated in COUNTY'S written Notice to Proceed and shall be completed within 100 calendar days thereafter.

6. Notice of acceptance or request for additional information may be addressed to the undersigned bidder at the business address set forth below.

7. The bid, contract or other submittal of the CONTRACTOR identified below in connection with the foregoing project is not made in the interest of or on behalf or any undisclosed person, partnership, company, association, organization, or corporation; and that the bid is genuine, and not collusive or sham; that the undersigned bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid and has not directly or indirectly colluded, conspired, connived or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding; that the undersigned bidder has not directly or indirectly sought by agreement, communication or conference with anyone to fix his bid price or the bid price of any other bidder or to fix any overhead, profit or cost element of such bid price or of that of any other bidder or to secure any advantage against the COUNTY of Santa Barbara of anyone interested in the proposed contract; or all statements contained in this proposal are true; and that the undersigned bidder has not directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay any fee to any corporation, partnership, company association, organization, Bid Depository or to any member or agent thereof.
to effectuate a collusive or sham bid. I declare under the penalty of perjury under the laws of the State of California that the foregoing is true and correct.

8. Wherever in this proposal an amount is stated in both words and figures, in case of discrepancy between words and figures the words shall prevail; if all or any portion of the proposal is required to be given in unit prices and totals and a discrepancy existing between any such unit prices and totals so given, the unit prices shall prevail.

9. In accordance with the provisions of Sections 1860 and 1861 of the California Labor Code, every CONTRACTOR will be required to secure the payment of compensation of his or her employees. Each CONTRACTOR to whom a public works contract is awarded shall sign the following certification prior to performing the work of the contract: "I am aware of the provisions of Section 3700 of the Labor Code which requires 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."

10. Protests of any bid(s) received must be in writing, must specify all grounds for the protest, and must be filed within ten working days after the opening of bids.
CONTRACTOR

____________________________________  IRS No.: ____________________________
Company

____________________________________  License Classification(s): _______________
Street Address

____________________________________  Phone Number: _________________________
City

BY: ____________________________________________  ________________________________
Signature                                Printed Name, Title

_______________________________________  ________________________________
DIR Number                                Printed Name, Title
DESIGNATION OF SUBCONTRACTORS

The bidder agrees if this proposal is accepted, that he will contract with the County of Santa Barbara to do all work and furnish all labor, materials, machinery, tools and apparatus necessary to completely perform said Contracts in the manner and time prescribed by said Contract.

County of Santa Barbara  
Electric Vehicle Charging Stations  
Calle Real/Downtown/Lompoc/ Santa Barbara  
CA 93110  
Project No. 19016 Bid Date: 3:00 P.M., Tuesday August 4, 2020

In compliance with the provisions of Section 4100-4107 of the Public Contract Code of the State of California, and any amendments, thereof, the undersigned bidder has set forth below the name and location of the place of business of each subcontractor who will perform work or labor or render service to the undersigned in or about the construction of the work to be performed. That portion of the work which will be done by each subcontractor for each subcontract [in excess of one-half of one percent of the undersigned's total aggregate bid shall be listed.

<table>
<thead>
<tr>
<th>DIVISION OF WORK</th>
<th>SUBCONTRACTOR</th>
<th>LIC NO.</th>
<th>DIR number</th>
<th>LOCATION</th>
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</table>

Examples:

Cement Sub
Trench Sub
Rock Sub
Boring Sub
Trash Sub

COMPANY: ___________________________  BY: ___________________________
Bidder’s Signature

NOTE: This form may be reproduced and attached behind this page to list more Subcontractors.
NONCOLLUSION AFFIDAVIT

In accordance with Public Contract Code § 7106. __________________________
(Bidder’s full name)

being first duly sworn, deposes and says that he or she is __________________________
(Bidder’s title)

of _______________________________________________________________________
(Company’s name)

the party making the foregoing Bid, that the Bid is not made in the interest of, or on behalf of, any undisclosed
person, partnership, company, association, organization, or corporation; that the Bid is genuine and not collusive
or sham; that the Bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham
Bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any Bidder or anyone else to
put in a sham Bid, or that anyone shall refrain from bidding; that the Bidder has not in any manner, directly or
indirectly, sought by agreement, communication, or conference with anyone to fix the Bid price of the Bidder or any
other Bidder, or to fix any overhead, profit, or cost element of the Bid price, or of that of any other Bidder, or to
secure any advantage against the public body awarding the contract of anyone interested in the proposed
Contract; that all statements contained in the Bid are true; and further, that the Bidder has not, directly or indirectly,
submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data
relative thereto, 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.

SIGNATURE BLOCK (Signature Block must be completed in ink & changes must be initialed.)

Bidder's Signature:_________________________________________ Date:____________

Bidder’s Name & Title (Print):________________________________________________

At CITY: _________________________________  STATE: _______________________

CERTIFICATE OF COMPLIANCE

This is to certify that all requirements for insurance of subcontractors as specified for this project will be met.

Dated

Signature of Principal

Printed Name, Title of Principal

Company

Address

City, State & Zip
BIDDER’S STATEMENTS

REGARDING INSURANCE COVERAGE:
Bidder hereby certifies that he has reviewed the insurance coverage requirements specified in the Contract Specifications. Should he be awarded the contract for the work, Bidder further certifies that he can meet all the Contract Specification requirements for insurance including insurance coverage of his subcontractors.

REGARDING PUBLIC CONTRACT CODE SECTION 10232:
In accordance with Public Contract Code Section 10232, the Contractor hereby states, under penalty of perjury, that no more than one final unappealable finding of contempt of court by a Federal Court has been issued against the Contractor within the immediately preceding two year period because of the Contractor's failure to comply with an order of a Federal Court which orders the Contractor to comply with an order of the National Labor Relations Board.

REGARDING PUBLIC CONTRACT CODE SECTION 10162:
In accordance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing, a federal, state, or local government project because of a violation of law or safety regulation?

Yes ____  No ____

(If the answer is yes, explain the circumstances on a separate sheet of paper and attach to proposal)

________________________________________  ____________________________________________
Dated                                               Signature of Principal

________________________________________  ____________________________________________
Printed Name, Title of Principal

________________________________________
Company

________________________________________
Address

________________________________________
City, State & Zip
ANTI-FRAUD CERTIFICATION

County of Santa Barbara
Electric Vehicle Charging Stations
Calle Real/Downtown/Lompoc/ Santa Barbara, Ca.
Project No. 19016

In accordance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the bidder hereby declares under penalty of perjury that the bidder has __, has not __, been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or federal antitrust law in connection with the bidding upon award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or Trustees of the California State University.

The term "bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

NOTE: The bidder must place a check mark after "has" or "has not" in one of the blank spaces provided.

Dated ___________________________ Signature of Principal

Printed Name, Title of Principal

Company

Address

City, State & Zip
BIDDER'S BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, ___________________________ as Principal, and ___________________________ as Surety (hereinafter referred to as Surety), are held firmly bound unto the County of Santa Barbara, State of California (hereinafter called "Owner") in the penal sum of Ten Percent (10%) of the total aggregate amount of the bid of the Principal above names, submitted by said Principal to Owner for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents. Surety shall be and hereby warrants that it is listed in the Insurance Organizations Authorized by the Insurance Commissioner to Transact Business of Insurance in the State of California, published by the Department of Insurance, State of California or successor publications. In no case shall the liability of the Surety hereunder exceed the sum of ________________ ___________________________ DOLLARS ($ ________________). The condition of this obligation is such that a bid to Owner for certain construction specifically described as follows:

County of Santa Barbara
Electric Vehicle Charging Stations
Calle Real/Downtown/Lompoc/ Santa Barbara, Ca.
Project No. 19016

for which bids are due on 3:00 P.M., Tuesday August 4, 2020 has been submitted by Principal to Owner.

NOW, THEREFORE, if the aforesaid Principal shall not withdraw said bid within the period therein after the opening of the same, or, if no period be specified within sixty (60) days after said opening and shall within the period specified therefore, or, if no period be specified, within eight (8) days after the prescribed forms are presented to him for signature, enter into a written Contract with Owner, in the prescribed form, in accordance with the bid as accepted, and file the two Bonds with Owner, one to guarantee faithful performance and the other to guarantee payment for labor and materials, as required by law, then this obligation shall be null and void; otherwise, it shall remain in full force, virtue and affect.

Said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of said Contract or to the work to be performed thereunder or the Specifications accompanying the same shall in any manner affects its obligations on this bond, and it does hereby waive notice of any change, extension, alteration, or addition.

It is hereby agreed that any progress payment made after the scheduled completion date will not constitute a waiver of any liquidated damages heretofore agreed upon.

In the event suit is brought upon said Bond by Owner and judgment is recovered, the Surety shall pay all costs incurred by Owner in such suit, including a reasonable attorney's fee to be fixed by the Court.
Death, Bankruptcy, Receivership, Going Out of Business for any reason, or incompetence of the Principal shall not relieve the Surety of its obligations hereunder.

Name of Principal

Dated __________________________   (Seal)

Signature of Principal

Name of Surety

Address

City, State & Zip

Dated __________________________   (Seal)

Signature of Principal

Signature of Surety’s Attorney-in-fact

Surety’s Agent for Service of Process (located within the State of California):

Name of Agent

Address

City, State & Zip

Telephone Number

FAX Number

NOTE: Signatures of those executing for Surety MUST be properly acknowledged. This form may be reproduced for transmittal to the Surety for execution and attached to the front of the original Bid Bond Form.
CONTRACT FORMS
PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

That the County of Santa Barbara of the State of California (hereinafter referred to as the County) and ________________ (hereinafter referred to as Principal) have by written agreement dated ________________, entered into a contract identified as:

Project Title: County of Santa Barbara
Electric Vehicle Charging Stations
Calle Real/Downtown/Lompoc/ Santa Barbara
CA 93110
Project No. 19016 (Hereinafter referred to as the Contract) and

That, pursuant to law and to said Contract, and before entering upon the performance of said Contract, the principal is required to file with the County a good and sufficient bond to secure the payment of labor and materials claims.

NOW, THEREFORE, said Principal and ____________________________ as corporate surety (hereinafter referred to as Surety), are held firmly bound unto the County in the amount of $______________, for the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns both jointly and severally. Surety shall be and hereby warrants that it is listed in the Insurance Organizations Authorized by the Insurance Commissioner to Transact Business of Insurance in the State of California, published by the Department of Insurance, State of California or successor publications.

THE CONDITION OF THIS OBLIGATION IS SUCH that if said principal, his or its subcontractors, heirs, executors, administrators, successors, or assigns, shall fail to pay any of the persons named or referred to in Section 9100 of the California Civil Code, or amounts due under Unemployment Insurance Code with respect to work or labor performed by any such claimant, or for any amounts required to be deducted, withheld and paid over to the Employment Development Department from the wages of employees of the Contractor and his subcontractors pursuant to Section 13020 of the Unemployment Insurance Code with respect to such work and labor as required by the California Civil Code, or this bond, then said Surety will pay for the same, in an amount not to exceed the amount hereinafter set forth.

This bond shall insure to the benefit of any and all persons, entities, companies and corporations named or referred to in Section 9100 of the California Civil Code, so as to give a right of action to them or their assign in any suit brought upon this bond.

And the said Surety, for value received, hereby agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder, or the Specifications accompanying the same, shall in anywise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the Specifications.
In the event suit is brought upon this Bond by County and judgment is recovered, Surety shall pay all costs incurred by the County in such suit, including a reasonable attorney's fee to be fixed by the court.

Death, illness, disability or disqualification of the Principal shall not relieve Surety of its obligations hereunder.

Principal

By: __________________________________________

DATED: ________________________________

Surety

__________________________________________

Signature of Attorney-in-fact

Address

City, State & Zip Code

Surety’s Agent for Service of Process (located within the State of California):

Name of Agent

Address

City, State & Zip Code

Telephone Number

FAX Number

NOTE: Signature of those executing for Surety must be properly acknowledged.
PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That the County of Santa Barbara of the State of California (hereinafter referred to as the County) and _____________ (hereinafter referred to as Principal) have by written agreement dated ________________, entered into a contract identified as:

Project Title: County of Santa Barbara
Electric Vehicle Charging Stations
Calle Real/Downtown/Lompoc/ Santa Barbara
CA 93110
Project No. 19016
(Hereinafter referred to as the Contract) and

That, pursuant to law and to said Contract, and before entering upon the performance of said Contract, the Principal is required under the terms and conditions of said Contract to furnish a bond for the faithful performance of Contract.

NOW, THEREFORE, said Principal and ________________________________
as corporate surety (hereinafter referred to as Surety), are held firmly bound unto the County in the amount of $______________, for the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns both jointly and severally. Surety shall be and hereby warrants that it is listed in the Insurance Organizations Authorized by the Insurance Commissioner to Transact Business of Insurance in the State of California, published by the Department of Insurance, State of California or successor publications.

THE CONDITION OF THIS OBLIGATION IS SUCH that if the Principal, his heirs, executors, administrators, successors, or assigns, shall perform all of the covenants, conditions and agreements in said Contract and any alteration thereof made as herein provided, in his or their part, to be kept and performed at the time, and in the manner therein specified, and shall indemnify and save harmless County, its officers, agents, and employees, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force, virtue and effect.

And the said Surety, for value received, hereby agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder, or the specifications accompanying the same shall in anywise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or additions to the terms of the Contract or to the work or to the specifications.
In the event suit is brought upon this Bond by County and judgment is recovered, Surety shall pay all costs incurred by the County in such suit, including a reasonable attorney's fee to be fixed by the court.

Death, illness, disability or disqualification of the Principal shall not relieve Surety of its obligations hereunder.

Principal

By: ____________________________________________

DATED: ________________________________

Surety

Signature of Attorney-in-fact

Address

City, State & Zip Code

Surety’s Agent for Service of Process (located within the State of California):

Name of Agent

Address

City, State & Zip Code

Telephone Number

FAX Number

NOTE: Signature of those executing for Surety must be properly acknowledged.
CERTIFICATE OF INSURANCE
TRANSMITTAL FORM

FOR THE FOLLOWING DESCRIBED PROJECT:

County of Santa Barbara
Electric Vehicle Charging Stations
Calle Real/Downtown/Lompoc/ Santa Barbara, Ca.
Project No. 19016

CONTRACTOR:

_____________________________________________________________________
Name

_____________________________________________________________________
Address

City, State & Zip Code

The successful bidder shall furnish satisfactory proof of the maintenance of adequate Worker's Compensation Insurance, and the maintenance of Comprehensive General and Automobile Liability Insurance in the amount of not less than $1,000,000 per occurrence and $2,000,000 in the aggregate. The County of Santa Barbara (COUNTY), its officers, employees, and agents shall be named as additional insured on all certificates. A copy of the endorsement evidencing that the County has been added to the policy must be attached to the certificate of insurance. Said policy or policies shall provide that the COUNTY shall be given thirty (30) days written notice prior to cancellation or expiration of the policy or reduction in coverage. Refer to section 5.18 of the General Conditions.

In addition to the above, the following information must appear on the certificates:

County of Santa Barbara Electric Vehicle Charging Stations Calle Real/Downtown/Lompoc/ Santa Barbara, Ca
Project No. 19016

This form must be attached to all insurance forms sent to the County of Santa Barbara, General Services Department:

_____________________________________________________________________
Authorized Insurance Company Representative's Signature

This form may be reproduced as required.
COUNTY OF SANTA BARBARA UNLAWFUL DISCRIMINATION ORDINANCE

Section 2-95. Prohibition of unlawful discrimination in employment practices. The COUNTY reserves the right to terminate forthwith each and every written contract and agreement (except purchase orders) respecting real property for goods and/or services entered into by the COUNTY or by its joint powers, agencies, or agents with the consent of the other parties (hereinafter called "CONTRACTOR") including but not limited to concessions, franchises, construction agreements, leases, whether now in effect or hereinafter made if the COUNTY finds that the CONTRACTOR is discriminating or has discriminated against any employee or applicant for employment in violation of any applicable state or federal laws, rules, or regulations which may now or hereafter specifically prohibit such discrimination on such grounds as race, religion, sex, color, national origin, physical or mental handicap when otherwise qualified, Vietnam ear veteran/disabled, age, medical condition, marital status, ancestry, sexual orientation, or other legally protected status.

Such finding may only be made after CONTRACTOR has had a full and fair hearing on notice of thirty (30) days before an impartial hearing officer at which hearing CONTRACTOR may introduce evidence, produce witness, and have the opportunity to cross-examine witnesses produced by the COUNTY. Further, any finding of discrimination must be fully supported by the facts developed at such hearing and set forth in a written opinion; and in addition, CONTRACTOR may move in the appropriate court of law for damages and/or to compel specific performance of a CONTRACTOR or agreement if any of the above procedures are not afforded to the CONTRACTOR. If CONTRACTOR is not found to have engaged in unlawful discriminatory practices, COUNTY shall pay all costs and expense of such hearing, including reasonable attorney's fees to CONTRACTOR in accordance with current Santa Barbara County Superior Court schedule of attorney's fees for civil trials. If CONTRACTOR is found to have engaged in such unlawful discriminatory employment practices, CONTRACTOR shall pay all such costs, expenses, and attorney's fees.

Whether or not a contract or agreement is still in existence at the time of final determination of such unlawful discrimination, the CONTRACTOR shall forthwith reimburse COUNTY for all damages directly stemming from such discrimination; however, those damages shall not exceed and are not reimbursable in an amount which exceeds amounts paid CONTRACTOR under the terms of the contract or agreement.

Nothing in this Section 2-95 shall directly or by interpretation give a private cause of action to any third party (not a signatory to the contract or agreement) including employees past or present, or applicants for employment to CONTRACTOR, it being the sole purpose of this clause to administratively assure compliance with the nondiscrimination clauses contained herein.

Employment practices shall include, but are not limited to employment, promotion, demotion, transfer, recruitment and advertising for recruitment, layoff or other termination, rate of pay, employee benefits, and all other forms of compensation selection for training and apprenticeship and probationary periods.

CONTRACTOR shall permit access at all reasonable time and places to all of its records of employment, advertising, application forms, tests, and all other pertinent employment data and records, to the COUNTY, its officers, employees, and agents for the purpose of investigation to ascertain if any unlawful discrimination as described herein has occurred or is being practiced, provided that such records are relevant to a complaint of an unlawful discriminatory practice which has been forwarded to CONTRACTOR reasonably prior to the time CONTRACTOR is asked to make such records available. In addition, all such records shall be deemed "Confidential" by the officers, employees, and agents of the COUNTY. No records or copies of such records may be removed from the premises of CONTRACTOR and no disclosure, oral, or written of such record, may be made to third parties except as provided within the agreement.

Provided, however, that in the event of a hearing to determine whether or not CONTRACTOR is engaging in unlawful discrimination in employment practices as defined herein, the Board of Supervisor of Santa Barbara County may issue subpoenas to require that certified copies of such records be made available to the hearing.

Failure to fully comply with any of the foregoing provisions relating to unlawful discrimination in employment practices shall be deemed to be a material breach of any contract or agreement with the COUNTY. All persons contracting with or who have contracts for goods or services with the COUNTY shall be notified that this chapter applied to their contract or agreement with the COUNTY (Ordinance No. 2946, SS1; Ordinance No. 2993, SS1; and Ordinance No. 3018, SS1).
Section 2-95.5. Exceptions. Notwithstanding any other provisions in this article, any party contracting with the COUNTY having an affirmative action program which has been approved within twelve (12) months from the date of the contract by an agency of the federal government shall be deemed to be in compliance with the provisions of this article upon furnishing documentary evidence of such approval satisfactory to the COUNTY affirmative action officer. Loss of such approval shall be immediately reported by such party to the COUNTY affirmative action officer.

Section 2-96. Purchase orders. Purchase orders shall contain the following clause as grounds for termination of such purchase orders:

"If complaint is made that seller is engaging in discriminatory employment practices made unlawful by applicable state and federal laws, rules, or regulations, and the State Fair Employment Practice Commission or the Federal Equal Employment Opportunities Commission determines that such unlawful discrimination exists, then the COUNTY may forthwith terminate this order." (Ordinance No. 2946, SS 1)

Section 2-97. Affirmative action officer. At the discretion of the COUNTY affirmative action officer, he or she shall promptly and thoroughly investigate, or cause to be investigated reports and complaints from whatever source, that any party contracting with the COUNTY is engaging, or during the term of a contract or agreement with the COUNTY has engaged, in any unlawful discriminatory employment practices as described in Section 2-95 of this Code. If the investigation discloses reason to believe such unlawful discrimination does exist or has existed and the conditions giving rise thereto have not been changed so as to prevent further such unlawful discrimination, and the said party shall forthwith terminate such unlawful discrimination, take all appropriate steps to prevent a recurrence of such or other unlawful practices, and compensate the person or persons unlawfully discriminated against for any and all loss incurred by reason of such unlawful discrimination, all to the satisfaction of the affirmative action officer, then the affirmative action officer shall cause the matter to be presented for action to the State Fair Employment Practices Commission or the Federal Equal Employment Opportunities Commission, or both, and to any other concerned state or federal agencies or officers.

If and when it has been finally determined by the affirmative action officer, COUNTY counsel, or state or federal regulatory agencies that such unlawful discriminatory employment practice has in fact so occurred or are being carried on, then the affirmative action officer shall forthwith present the entire matter to the Board of Supervisors of the COUNTY, together with all damages, costs, and expense related thereto and incurred by COUNTY, for appropriate action by the Board of Supervisors in accord with the intent and purposes of this article and of the affirmative action program of the COUNTY (Ordinance No. 2946, SS 1).
THIS AGREEMENT is made by and between the County of Santa Barbara, a political subdivision of the State of California, hereinafter called COUNTY, and ______________________, referred to as CONTRACTOR, for the completion of the work identified herein, on the following terms, conditions and provisions:

1. **CONTRACT**: This agreement incorporates by reference all of the General and Special Conditions and Specifications provided by COUNTY for the work identified above; and where consistent with this document, the proposal executed and submitted by the CONTRACTOR. CONTRACTOR acknowledges receipt of all such documents as were not already in Contractor's possession. Said incorporated documents, this agreement, any Notice to Contractors, the Bid Bond, the Faithful Performance Bond, and Payment Bond are referred to herein as the "Contract" or "Contract Documents." Copies of all said documents are on file in the Department of General Services Office of the COUNTY and have been and will be made available to the CONTRACTOR during the term of this Agreement.

2. **WORK**: CONTRACTOR agrees, at his own proper cost and expense, to furnish all the work and all equipment and materials necessary to perform and complete the work described in the documents referred to above, in a good and workmanlike manner to the satisfaction of the Director of General Services of said COUNTY, all in strict accordance with the Plans and the Contract Documents provided.

3. **EXCAVATIONS**: Before any pavement resurfacing, displacement or excavation of the ground that may be required by any performance under this Agreement, the CONTRACTOR shall obtain an inquiry identification number by calling Underground Service Alert (USA) 1 (800) 422-4133 or by such other means as may be required; shall conform to all requirements of Government Code Sections 4215 through 4217 regarding any such pavement resurfacing, displacement or excavation, including the payment of any fees required; and shall facilitate performance by the COUNTY of any obligation required of the COUNTY under said Sections. There shall be no performance under this Agreement by either party unless and until the provisions of such Sections are complied with and the County Representative is notified regarding the compliance.

4. **COUNTY REPRESENTATIVE**: The County Representative referred to in the Contract Documents is Roy Hapeman.

5. **PAYMENT**: As full compensation for furnishing all labor, supervision, overhead, materials and equipment and for doing all the work completed and embraced in this Agreement and subject to adjustments and liquidated damages, if any, as provided in the Contract Documents, the base amount to be paid to the CONTRACTOR for satisfactory completion of all requirements of the Contractor under this Agreement is and shall be _______________ DOLLARS ($_____), to be paid as provided in the Contract Documents. The CONTRACTOR assumes and will provide against any and all loss or damage arising out of the nature of the work undertaken, or from the action of the elements, or from any unforeseen difficulties or obstructions which may arise or be encountered in the prosecution of the work until its acceptance by the COUNTY, and assumes any and all expenses incurred by or in consequence of suspension or discontinuance of the work, for well and faithfully completing the work and the whole thereof, in the manner and to the requirements of the Contract and directions of the County Representative, hereunder.
6. **RIGHT TO AUDIT**: CONTRACTOR shall maintain and make available all books, papers, records, detail costs, estimates, claims, and accounts, including payment, property, payroll, personnel, subcontractors, sub-subcontractors and financial records related to or which arise under the terms or conditions of the Contract. The form of record keeping shall be subject to approval by COUNTY. These books, papers, records, claims, and accounts shall be made available for examination during normal business hours by COUNTY or COUNTY’S representative and shall be retained at CONTRACTOR’S principal place of business in California for audit during normal business hours at such place for four (4) years after recording of the Notice of Completion. CONTRACTOR shall provide an office to enable COUNTY and COUNTY’S representative to conduct such audit.

The COUNTY will have the right to audit CONTRACTOR’S project records. Records must be made available in a form satisfactory to the Santa Barbara County Auditor-Controller.

7. **EXTRA WORK**: Extra work, materials, resolution of disputes, corrections, and/or changes to the specifications as are required for the proper completion of the work or the improvement contemplated may be effected or authorized in writing and agreement made of compensation at the same rate per unit (or at a corresponding rate for work that is different from that provided for in the Contract Documents) by the County Representative, if compensation is not in excess of 10% of the original base agreement amount or $25,000, or $25,000 + 5% of the amount of the bid in excess of $250,000. Compensation in such equitable amount as is appropriate for the requirements of the COUNTY or may be authorized by resolution or minute order of the Santa Barbara County Board of Supervisors. The County Representative may agree upon appropriate additional time to be allowed as required for such extra work, materials, resolution or changes.

8. **COMPLIANCE WITH LAW, AMENDMENTS**: CONTRACTOR shall keep fully informed of all laws, ordinances and regulations which do or may affect the conduct of the work, the materials used therein or persons engaged or employed thereon and all such orders of bodies and tribunals having any jurisdiction over same. If it be found that the Special Provisions or Standard Specifications for the work conflict with any such law, ordinance or regulation, the CONTRACTOR shall immediately report same to the County Representative in writing. CONTRACTOR shall at all times observe and comply with and shall cause all agents and employees to observe and comply with all such laws, ordinances, regulations or decrees as the same now exists or may be hereafter amended and all superseding provisions thereof. CONTRACTOR acknowledges, particularly, the provisions of Sections 9364 and Sections 9550 and 9566, inclusive, of the Civil Code of California. CONTRACTOR shall protect and indemnify the County of Santa Barbara, the Board of Supervisors, the Director of General Services, and/or any officer, agent or employee of the COUNTY against any claims or liability arising from or based on the violation of any such law, ordinance, regulation or decree whether by CONTRACTOR, or a subcontractor, agent or employee.

9. **PAYMENTS NOT ACCEPTANCE**: No certificate given or payments made under this Contract, except the final payment shall be evidence of the performance of this Contract, either wholly or in part, against any claim upon CONTRACTOR. Final payment for the work performed under this Contract shall not be made until the lapse of thirty (30) days after the Notice of Completion of said work has been filed for record and no payment shall be construed to be acceptance of any defective work or improper materials. CONTRACTOR agrees that the payment for final quantities due under this Contract and the payment of amounts due for any work in accordance with any amendments of this Contract, shall release the County of Santa Barbara from any and all claims or liabilities on account of work performed under this Contract or any amendments thereof. In addition to guarantees required elsewhere, CONTRACTOR shall and does hereby guarantee all workmanship and material to be free of defects and fit for the purposes intended for a period of one year from and after both the date of acceptance of the work and the recordation of the Notice of Completion by the COUNTY, and CONTRACTOR shall repair or replace any or all work and material, together with any other portions of the work which may be displaced in so doing, that in the opinion of the County Representative, is or becomes defective during the period of said guarantee without expense whatsoever to the COUNTY.

10. **PREVAILING WAGE RATES**: Rates of wages, including overtime, holiday and Sunday rates provided for the work are subject to the effect of the California Labor Code, Sections 1770 et. seq. Executive Orders of the President of the United States No. 9240, dated September 9, 1942, and No. 9250, dated October 3, 1942, and to any modifications thereof and to any
and all lawful orders of the President or any authorized Federal Officer or agency, insofar as the same may be applicable to this Contract.

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)]. 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. This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

11. **CONTRACT DOCUMENTS ACKNOWLEDGED:** CONTRACTOR hereby declares that he has read the "Contract Documents" pertaining to the work to be accomplished hereunder, has carefully examined the plans and detail drawings of the work to be performed and fully understands the intent and meaning of the same.

12. **TIME FOR COMMENCEMENT, COMPLETION:** The work to be done under this Agreement shall be completed within 100 calendar days after execution of this Agreement. As soon as practicable after the Contract has been executed by both the CONTRACTOR and the COUNTY, a Notice to Proceed will be issued by the County Representative stating the starting date of the Contract time. The CONTRACTOR shall begin work within fifteen (15) calendar days after receiving the Notice to Proceed, unless otherwise provided. Attention is directed to the provisions of this Agreement pertaining to Liquidated Damages for failure to complete the work within the allowed time.

13. **WORKERS’ COMPENSATION INSURANCE:** CONTRACTOR certifies as to knowledge of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against liability for Workers’ Compensation or to undertake self insurance in accordance with the provisions of that Code. CONTRACTOR will comply with such provisions before commencing the performance of the work of this Contract.

14. **PROGRESS PAYMENT NO WAIVER FOR DELAY:** Any progress payment made after the scheduled completion date will not constitute a waiver of any liquidated damages heretofore agreed upon as part of this Contract.

15. **GUARANTEE BONDS:** Before any performance under this Agreement, the CONTRACTOR shall provide the security required by statute for the payment of all workers and suppliers, and security for faithful performance of all terms and conditions of this Agreement, in an amount and form approved by the COUNTY. Both securities shall contain provisions which automatically increase amounts thereof and/or time of completion or both for all change orders, extensions and additions to the work provided pursuant to this Agreement.

16. **NON-DISCRIMINATION:** The CONTRACTOR acknowledges that this Agreement is subject to the provisions of Article XIII of Chapter 2 of the Santa Barbara County Code, providing against discrimination in employment. The CONTRACTOR agrees to perform all requirements of a contractor under the provisions of said Article and to pay all costs occasioned to the COUNTY by any noncompliance by the CONTRACTOR.

17. **DISPUTES:** Should any dispute arise respecting the construction or meaning of any of the plans or specifications affecting the work or respecting the true value of any extra work or work omitted, the dispute shall be resolved by the Engineer/Architect whose decision shall be final and binding upon the parties. If, after the decision of the Engineer/Architect as provided herein, claims (as defined in Public Contracts Code Section 20104) under this Contract are filed by CONTRACTOR against COUNTY and those claims are in the aggregate amount of $375,000 or less, said claims shall be resolved pursuant to Public Contracts Code Sections 20104 through 20104.8, inclusive.
18. **SUBSTITUTION OF MATERIALS, SUBSTITUTION OF CONTRACTORS:** The County Representative is authorized to act on behalf of the awarding authority in any matters requiring consent, notice or hearing in order to substitute materials or equipment specified or to substitute subcontractors.

19. **SURVIVAL:** All provisions of this Contract which by their nature are intended to survive the termination or expiration of this Agreement shall survive such termination or expiration.
IN WITNESS WHEREOF, the parties have executed the Agreement to be effective on the date executed by the County.

COUNTY
County of Santa Barbara

By: ________________________________
   GREGG HART, CHAIR
   BOARD OF SUPERVISORS

Dated: ______________________________

ATTEST:
MONA MIYASATO,
COUNTY EXECUTIVE OFFICER
CLERK OF THE BOARD

By: ________________________________
   Deputy Clerk of the Board

CONTRACTOR

By: ________________________________
   AUTHORIZED REPRESENTATIVE
   Name: ________________________________
   Title: ________________________________

APPROVED AS TO FORM:
MICHAEL C. GHIZZONI,
COUNTY COUNSEL

By: ________________________________
   Deputy County Counsel

APPROVED AS TO ACCOUNTING FORM:
BETSY SCHAFFER, CPA, CPFO
AUDITOR-CONTROLLER

By: ________________________________
   Deputy Auditor-Controller

APPROVED AS TO FORM:
RAY AROMATORIO, ARM
RISK MANAGER

By: ________________________________
   Risk Manager

RECOMMENDED FOR APPROVAL
JANETTE D. PELL, DIRECTOR
GENERAL SERVICES DEPARTMENT

By: ________________________________
   Department Head

Dept 063    Fund 0030    Program 1930    Account 8200    Project 19016
SPECIAL PROVISIONS,
GENERAL CONDITIONS,
DRAWINGS AND SPECIFICATIONS
Scope of work for Electric Charging Stations.

The County of Santa Barbara is converting the County’s sedan fleet from internal combustion engines (ICE) to battery electric vehicles (BEVs). At this time, the Board directed that the purchase of all new non-public safety sedans in the light duty fleet be electric vehicles.

The County contracted with PowerFlex Systems to provided EV charging stations and related services. The new installations of the electric vehicle chargers will be at the downtown Santa Barbara Campus and the Calle Real Campus, Lompoc campus. The contract with PowerFlex Systems, LLC to supply the County with 96 level two 7.2kw chargers, three DC fast 50kw chargers, software, and electric vehicle controllers for four locations, and to provide ongoing services including access control, billing, reporting, and station management for a term of five years.

The County is seeking a contractor to install the 99 stations at the four locations. The bid requires a Mandatory Job Walk for all those who did not go on the first job walk. During the Mandatory Job Walk more details will be given. It will become the CONTRACTORS responsibility to provide all equipment and construction mentioned in the Specification, drawing, bid documents and mentioned on the Mandatory Job Walk. The estimated value of this contract will be $700,000. The electrical will work will include 208v, 480v and 4160v.

The job walk will be predominantly outside and all bidders will be required to wear masks that they provide for themselves and maintain 10 feet of separation at all times. Contractors will be able to walk in the building one at time to take pictures if needed.
### Product Description

**Designation:** 300kVA 2-EX300T3HCU-Transformer Dry Type 300kVA 480V 208Y
- Transformer Type: DOE 2016 EX or EXN
- Transformer Rating: 300kVA
- Transformer Phase: Three Phase
- Primary Voltage: 480V Delta
- Secondary Voltage: 208Y/120V
- Transformer Taps: 6 - 2.5% 2+4- Taps
- Frequency: 60Hz
- Transformer Winding Material: Copper
- Sound Level: 49dB
- Insulation & Temperature: Class 220 (H), 150 Deg C
- Enclosure Material: Standard Painted ANSI 49 Grey
- Enclosure Type: Type 1 UL Labeled

**Designation:** 150kVA 2-EX150T3HCU-Transformer Dry Type 150kVA 480V 208Y
- Transformer Type: DOE 2016 EX or EXN
- Transformer Rating: 150kVA
- Transformer Phase: Three Phase
- Primary Voltage: 480V Delta
- Secondary Voltage: 208Y/120V
- Transformer Taps: 6 - 2.5% 2+4- Taps
- Frequency: 60Hz
- Transformer Winding Material: Copper
- Sound Level: 47dB
- Insulation & Temperature: Class 220 (H), 150 Deg C
- Enclosure Material: Standard Painted ANSI 49 Grey
- Enclosure Type: Type 1 UL Labeled

**Designation:** 400a 2-1-Line MB Panel (INTERIOR)-1-Line Panelboard Consisting of 208Y/120V 3Ph 4W 60Hz SCCR: 10kA Fully Rated Single Main: 400A/3P LA Circuit Breaker Incoming Conductors: 1 - #1 - 600,(2)#1 - 250 kcmil Copper Ground Bar Tin Plated Bus: 400A Rated Copper: Tin Plated 81" of Mounting Inches Type 3R/5/12Box: 91H x 32W x 11.75D Incoming: Bottom Trim w/Box Box Cat No: HCJ3291WP Ref. Drawing PBA475 Type: HCJ Feeders: 26 - 40A/2P BD Optional Features: Standard Panel (Box Ahead),Standard Solid Neutral,Standard Ground Bar,Standard Mains and Feeders Mechanically Restrained

**Designation:** 400a 2-HCJ3291WP (BOX)-1-Line 3R,5,12 Box 32 W 91 H 11.7
Product Details:
1-1-Line MB Panel (INTERIOR)-1-Line Panelboard
Consisting of
208Y/120V 3Ph 4W 60Hz SCCR: 10kA
Fully Rated
Single Main: 400A3P LA Circuit Breaker
Incoming Conductors: 1 - #1 - 600, (2)#1 - 250 kcmil
Copper Ground Bar Tin Plated
Bus: 400A Rated Copper: Tin Plated
81” of Mounting Inches
Type 3R/5/12Box: 91H x 32W x 11.75D
Incoming: Bottom Trim w/ Box
Box Cat No: HCJ3291WP
Ref. Drawing PBA475 Type: HCJ
Feeders:
22 - 40A/2P BD:
Standard Panel (Box Ahead), Standard Solid Neutral, Standard Ground Bar, Standard Mains and Feeders Mechanically Restrained
1-HCJ3291WP (BOX)-1-Line 3R, 5, 12 Box 32 W 91 H 11.75D

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|     | 1-1-Line MB Panel (INTERIOR)-1-Line Panelboard
|     | Consisting of
|     | 208Y/120V 3Ph 4W 60Hz SCCR: 10kA
|     | Fully Rated
|     | Single Main: 150A3P QB Circuit Breaker
|     | Incoming Conductors: 1 - #4 - 300 kcmil
|     | Copper Ground Bar Tin Plated
|     | Bus: 250A Rated Copper: Tin Plated
|     | 63” of Mounting Inches
|     | Type 3R/5/12Box: 73H x 32W x 11.75D
|     | Incoming: Bottom Trim w/ Box
|     | Box Cat No: HCJ3273WP
|     | Ref. Drawing PBA475 Type: HCJ
|     | Feeders:
|     | 11 - 40A/2P BD Prepared Space
|     | 8 - 40A/2P BD
|     | Standard Panel (Box Ahead), Standard Solid Neutral, Standard Ground Bar, Standard Mains and Feeders Mechanically Restrained
|     | 1-HCJ3273WP (BOX)-1-Line 3R, 5, 12 Box 32 W 73 H 11.75D

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|     | Consisting of
|     | 208Y/120V 3Ph 4W 60Hz SCCR: 10kA
|     | Fully Rated
|     | Single Main: 400A3P LA Circuit Breaker
|     | Incoming Conductors: 1 - #1 - 600, (2)#1 - 250 kcmil
|     | Copper Tin Plated Ground Bar
|     | Bus: 400A Rated Copper: Tin Plated
|     | 81” of Mounting Inches
|     | Type 3R/5/12Box: 91H x 32W x 11.75D
|     | Incoming: Bottom Trim w/ Box
|     | Box Cat No: HCJ3291WP
|     | Ref. Drawing PBA475 Type: HCJ
|     | Feeders:
|     | 10 - 40A/2P BD Prepared Space
Standard Panel (Box Ahead), Standard Solid Neutral, Standard Ground Bar, Standard Mains and Feeders Mechanically Restrained

1-HCJ3291WP (BOX)-1-Line 3R, 5, 12 Box 32 W 91 H 11.75D

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### Step Down Transformer 480 delta to 208 wye
- 1 300KVA
- 2 150KVA

### Quantity Distribution Panel iLine
- 4 400A MCB
- 1 150A MCB

### Quantity i-Line Breaker
- 101 40A 2Pole
- 1 100A 3PH 480V Breaker

### Feet Conduit
- 100 2” EMT
- 300 1.5” PVC
- 7000 1”PVC

### Feet Wire Copper size
- 2400 3/0 THHN STR BLK
- 4800 #3 THHN STR BLK
- 26200 #8 THHN STR BLK
- 13000 #10 THHN STR BLK 5
**PHYSICAL DATA**

ENCLOSURE Type 3R/5/12
- FRONT CAT#: Trim w/Box
- BOX CAT#: HCJ3291WP

DIMENSIONS:
- 91"(2311mm)Hx32"(813mm)Wx11.75"(298mm)D

WIRE BENDING SPACE:
- TOP – 14.16"(360mm)
- BOTTOM – 16.96"(431mm)
- RIGHT SIDE – 6.27"(159mm)
- LEFT SIDE – 6.27"(159mm)
- PBA: 475

BUSSING: 400A RATED COPPER BUS
- Tin Plated

**ELECTRICAL DATA**

SYSTEM: 208Y/120V 3Ph 4W 50Hz
- System Ampacity: 400A
- 10kA SYMS, SCCR

MAIN:
- MAIN BREAKER LA 400A
- Bottom FEED
- 42kA AIR

INCOMING CONDUCTORS(S) PER NEC, CEC, NOM:
- Wire Bending Space:
- Phase Lugs: 1 - #1 - 600, (2)#1 - 250 kcmI
- --------- BRANCH SUMMATION ---------
- 26 - 40A/2P BD
PHYSICAL DATA
ENCLOSURE Type 3R/5/12
FRONT CAT#: Trim w/Box
BOX CAT#: HCJ3291WP
DIMENSIONS:
91½"(2311mm)Hx32"(813mm)Wx11.75"(298mm)D
WIRED BENDING SPACE:
TOP - 14.16"(360mm)
BOTTOM - 16.96"(431mm)
RIGHT SIDE - 6.27"(159mm)
LEFT SIDE - 6.27"(159mm)
PBA: 475
BUSSING: 400A RATED COPPER BUS
Tin Plated

ELECTRICAL DATA
SYSTEM: 208Y/120V 3Ph 4W 50Hz
System Ampacity: 400A
10kA SYMS. SCCR
MAIN: MAIN BREAKER LA 400A
Bottom FEED
42ka AIR
INCOMING CONDUCTORS(S) PER NEC, CEC, NOM:
Wire Bending Space:
Phase Lugs: 1 - #1 - 600,(2)#1 - 250 kcmil
---------------BRANCH SUMMATION---------------
22 - 40A/2P BD
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<td>B</td>
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### PHYSICAL DATA

**ENCLOSURE** Type 3R/5/12  
**FRONT CAT#** Trim w/Box  
**BOX CAT#** HCJ3273WP  
**DIMENSIONS:**  
73"(1854mm)Hx32"(813mm)Wx11.75"(298mm)D  
**WIRE BENDING SPACE:**  
- TOP - 14.16"(360mm)  
- BOTTOM - 17.93"(455mm)  
- LEFT SIDE - 6.27"(159mm)  
- RIGHT SIDE - 6.27"(159mm)  
**PBA** 475  
**BUSSING** 250A RATED COPPER BUS  
Tin Plated

### ELECTRICAL DATA

**SYSTEM** 208Y/120V 3Ph 4W 60Hz  
**System Ampacity:** 150A  
**10kA SYMS. SCCR**  
**MAIN** MAIN BREAKER QB 150A  
**Bottom FEED**  
**10kA AIR**  
**INCOMING CONDUCTORS(S) PER NEC, CEC, NOM:**  
Wire Bending Space:  
Phase Lugs:1 - #4 - 300 kcmil  
**-----------BRANCH SUMMATION-----------**  
11 - 40A/2P-PS BD  
8 - 40A/2P BD
### PHYSICAL DATA

**ENCLOSURE** Type 3R/5/12  
FRONT CAT#: Trim w/Box  
BOX CAT#: HCJ3291WP  

**DIMENSIONS:**  
91”(2311mm)Hx32”(813mm)Wx11.75”(298mm)D  

**WIRE BENDING SPACE:**  
- TOP – 14.16”(360mm)  
- BOTTOM – 16.96”(431mm)  
- RIGHT SIDE – 6.27”(159mm)  
- LEFT SIDE – 6.27”(159mm)  

PBA: 475  

**BUSSING:** 400A RATED COPPER BUS  Tin Plated

### ELECTRICAL DATA

**SYSTEM:** 208Y/120V 3Ph 4W 60Hz  
System Ampacity: 400A  
10kA SYMS, SCCR  

**MAIN:** MAIN BREAKER LA 400A  
Bottom FEED  
42kA AIR  

INCOMING CONDUCTORS(S) PER NEC, CEC, NOM:  
Wire Bending Space:  
Phase Lugs: 1 - #1 - 600,(2)#1 - 250 km

----------BRANCH SUMMATION----------  
10 - 40A/2P - PS BD  16 - 40A/2P BD

---

### Table

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<tr>
<th>Circuit No</th>
<th>Accessories</th>
<th>Type</th>
<th>Rating Amp/P</th>
<th>Phase Bus Conn</th>
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<td>BD</td>
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<td>40/2</td>
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### Diagram

The diagram illustrates the layout and connections of the enclosure, showing phase buses, accessory types, and their ratings. The diagram also includes the mounting information for each side of the enclosure.
Major Equipment Required and provided by the contractor

- Medium Voltage Transformers
- Medium Voltage Mini Break
- Switchboards
- Panelboards
- Low Voltage Transformers
This Section Contains Products: Medium Voltage Transformers
### Product Description

**Seq #** | **Qty** | **Product Description**
--- | --- | ---
6 | 1 | Designation: 300KVA

*Product Details*
- EX300T19HCU
- TRFMR 300 KVA DRY-T-4160-480Y/277

**Estimated days to ship, excluding transit:** 40 working days after customer release to manufacturer. See Conditions of Sale.

---

**Seq #** | **Qty** | **Product Description**
--- | --- | ---
11 | 1 | Designation: 

*Product Details*
- EX300T18HCU
- TRFMR 300 KVA DRY-T-4160-208Y/120

**Estimated days to ship, excluding transit:** 40 working days after customer release to manufacturer. See Conditions of Sale.

---

**Seq #** | **Qty** | **Product Description**
--- | --- | ---
12 | 1 | Designation: 

*Product Details*
- EX225T19HCU
- TRFMR 225 KVA DRY-T-4160-480Y/277

**Estimated days to ship, excluding transit:** 40 working days after customer release to manufacturer. See Conditions of Sale.
New! Revised Medium Voltage Transformer Energy Efficiency Information For 2016!

In 2010 Schneider Electric released new efficiencies for MV transformers based on The Department of Energy (DOE) 10 CFR Part 431 Energy Conservation program for Commercial Equipment. We are now launching even more efficient transformers to further reduce energy consumption from MV transformers. Starting January 1, 2016 certain medium voltage distribution transformers with ratings of 2,500 kVA and below, 34.5 kV primary and below and 600 Vac class secondary voltages must meet revised minimum efficiency requirements. Liquid Filled Padmounts, Liquid Filled Substations, Dry Type VPI and Power Cast products shipped after January 1, 2016 will all be included. The minimum efficiency tables are listed below. Please contact your nearest Schneider Electric Sales Office for more information. Page 14-19 and 14-20 includes our updated offer.

Table 14.46: New! Standard Efficiency Levels for Liquid Immersed Distribution Transformers

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<th>kVA</th>
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<tr>
<td>15</td>
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<td>99.52</td>
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<tr>
<td>833</td>
<td>99.55</td>
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<th>kVA</th>
<th>Three Phase</th>
<th>Efficiency %</th>
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<tr>
<td>20</td>
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All Efficiency values are at 50% of nameplate-rated load, determined according to the DOE Test Procedure 10 CFR 431, Subpart K, Appendix A.

Table 14.47: New! Standard Levels for Medium Voltage Dry Type Distribution Transformers

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<thead>
<tr>
<th>kVA</th>
<th>Single Phase</th>
<th>20-45kV BIL Efficiency %</th>
<th>46-95 kV BIL Efficiency %</th>
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<tr>
<td>667</td>
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<td>833</td>
<td>99.31</td>
<td>99.23</td>
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<table>
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<th>Three Phase</th>
<th>20-45kV BIL Efficiency %</th>
<th>46-95 kV BIL Efficiency %</th>
<th>&gt;96 kV BIL Efficiency %</th>
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<td>45</td>
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<td>150</td>
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<td>225</td>
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<td>98.81</td>
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All Efficiency values are at 50% of nameplate-rated load, determined according to the DOE Test Procedure 10 CFR 431, Subpart K, Appendix A.

NOTE: All Efficiency values are at 50% of nameplate-rated load, determined according to the DOE Test Procedure 10 CFR 431, Subpart K, Appendix A.
Energy Efficient, Dry Type 2.4, 5, and 15 kV

New! Energy Efficient Medium Voltage Distribution Transformers
Class 7432

Dry Type Medium Voltage
All transformers are built with 220 °C insulation and 150 °C temperature rise. For 115 °C rise add F to catalog number. For 80 °C rise add B to catalog number. For copper windings, add CU to the end of the part number. Check with factory to verify dimensional changes and weights for copper windings or alternate temperature rises. Standard high voltage taps: 4-2.5%, 2AN and 2BN. For 4-2.5% FCBN, add BN to catalog number.

New! 1,201–15,000 Vac Three-Phase Indoor Transformers
See Table 14.52 New! Enclosure Dimensions, page 14-23. Enclosures are for indoor use only. If outdoor enclosure is required, this is outside the scope of the digest, contact your local Schneider Electric Representative.

Lugs: Furnished by customer.

Table 14.48: New! EX Three Phase Medium Voltage Transformers

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<th>kVA</th>
<th>Catalog No.</th>
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<th>Weight (lbs)</th>
<th>Enclosure</th>
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<td>1400</td>
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Table 14.49: New! Three Phase Voltage Codes

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<td>13</td>
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<td>37</td>
<td>12000 Delta</td>
<td>208Y/120</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>12000 Delta</td>
<td>480Y/277</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>12000 Delta</td>
<td>480Y/277</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>12000 Delta</td>
<td>480 Delta</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>12000 Delta</td>
<td>600 Delta</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>12470 Delta</td>
<td>208Y/120</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>12470 Delta</td>
<td>480Y/277</td>
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<td>44</td>
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<td>480 Delta</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>12470 Delta</td>
<td>600 Delta</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>12470Y/7200</td>
<td>480 Delta</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>12470Y/7200</td>
<td>480 Delta</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>12470Y/7200</td>
<td>480 Delta</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>12470Y/7200</td>
<td>600 Delta</td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>12470Y/7200</td>
<td>600 Delta</td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>13200 Delta</td>
<td>208Y/120</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>13200 Delta</td>
<td>480 Delta</td>
<td></td>
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<td>54</td>
<td>13200 Delta</td>
<td>480 Delta</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>13200Y/7620</td>
<td>480 Delta</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>13200Y/7620</td>
<td>480 Delta</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>13200Y/7620</td>
<td>480 Delta</td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>13800 Delta</td>
<td>208Y/120</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>13800 Delta</td>
<td>480Y/277</td>
<td></td>
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<tr>
<td>60</td>
<td>13800 Delta</td>
<td>480Y/277</td>
<td></td>
</tr>
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<td>61</td>
<td>13800 Delta</td>
<td>480 Delta</td>
<td></td>
</tr>
<tr>
<td>62</td>
<td>13800 Delta</td>
<td>600 Delta</td>
<td></td>
</tr>
</tbody>
</table>

All secondary voltages are at 10 kV BIL (BIL means Basic Impulse Level).

To complete the three-phase catalog numbers on this page:
1. Select the voltage you require from the chart on the pricing page.
2. Insert the voltage code number in place of the ( ) in the catalog number.

Example 1: 1,000 kVA Energy Efficient, 3Ø, 60 Hz, 150°C temp. rise, 60 kV BIL, NEMA sound level, ventilated indoor enclosure, 13.2 kV delta 480Y/277, with 2-2.5% full capacity taps. 2AN and 2BN = EX1000T51H.

Example 2: 750 kVA Energy Efficient 3Ø, 60 Hz, 80°C temp. rise, 60 kV BIL, NEMA sound level, ventilated indoor enclosure, 1410 V Delta, 480Y/277, 2-2.5% full capacity taps. 2AN and 2BN = Part number EX750T19B.

Example 3: 500 kVA Energy Efficient, 3Ø, 60 Hz, 115°C temp. rise, Copper Windings, 60 kV BIL, NEMA sound level, ventilated indoor enclosure, 12470 Vac delta, 208Y/120, with 2-2.5% full capacity taps. 2AN and 2BN = EX500T42BCU.
New! Energy Efficient Medium Voltage Distribution Transformers

Class 7432

1,201–15,000 Vac Single-Phase Indoor Transformers

Table 14.50: New! EX Single Phase Medium Voltage Transformers

<table>
<thead>
<tr>
<th>kVA</th>
<th>Catalog No.</th>
<th>Minimum Efficiency @ 50% load</th>
<th>Weight (lbs)</th>
<th>Enclosure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.4 kV Voltage Class 60 Hz 150 °C Rise</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>167</td>
<td>EX167S</td>
<td>98.96</td>
<td>1500</td>
<td>51D</td>
</tr>
<tr>
<td>250</td>
<td>EX250S</td>
<td>99.07</td>
<td>2200</td>
<td>52D</td>
</tr>
<tr>
<td>333</td>
<td>EX333S</td>
<td>99.14</td>
<td>2500</td>
<td>52D</td>
</tr>
<tr>
<td>5 kV Voltage Class 60 Hz 150 °C Rise</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>167</td>
<td>EX167S</td>
<td>99.07</td>
<td>1500</td>
<td>52D</td>
</tr>
<tr>
<td>250</td>
<td>EX250S</td>
<td>99.14</td>
<td>2400</td>
<td>52D</td>
</tr>
<tr>
<td>333</td>
<td>EX333S</td>
<td>99.22</td>
<td>3000</td>
<td>53D</td>
</tr>
<tr>
<td>15 kV Voltage Class 60 Hz 150 °C Rise</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>167</td>
<td>EX167S</td>
<td>98.95</td>
<td>2400</td>
<td>52D</td>
</tr>
<tr>
<td>250</td>
<td>EX250S</td>
<td>99.03</td>
<td>3400</td>
<td>53D</td>
</tr>
<tr>
<td>333</td>
<td>EX333S</td>
<td>99.12</td>
<td>4000</td>
<td>53D</td>
</tr>
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</table>

Lugs: Furnished by customer.

Table 14.51: New! Single Phase Voltage Codes

<table>
<thead>
<tr>
<th>kV Class</th>
<th>Code</th>
<th>Primary</th>
<th>Secondary</th>
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</thead>
<tbody>
<tr>
<td>2.4</td>
<td>14</td>
<td>2400 Delta</td>
<td>120/240</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>2400 Delta</td>
<td>277</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>2400/4160Y</td>
<td>120/240</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>4800 Delta</td>
<td>277</td>
</tr>
<tr>
<td>5</td>
<td>16</td>
<td>4160 Delta</td>
<td>120/240</td>
</tr>
<tr>
<td></td>
<td>27</td>
<td>4160 Delta</td>
<td>277</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>4160/7200Y</td>
<td>120/240</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>7200 Delta</td>
<td>120/240</td>
</tr>
<tr>
<td></td>
<td>29</td>
<td>7200 Delta</td>
<td>277</td>
</tr>
<tr>
<td>15</td>
<td>19</td>
<td>7200/12470Y</td>
<td>120/240</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>7620/13200Y</td>
<td>120/240</td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>12470 120/240</td>
<td>120/240</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>13200 120/240</td>
<td>120/240</td>
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<td></td>
<td>23</td>
<td>13800 120/240</td>
<td>120/240</td>
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<td></td>
<td>30</td>
<td>7200/12470Y</td>
<td>277</td>
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<tr>
<td></td>
<td>31</td>
<td>7620/13200Y</td>
<td>277</td>
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<tr>
<td></td>
<td>32</td>
<td>12470 277</td>
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<td>13200 277</td>
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</tr>
<tr>
<td></td>
<td>34</td>
<td>13800 277</td>
<td>277</td>
</tr>
</tbody>
</table>

To complete the single-phase catalog numbers on this page:
1. Select the voltage you require from the chart on the pricing page.
2. Insert the voltage code number in place of the () in the catalog number.

Example: 167 kVA Energy Efficient 1Ø 2400/4160Y-120/240 Vac, 1Ø 60 Hz unit is EX167S13H. The unit would be supplied with 2–2.5% above and 2–2.5% full capacity below normal taps on the primary.

Enclosures

Table 14.52: New! Enclosure Dimensions

<table>
<thead>
<tr>
<th>Enclosure Number/Style</th>
<th>Height</th>
<th>Width</th>
<th>Depth</th>
<th>Mounting</th>
<th>NEMA 3R</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
<td></td>
</tr>
<tr>
<td>50 D</td>
<td>40.5</td>
<td>1029</td>
<td>36.5</td>
<td>927</td>
<td>Floor</td>
</tr>
<tr>
<td>51 D</td>
<td>51.5</td>
<td>1308</td>
<td>40.5</td>
<td>1029</td>
<td>Floor</td>
</tr>
<tr>
<td>52 D</td>
<td>66</td>
<td>1676</td>
<td>50.5</td>
<td>1283</td>
<td>Floor</td>
</tr>
<tr>
<td>53 D</td>
<td>80</td>
<td>2032</td>
<td>64</td>
<td>1826</td>
<td>Floor</td>
</tr>
<tr>
<td>54 F</td>
<td>90</td>
<td>2286</td>
<td>72</td>
<td>1829</td>
<td>Floor</td>
</tr>
<tr>
<td>55 F</td>
<td>90</td>
<td>2286</td>
<td>60</td>
<td>2032</td>
<td>Floor</td>
</tr>
<tr>
<td>56 F</td>
<td>90</td>
<td>2286</td>
<td>90</td>
<td>2286</td>
<td>Floor</td>
</tr>
<tr>
<td>57 F</td>
<td>100</td>
<td>2540</td>
<td>100</td>
<td>2540</td>
<td>Floor</td>
</tr>
<tr>
<td>58 F</td>
<td>108</td>
<td>2743</td>
<td>108</td>
<td>2743</td>
<td>Floor</td>
</tr>
</tbody>
</table>

These dimensions are not for construction. Contact your local Schneider Electric sales office for certified prints.

Special outdoor construction required for NEMA 3R applications. Contact your local Schneider Electric sales office for details.
This Section Contains Products: Medium Voltage Mini Break
<table>
<thead>
<tr>
<th>Seq #</th>
<th>Qty</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td><strong>Designation</strong>: 5kv MINI BREAK</td>
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**Product Details**

<table>
<thead>
<tr>
<th>HVMB305200</th>
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</thead>
<tbody>
<tr>
<td>5KV 200A LOAD BREAK SW FUSED NEMA1/3R</td>
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</tbody>
</table>

**Estimated days to ship, excluding transit**: 15 working days after customer release to manufacturer. See Conditions of Sale.
<table>
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</thead>
<tbody>
<tr>
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<td>1</td>
<td><strong>Designation</strong>: 100A FUSES MINI BREAK</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Product Details</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5GS100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 KV CURRENT LIMITING FUSE 100A SET OF 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Estimated days to ship, excluding transit</strong>: 30 working days after customer release to manufacturer. See Conditions of Sale.</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td><strong>Designation</strong>:</td>
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<td></td>
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<td><strong>Product Details</strong></td>
</tr>
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<td></td>
<td></td>
<td>5GS065</td>
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<tr>
<td></td>
<td></td>
<td>5 KV CURRENT LIMITING FUSE 65A(SET OF 3)</td>
</tr>
</tbody>
</table>
|       |     | **Estimated days to ship, excluding transit**: 30 working days after customer release to manufacturer. See Conditions of Sale.
MiniBreak™ Load Interrupter Switch
For Individual Metal-Enclosed Medium Voltage Switchgear
200 A, 5.5 kV
As the leading manufacturer of medium voltage load interrupter switches, Square D/Schneider Electric has set the standard for performance, protection and dependability. Our MiniBreak™ Medium Voltage Load Interrupter is well known in the industry for its quality, construction, compact design and low cost. We’re dedicated to serving your needs. Our engineering and support staff is considered the best in the industry.

The Right Medium Voltage Solution

The MiniBreak Load Interrupter Switch, available from stock for quick shipment, provides compact and economical switching for currents up to 200 A at 5.5 kV. The enclosure is made of tamper-resistant 11-gauge steel. Its compact design and light weight make it easy to handle and an ideal choice for installations in which space is limited.

Fully tested to ANSI and CSA standards, the MiniBreak Load Interrupter Switch features a short time rating of 12.5 kA for two seconds. It also complies with category B of the UL construction standards. Available in fused and unfused versions, the switch is perfectly suited for most 5.5 kV 200 A applications.

The MiniBreak Load Interrupter Switch is designed to be used with SQUARE D current-limiting fuses, as well as any three-inch diameter fuse with twelve-inch long barrels rated to 200 E.

The Right Features

- UL Listed
- Knife-type air interrupter
- Precise contact alignment
- Provision for current-limiting fuses
- Quick-make, quick-break operating mechanism
- Mechanically interlocked fuse access door
- Viewing window for visible inspection
- Wind-resistant door stay
- Provision for padlocking handle in OFF position

The MiniBreak Load Interrupter Switch is widely used in the following applications as:

- A transformer primary disconnect
- A motor disconnect
- An individual service entrance equipment
- An incoming line and feeder distribution device

The design of the MiniBreak Load Interrupter Switch makes it ideal for use on oil rigs, in automotive facilities and other individual settings.

Typical Applications

The MiniBreak Load Interrupter Switch is widely used in the following applications as:

- A transformer primary disconnect
- A motor disconnect
- An individual service entrance equipment
- An incoming line and feeder distribution device

The design of the MiniBreak Load Interrupter Switch makes it ideal for use on oil rigs, in automotive facilities and other individual settings.
### Dimensions

**Ratings**
- Maximum design voltage: 5.5 kV
- Maximum continuous current: 200 A
- Magnetizing current: 4 A @ 8-10% power factor
- Maximum fault closing: 20 kA asymmetrical
- Short time rating (2 sec): 12.5 kA
- Maximum fault closing with fuses up to 63 kA symmetrical
- Power frequency withstand: 19 kV
- Basic impulse level (BIL): 60 kV
- Load breaking (100 operations): 200 A @ 70-80% power factor
- Mechanical life expectancy (no-load operations): 750

**The Right Service and Support**

As the country’s leading supplier of electrical distribution equipment, Square D/Schneider Electric is in a unique position to provide whatever is required to meet your needs. Whatever your application, service and support are vital components of a successful installation and continuing operation. Square D/Schneider Electric has one of the largest engineering and service teams in the industry to provide a level of support unmatched by any other manufacturer.

*For additional information on the MiniBreak™ Load Interrupter Switch contact your local Square D sales representative, or call 1-888-SQUARED.*

www.SquareD.com

Order No. 6042BR9401R9/02
**Ratings**

- Maximum design voltage: 5.5 kV
- Maximum continuous current: 200 A
- Magnetizing current: 4 A @ 8-10% power factor
- Maximum fault closing: 20 kA asymmetrical
- Short time rating (2 sec): 12.5 kA
- Maximum fault closing with fuses up to 63 kA symmetrical
- Power frequency withstand: 19 kV
- Basic impulse level (BIL): 60 kV
- Load breaking (100 operations): 200 A @ 70-80% power factor
- Mechanical life expectancy (no-load operations): 750

---

**The Right Service and Support**

As the country’s leading supplier of electrical distribution equipment, Square D/Schneider Electric is in a unique position to provide whatever is required to meet your needs. Whatever your application, service and support are vital components of a successful installation and continuing operation. Square D/Schneider Electric has one of the largest engineering and service teams in the industry to provide a level of support unmatched by any other manufacturer.

---

**Dimensions**

- Front View
- Section View (fused)
- Section View (non-fused)
- Top View
- Single Line Diagram
- Load Side

**For additional information on the MiniBreak™ Load Interrupter Switch contact your local Square D sales representative, or call 1-888-SQUARED.**

www.SquareD.com
This Section Contains Products:
Switchboards
Sequence | Quantity | Product Description
--- | --- | ---
4 | 1 | Designation: DPEV

**Product Details**
1-Square D Custom Swbd Series 2-QED-2 Switchboard

---

Square D Custom Swb Series 2
Designed and Tested in accordance with:
UL 891/NATIONAL ELECTRIC CODE/NEMA PB-2
System Voltage - 208Y/120V 3Ph 4W 60Hz
System Ampacity - 800A
Source Description - Single Main
Tin Plated Copper Main Bus
Neutral Bus - 100%
Max Available Fault Current (RMS) - 65kA
Enclosure - Type 3R Non-Walk-in
Accessibility: Front Only
Equipment Nameplate - White Surface/Black Letters, Adhesive (Factory Installed)
Rodent Barrier
No Horizontal Bus
Exterior Paint Color - ANSI 49
Ground Lug provided for each device
Copper Ground Bus
Strip Heaters - Internal Power Source with Thermostat
Seismic Qualified

**Dimensions**

---

1 - 36" Wide Section(s)
1 - Dimensions: 36.00" W X 35.5" D X 91.5"H
1 - 35.5" Deep Enclosure(s)
Approximate Weight: 980.00 lbs / 444.53 kgs

**Incoming Requirements**

---

Suitable for Use As Service Entrance
Entry Point: Left of Lineup Through the Bottom
Connection Type: Cable
SPD with Surge Rating 240kA
SPD Dry Contacts
Includes Surge Counter

**Mains**

---

1 - 800AT 208V 80% Rated 65 kA 3 Pole UL,
   Group Mounted Basic Electronic Trip
   Circuit Breaker: Type MG
   Nameplate - White Surface / Black Letters, Adhesive (Factory Installed)

**Feeders**

---

5 - 100AS/100AT 208V 80% Rated 65 kA 3 Pole UL,
   Group Mounted Electronic Trip
   Circuit Breaker: Type HG
   Standard Trip Unit, Long Time, Instantaneous
1 - 200AT 208V 80% Rated 65 kA 3 Pole UL,
   Group Mounted Thermal Magnetic Circuit Breaker: Type QG
2 - 400AS/400AT 208V 80% Rated 65 kA 3 Pole UL,
   Group Mounted Electronic Trip
   Circuit Breaker: Type LG
   Standard Trip Unit, Long Time, Instantaneous
Common Feeder Features:
Nameplate - White Surface / Black Letters, Adhesive (Factory Installed)

Estimated days to ship, excluding transit: 50 working days after customer release to manufacturer. See Conditions of Sale.

<table>
<thead>
<tr>
<th>Seq #</th>
<th>Qty</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1</td>
<td>Designation: DPFST</td>
</tr>
</tbody>
</table>

Product Details
1-Square D Custom Swbd Series 2-QED-2 Switchboard

Square D Custom Swbd Series 2
Designed and Tested in accordance with:
UL 891/NATIONAL ELECTRIC CODE/NEMA PB-2
System Voltage - 480Y/277V 3Ph 4W 60Hz
System Ampacity - 400A
Source Description - Single Main
Tin Plated Copper Main Bus
Neutral Bus - 100%
Max Available Fault Current (RMS) - 65kA
Enclosure - Type 3R Non-Walk-in
Accessibility: Front Only
Equipment Nameplate - White Surface/Black Letters, Adhesive (Factory Installed)
Rodent Barrier
No Horizontal Bus
Exterior Paint Color - ANSI 49
Ground Lug provided for each device
Copper Ground Bus
Strip Heaters - Internal Power Source with Thermostat
Seismic Qualified

Dimensions

1 - 36" Wide Section(s)
1 - Dimensions: 36.00" W X 35.5" D X 91.5"H
1 - 35.5" Deep Enclosure(s)
Approximate Weight: 950.00 lbs / 430.92 kgs

Incoming Requirements

suitable for Use As Service Entrance
Entry Point: Left of Lineup Through the Bottom
Connection Type: Cable
SPD with Surge Rating 240kA
SPD Dry Contacts
Includes Surge Counter

Mains

1 - 400AT 480V 80% Rated 65 kA 3 Pole UL, Group Mounted Basic Electronic Trip
Circuit Breaker: Type MJ
Nameplate - White Surface / Black Letters, Adhesive (Factory Installed)

Feeders

5 - 100AS/100AT 480V 80% Rated 65 kA 3 Pole UL, Group Mounted Electronic Trip
Circuit Breaker: Type HJ
Standard Trip Unit, Long Time, Instantaneous
2 - 100AT 480V 80% Rated 65 kA 3 Pole UL, Group Mounted Thermal Magnetic Circuit Breaker: Type BJ
1 - 200AT 480V 80% Rated 65 kA 3 Pole UL, Group Mounted Thermal Magnetic Circuit Breaker: Type JJ

Common Feeder Features:
Nameplate - White Surface / Black Letters, Adhesive (Factory Installed)

Estimated days to ship, excluding transit: 50 working days after customer release to manufacturer. See Conditions of Sale.

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>13</td>
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<td>Designation : DPHEV</td>
</tr>
</tbody>
</table>

**Product Details**
1-Square D Custom Swbd Series 2-QED-2 Switchboard

Square D Custom Swb Series 2
Designed and Tested in accordance with:
UL 891/NATIONAL ELECTRIC CODE/NEMA PB-2
System Voltage - 208Y/120V 3Ph 4W 60Hz
System Ampacity - 800A
Source Description - Single Main
Tin Plated Copper Main Bus
Neutral Bus - 100%
Max Available Fault Current (RMS) - 65kA
Enclosure - Type 3R Non-Walk-in
Accessibility: Front Only
Equipment Nameplate White Surface/Black Letters, Adhesive (Factory Installed)
Rodent Barrier
No Horizontal Bus
Exterior Paint Color - ANSI 49
Ground Lug provided for each device
Copper Ground Bus
Strip Heaters - Internal Power Source with Thermostat
Seismic Qualified

**Dimensions**

1 - 36" Wide Section(s)
1 - Dimensions: 36.00" W X 35.5" D X 91.5"H
1 - 35.5" Deep Enclosure(s)
Approximate Weight: 980.00 lbs / 444.53 kgs

**Incoming Requirements**

Suitable for Use As Service Entrance
Entry Point: Left of Lineup Through the Bottom
Connection Type: Cable
SPD with Surge Rating 240kA
SPD Dry Contacts
Includes Surge Counter

**Mains**

1 - 800AT 208V 80% Rated 65 kA 3 Pole UL, Group Mounted Basic Electronic Trip Circuit Breaker: Type MG
Nameplate - White Surface / Black Letters, Adhesive (Factory Installed)
4 - 100AS/100AT 208V 80% Rated 65 kA 3 Pole
UL, Group Mounted Electronic Trip
Circuit Breaker: Type HG
2 - 250AS/200AT 208V 80% Rated 65 kA 3 Pole
UL, Group Mounted Electronic Trip
Circuit Breaker: Type JG
2 - 400AS/400AT 208V 80% Rated 65 kA 3 Pole
UL, Group Mounted Electronic Trip
Circuit Breaker: Type LG

Common Feeder Features:
- Standard Trip Unit, Long Time, Instantaneous
- Nameplate - White Surface / Black Letters,
  Adhesive (Factory Installed)

Estimated days to ship, excluding transit: 50 working days after customer release to manufacturer. See Conditions of Sale.

<table>
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<tr>
<th>Seq</th>
<th>Qty</th>
<th>Product Description</th>
</tr>
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<tr>
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**Product Details**

1-Square D Custom Swbd Series 2-QED-2 Switchboard

Square D Custom Swb Series 2
Designed and Tested in accordance with:
UL 891/NATIONAL ELECTRIC CODE/NEMA PB-2
System Voltage - 480Y/277V 3Ph 4W 60Hz
System Ampacity - 400A
Source Description - Single Main
Tin Plated Copper Main Bus
Neutral Bus - 100%
Max Available Fault Current (RMS) - 65kA
Enclosure - Type 3R Non-Walk-in
Accessibility: Front Only
Equipment Nameplate - White Surface/Black Letters, Adhesive (Factory Installed)
Rodent Barrier
No Horizontal Bus
Exterior Paint Color - ANSI 49
Ground Lug provided for each device
Copper Ground Bus
Strip Heaters - Internal Power Source with Thermostat
Seismic Qualified

**Dimensions**

- 1 - 36" Wide Section(s)
- 1 - Dimensions: 36.00" W X 35.5" D X 91.5"H
- 1 - 35.5" Deep Enclosure(s)
Approximate Weight: 935.00 lbs / 424.12 kgs

**Incoming Requirements**

Suitable for Use As Service Entrance
Entry Point: Left of Lineup Through the Bottom
Connection Type: Cable
SPD with Surge Rating 240kA
SPD Dry Contacts
Includes Surge Counter

**Mains**

- 1 - 400AS/400AT 480V 80% Rated 65 kA 3 Pole
  UL, Group Mounted Electronic Trip
Circuit Breaker: Type LJ
Standard Trip Unit, Long Time,
Instantaneous
Nameplate - White Surface / Black
Letters, Adhesive (Factory Installed)

Feeders

7 - 100AS/100AT 480V 80% Rated 65 kA 3 Pole
UL, Group Mounted Electronic Trip
Circuit Breaker: Type HJ
Standard Trip Unit, Long Time,
Instantaneous
2 - 100AT 480V 80% Rated 65 kA 3 Pole UL,
Group Mounted Thermal Magnetic Circuit
Breaker: Type BJ

Common Feeder Features:
Nameplate - White Surface / Black Letters,
Adhesive (Factory Installed)

Estimated days to ship, excluding transit: 50 working days after customer release to
manufacturer. See Conditions of Sale.

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Product Details
1-Square D Custom Swbd Series 2-QED-2 Switchboard

Square D Custom Swb Series 2
Designed and Tested in accordance with:
UL 891/NATIONAL ELECTRIC CODE/NEMA PB-2
System Voltage - 480Y/277V 3Ph 4W 60Hz
System Ampacity - 400A
Source Description - Single Main
Tin Plated Copper Main Bus
Neutral Bus - 100%
Max Available Fault Current (RMS) - 65kA
Enclosure - Type 3R Non-Walk-in
Accessibility: Front Only
Equipment Nameplate - White Surface/Black
Letters, Adhesive (Factory Installed)
Rodent Barrier
No Horizontal Bus
Exterior Paint Color - ANSI 49
Ground Lug provided for each device
Copper Ground Bus
Strip Heaters - Internal Power Source with
Thermostat
Seismic Qualified

Dimensions

1 - 36" Wide Section(s)
1 - Dimensions: 36.00" W X 35.5" D X 91.5"H
1 - 35.5" Deep Enclosure(s)
Approximate Weight: 950.00 lbs / 430.92 kgs

Incoming Requirements

Suitable for Use As Service Entrance
Entry Point: Left of Lineup Through the Bottom
Connection Type: Cable
SPD with Surge Rating 240kA
SPD Dry Contacts
Includes Surge Counter
## Proposal Name: Santa Barbara County EV Charging Stations

### Quote Name: BASE

**Quote Number:** Q-1678575  
**Addendum:** 0  
**Date:** April 17, 2020

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### Mains

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| 1    | 400AT 480V 80% Rated 65 kA 3 Pole UL, Group Mounted Basic Electronic Trip Circuit Breaker: Type MJ  
Nameplate - White Surface / Black Letters, Adhesive (Factory Installed) |

### Feeders

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| 6    | 100AS/100AT 480V 80% Rated 65 kA 3 Pole UL, Group Mounted Electronic Trip Circuit Breaker: Type HJ  
Standard Trip Unit, Long Time, Instantaneous |
| 2    | 200AT 480V 80% Rated 65 kA 3 Pole UL, Group Mounted Thermal Magnetic Circuit Breaker: Type JJ  
Common Feeder Features:  
Nameplate - White Surface / Black Letters, Adhesive (Factory Installed) |

**Estimated days to ship, excluding transit:** 50 working days after customer release to manufacturer. See Conditions of Sale.
SWITCHBOARD GENERAL NOTES – SERIES 2

PRODUCT DESCRIPTION & RATINGS

**Power System Data**
- 208Y/120V 3Ph, 4W 60Hz / 3 Phase Wye
- Solidly Grounded
- System Short Circuit Current Rating: 65kA RMS
- Incoming Section 1 Cable Through the Bottom Left of Lineup

**Bus System Data**
- 800A Tinned Copper Single Section with No Main Bus
- (1) 0.75x8.75 in/12x22 mm Cu Ground Bus

**Enclosure Data**
- Type 3R Free Standing
- Exterior Paint Color: ANSI 49
- Front Accessibility Only Required
- Handling: Rollers
- Gasketed doors
- 1.5H Corrosion Resistant Base Channels
- Nameplate Mounting Type: Adhesive (Factory Installed)
- Equipment Nameplate: White Surface / Black Letters
- Stop Heater w. Thermostat
- Device Nameplate: White Surface / Black Letters

**Estimated Shipping Weight**
- Shipping Unit: 980.00 lbs / 444.53 kgs
- Complete Lineup: 980.00 lbs / 444.53 kgs

**Code Standards**
- U.L. Deakentrack and suitable for use as Service Entrance
- when not more than six (6) disconnecting means are provided

**Rating Nameplates**
- STI - Service Entrance – Section Bus 800A

PRODUCT INFORMATION

**Wiring**
- All wiring to be Machine Tool Wire type
- Reference 80043-055 For Handling, Installation, Anchoring, Inspection and Maintenance Information

**Product Accessories/Options**
- Safety Qualified

---

**JOB NAME:** Santa Barbara County EV Charging Stations  
**EQUIPMENT DESIGNATION:** DPEV  
**DRAWING TYPE:** DG-2 Switchboard  
**DRAWING STATUS:** NOT FOR CONSTRUCTION  
**DATE:** April 16, 2020  
**PAGE:** 1 OF 2
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**SPECIFICATIONS:**
- **JOB NAME:** Santa Barbara County EV Charging Stations
- **EQUIPMENT DESIGNATION:** DPEV
- **DATE:** April 16, 2020
- **DRAWING STATUS:** Complete
No T-bus
## Power Style QED-2 Switchboard Series 2

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SWITCHBOARD GENERAL NOTES – SERIES 2

PRODUCT DESCRIPTION & RATINGS

Power System Data
240V/120V 3Ph, 4W 60Hz / 3 Phase Wye
Solidly Grounded
System Short Circuit Current Rating: 85kA RMS
Incoming Section 1 Cable Through the Bottom Left of Lineup

Bus System Data
5000A Tin Plated Copper Single Section with No Main Bus
(1) .25x.875 In x5x22 mm Cu Ground Bus

Enclosure Data
Type 3R Free Standing
Exterior Paint Color: ANSI 49
Front Accessibility Only Required
Handling: Rollers
Rodent barriers
1.5H Corrosion Resistant Base Channels
Nameplate Mounting Type: Adhesive (Factory Installed)
Equipment Nameplate: White Surface/Black Letters
Strip Heater w. Thermostat
Device Nameplate: White Surface / Black Letters

Estimated Shipping Weight
Shipping Split 1 980.00 lbs / 444.53 kgs
Complete Lineup 980.00 lbs / 444.53 kgs

Code Standards
U.L. Deadfront and suitable for use as Service Entrance when not more than six (6) disconnecting means are provided.

Rating Nameplates
STI: Service Entrance - Section Bus 800A

PRODUCT INFORMATION

Wiring
All wiring to be Machine Tool Wire type

Instruction Bulletins
Reference 80043-055 For Handling, Installation, Anchoring, Inspection And Maintenance Information

Product Accessories/Options
Seismic Qualified

---

JOB NAME: Santa Barbara County EV Charging Stations
EQUIPMENT DESIGNATION: DPHEV

EQUIPMENT TYPE: SC-2 Switchboard

DRAWING DATE: 04/17/2021
DRAWING TYPE: ELEVATION VIEW

DATE: April 16, 2020
DRAWING STATUS: NOT FOR CONSTRUCTION

DRAWING NUMBER: P2-187575-44851445-01
PG 1 OF 2
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**Wiring Information**
- **Job Name:** Santa Barbara County EV Charging Stations
- **EQUIPMENT DESIGNATION:** DPHEV
- **DRAWING DATE:** April 16, 2020
- **DRAWING STATUS QUOTE:** DRAW 00-187575-44051445-01
- **REV:** 2 OF 2
SWITCHBOARD GENERAL NOTES – SERIES 2
PRODUCT DESCRIPTION & RATINGS

Power System Data
480V/277V 3Ph. 4W 60Hz / 3 Phase Wye
Solidly Grounded
System Short Circuit Current Rating: 80kA RMS
Incoming Section 1 Cable Through the Bottom Left of Lineup

Bus System Data
400A Tie Routed Copper Single Section with No Main Bus
(1) 25x.875 In/5x2.2 mm Cu Ground Bus

Enclosure Data
Type: JR Free Standing
Exterior Paint Color: ANSI 49
Floor Accessibility Only Required
Handling: Rollers
Rudder barriers
1.5H Corrosion Resistant Base Channels
Nameplate Mounting Type: Adhesive (Factory Installed)
Equipment Nameplate: White Surface/Black Letters
Step Heater w. Thermostat
Device Nameplate: White Surface / Black Letters

Estimated Shipping Weight
Shipping Split 1: 935.00 lbs / 424.12 kgs
Complete Lineup: 935.00 lbs / 424.12 kgs

Code Standards
U.L. Deadfront and suitable for use as Service Entrance
when not more than six (6) disconnecting means are provided.

Rating Nameplates
ST1—Service Entrance – Section Bus 4004

PRODUCT INFORMATION

Wiring
All wiring to be Machine Tool Wire type

Instruction Bulletins
Reference 80043=055 For Handling, Installation,
Archiving, Inspection And Maintenance Information

Product Accessories/Options
Seismic Qualified

JOB NAME: Santa Barbara County EV Charging Stations
EQUIPMENT DESIGNATION: DPHE
EQUIPMENT TYPE: DQ2-2 Switchboard
DRAWN BY: [Signature]
DATE: April 16 2020
DRAWING STATUS: DRAFT FOR CONSTRUCTION
SECTION 1

- Ground Bus per UL891
- LWP, Al/Cu Cable
- 2 - 3 Ph Active & Neutral
- 500 kcmil
- 400A 3P
- HJ 100A 3P
- 400A Switchboard
# Power Style QED-2 Switchboard Series 2

<table>
<thead>
<tr>
<th>SECT NO</th>
<th>CTX NO</th>
<th>IMD / GMD NAME</th>
<th>DEVICE / FRAME RATING</th>
<th>TRIP AMP</th>
<th>TRIP</th>
<th># P</th>
<th>DESIGNATION</th>
<th>N/P</th>
<th>LUG / WIRE INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
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<td>CTY NEUT WIRE RANGE</td>
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<td>ACCESSORIES / NOTES</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

1. **Incoming Connection**
   - 4.5 in N9 100A, 100A, S-LI, 3P, SPARE
   - Yes
   - No lug or wire information
   - SH

2. **Ship Loader**
   - 4.5 in N9 100A, 100A, S-LI, 3P, SPARE
   - Yes
   - #14 - 1/0 AWG: 1 wire, #14 - 1/0 AWG: 1 wire

3. **4.5 in N9 100A, 100A, S-LI, 3P, SPARE**
   - Yes
   - #14 - 1/0 AWG: 1 wire, #14 - 1/0 AWG: 1 wire

4. **4.5 in N9 100A, 100A, S-LI, 3P, SPARE**
   - Yes
   - #14 - 1/0 AWG: 1 wire, #14 - 1/0 AWG: 1 wire

5. **4.5 in N9 100A, 100A, S-LI, 3P, SPARE**
   - Yes
   - #14 - 1/0 AWG: 1 wire, #14 - 1/0 AWG: 1 wire

6. **4.5 in N9 100A, 100A, S-LI, 3P, SPARE**
   - Yes
   - #14 - 1/0 AWG: 1 wire, #14 - 1/0 AWG: 1 wire

7. **4.5 in N9 100A, 100A, S-LI, 3P, SPARE**
   - Yes
   - #14 - 1/0 AWG: 1 wire, #14 - 1/0 AWG: 1 wire

8. **4.5 in N9 100A, 100A, S-LI, 3P, SPARE**
   - Yes
   - #14 - 1/0 AWG: 1 wire, #14 - 1/0 AWG: 1 wire

9. **4.5 in N9 100A, 100A, S-LI, 3P, SPARE**
   - Yes
   - #14 - 1/0 AWG: 1 wire, #14 - 1/0 AWG: 1 wire

10. **13.5 in N9 400A, 400A, S-LI, 3P, MB BREAKER**
    - Yes
    - 250 - 600 kcmil wire, 3/0 - 500 kcmil wire
SWITCHBOARD GENERAL NOTES — SERIES 2

PRODUCT DESCRIPTION & RATINGS

Power System Data
480V/277V 3Ph 4W 60Hz / 3 Phase Wye
Solidly Grounded
System Short Circuit Current Rating: 65kA RMS
Incoming Section 1 Cable Through the Bottom Left of Lineup

Bus System Data
400A Tie Panel Copper Single Section with No Main Bus
(1) .25x.875 In x 5/32" mm Cu Ground Bus

Enclosure Data
Type JR Free Standing
Exterior Paint Color: ANSI 49
Front Accessibility Only Required
Handling: Rollers
Rodent barriers
1.5H Corrosion Resistant Base Channels
Nameplate Mounting Type: Adhesive (Factory Installed)
Equipment Nameplate: White Surface / Black Letters
Step Heater w. Thermostat
Device Nameplate: White Surface / Black Letters

Estimated Shipping Weight
Shipping Split 1: 950.00 lbs / 430.92 kgs
Complete Lineup: 950.00 lbs / 430.92 kgs

Code Standards
U.L. Deadfront and suitable for use as Service Entrance
when not more than six (6) disconnecting means are provided.

Rating Nameplates
ST1—Service Entrance — Section Bus 4004

PRODUCT INFORMATION

Wiring
All wiring to be Machine Tool Wire type

Instruction Bulletins
Reference 80043-055 For Handling, Installation,
Archiving, Inspection And Maintenance Information

Product Accessories/Options
Securing: Qualified

---

JOB NAME: Santa Barbara County EV Charging Stations
EQUIPMENT DESIGNATION: DPSSV

EQUIPMENT TYPE: DC 2 Switchboard
DRAWN BY: [Signature]
DRAWING DATE: April 16, 2022

DRAWING STATUS: NOT FOR CONSTRUCTION
DRAWING SIZE: 18x24/75-44552072-01
PAGE 1 OF 2
# POWER STYLE QED-2 SWITCHBOARD SERIES 2

<table>
<thead>
<tr>
<th>SECT NO</th>
<th>OKT NO</th>
<th>IMD/SMOConte</th>
<th>DEVICE/FRAME RATING</th>
<th>TRIP AMP</th>
<th>FUSE/TRIP</th>
<th>#P</th>
<th>DESIGNATION</th>
<th>N/P</th>
<th>LUG/WIRE INFORMATION</th>
<th>CNT PHASE WIRE RANGE</th>
<th>CNT NEUT WIRE RANGE</th>
<th>ACCESSORIES / NOTES</th>
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<td>SHR</td>
</tr>
<tr>
<td>1 1</td>
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<td>N 100A</td>
<td>100A S-LI 3P SPARE</td>
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<td>#14 – 1/0 AWG</td>
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<td>1 2</td>
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<td>#14 – 1/0 AWG</td>
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<td>#14 – 1/0 AWG</td>
<td>1</td>
<td>#14 – 1/0 AWG</td>
<td>SHI</td>
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<td>1 4</td>
<td>4.5 in</td>
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<tr>
<td>1 5</td>
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<td>100A S-LI 3P SPARE</td>
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<td>#14 – 1/0 AWG</td>
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<td>#14 – 1/0 AWG</td>
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<tr>
<td>1 6</td>
<td>4.5 in</td>
<td>N 100A</td>
<td>100A S-LI 3P SPARE</td>
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<td>1 7</td>
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<td>1 8</td>
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<td>200A – 3P 150KVA TRANSFORMER</td>
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<td>3/0 – 350 kcmil</td>
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<td>SPD</td>
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<td>1 9</td>
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<td>240kA SPD</td>
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<td>SPD</td>
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<tr>
<td>1 M1</td>
<td>9 in</td>
<td>M 400A</td>
<td>3P MAIN BREAKER</td>
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<td>3/0 – 500 kcmil</td>
<td>2</td>
<td>250 – 600 kcmil</td>
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<td>SPD</td>
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</table>
Power-Style® QED-2, Series 2
Low Voltage Switchboards

Catalog
2742CT1001
(Addendum to 2742CT9501R12/09)
2010
Class 2742

CONTENTS
Description .......................................................... Page
Features ............................................................. 3
Main Sections ....................................................... 4
Group-Mounted Distribution Sections ...................... 5
Quick Layout Guide ............................................... 6
Power-Style® QED-2, Series 2

Product Description

Features

- Sections rated to 2,500 A horizontal, 2,500 A vertical
- Single mains to 2,500 A
- Voltage to 600 Vac
- Suitable for service entrance or distribution
- NEMA Type 1 or Type 3R enclosures
- Front accessible
- 91.5 in. (2,324 mm) high with base channels
- Section widths available: 30 in. (762 mm), 36 in. (914 mm), 42 in. (1,067 mm), or 48 in. (1,219 mm) wide
- Frame depths available: 24 in. (610 mm)
- Factory assembled
- Customer metering
- Surge protective devices (SPD)

Power-Style® QED-2, Series 2 switchboards provide a convenient and economical means of distributing electric power. These enclosed, free-standing structures contain circuit breaker or fusible overcurrent protection for services rated up to 2,500 A with a maximum voltage of 600 Vac. Power-Style QED-2, Series 2 switchboards are custom-made for use as service entrance equipment or as distribution centers in commercial, institutional, and industrial applications.

The instrument compartments (ICs) for individually mounted main sections and I-Line® single-row, 2000 and 2500 A distribution sections are hinged for access to bussing and other components that may be located behind the IC.

An SPD can be mounted in the side of the individually mounted device section IC with an ON/OFF mechanism extending up into the compartment for easy access. The SPD can be partially withdrawn from the compartment to simplify module replacement.

The neutral through bus is located remotely from the mid-mount phase through bus. The feeder neutral for I-Line and QMB distribution sections is mounted on the neutral through bus. The ground bar is located in the front of the switchboard section. Both the neutral through bus and the ground bar will be located at the top or bottom of the section to match the incoming conductors.

Switchboards with utility compartments or feed types other than line-side lug/load-side through bus are currently not available in Series 2 construction.
Main Sections

The main devices for overcurrent/short circuit protection and disconnect purposes are available as circuit breakers or fusible switches in Power-Style QED-2, Series 2 switchboards. These individually mounted main disconnect sections can contain PowerPact® M-, P-, and R-frame molded case circuit breakers to a maximum of 2,500 A. Bolt-Loc® BP fusible switch mains are available to a maximum of 2,500 A. Ground fault protection is available through Micrologic® trip units on the PowerPact P- and R-frame circuit breakers. Ground fault protection is available on Bolt-Loc BP fusible switch mains with the Type GC ground fault system. Section width varies with mains and options.

Available Features

- 2,500 A maximum disconnects
- 600 Vac maximum
- Individually mounted mains—middle location is standard
  - PowerPact MG or MJ circuit breakers (800 A max.)
  - PowerPact PG, PJ, PK, or PL circuit breakers (1,200 A max.)
  - PowerPact RG, RK, RJ, or RL circuit breakers (2,500 A max.)
  - Bolt-Loc BP fusible switches (electric or manual trip; 2,500 A max.)
- Top or bottom feed
- Suitable for use as service entrance
- Ground fault protection (not available on PowerPact M-frame circuit breakers)
  - Micrologic trip unit (residual)
  - Bolt-Loc Ground-Censor Type GC (zero sequence)
- Customer metering
  - PowerLogic circuit monitor (communications available)
    Display is located in the top IC
  - PowerLogic power meter (communications available)
    Display is located on the door
- Surge protective device in instrument compartment
  - Partially withdrawable for module replacement
  - Display is located in the top IC

Instrument Compartment Contents

<table>
<thead>
<tr>
<th>Monitoring Circuits</th>
<th>Bolt-Loc BP Fusible Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>120 Vac Control Power Transformer (CPT)</strong></td>
<td><strong>Protection Circuits 120 Vac CPT</strong></td>
</tr>
<tr>
<td>• Trip unit 24 Vdc power supply</td>
<td>• BP GFP GC200 ground fault relay; display mounted on door</td>
</tr>
<tr>
<td>• Communications 24 Vdc power supply</td>
<td>• BP phase monitor relay and capacitor trip unit</td>
</tr>
<tr>
<td>• Surge protection device circuits</td>
<td></td>
</tr>
<tr>
<td>• Power meter circuits</td>
<td></td>
</tr>
<tr>
<td>• Circuit monitor circuits</td>
<td></td>
</tr>
<tr>
<td>• Programmable contact module M6C</td>
<td></td>
</tr>
</tbody>
</table>
Power-Style® QED-2, Series 2
General and Application Information

Group-Mounted Distribution Sections

Power-Style QED-2, Series 2 switchboard distribution sections are available with either an I-Line or QMB group-mounted distribution panel. Each of these interiors mounts to the frame front corner channels with horizontal mounting rails. Connectors secured to the through bus with the “E” connector assembly bring power into the center of each interior bus. The vertical bus feeds power to each branch disconnect. When a neutral is required, the neutral terminals are located on the neutral through bus.

I-Line Distribution Sections

Schneider Electric molded case circuit breakers are available in I-Line plug-on group construction. In this construction, the line end of the circuit breaker plugs directly onto the I-Line panel bus assembly. Branch circuit breakers can be quickly and efficiently installed and wired from the front of the switchboard.

I-Line circuit breakers are keyed to mounting slots in the support pan to provide automatic alignment and reduced installation time. The circuit breakers are then secured to the pan with screws.

I-Line switchboard sections are available in single-row or double-row construction. Single-row construction permits mounting of circuit breakers only on one side of the I-Line bus assembly, while double-row construction provides for circuit breaker mounting on both sides. In double-row construction, different circuit breakers can be mounted opposite each other.

With the new Series 2 design, the available 2000 and 2500 A, 36 in. (914 mm) wide, single-row interiors provide 63 in. (1,600 mm) of mounting space. The trip unit and communications power supplies and the control power transformer have been moved from the bus assembly to the IC, freeing up 7.5 in. (191 mm) of space for breaker mounting. An I-Line mountable SPD can be placed on the single-row bus assembly, or on either side of the I-Line bus assembly for double-row construction.

QMB Distribution Sections

QMB fusible switches are group mounted in QED-2 switchboards. The QMB switches are mounted to steel rails and electrically connected by plug-on jaws to the vertical bus. QMB switches through 600 A come standard with Class H fuse clips or with Class R, J, or T clips available as an option. Class L fuse clips are standard on 800 A and 1,200 A QMB switches.

QMJ fusible switches are also available and offer a space saving design. These switches come standard with Class J fuse clips.
Individually Mounted Mains and Group Mounted Distribution Sections (all sections have a depth of 24 in.)

### Individually Mounted Mains

**PowerPact M, P, and R**

<table>
<thead>
<tr>
<th>Type</th>
<th>Ampacity (A)</th>
<th>Width (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>800</td>
<td>30 in. (762 mm)</td>
</tr>
<tr>
<td>P</td>
<td>1,200</td>
<td>42 in. (1,067 mm)</td>
</tr>
<tr>
<td>R</td>
<td>2,500</td>
<td>48 in. (1,219 mm)</td>
</tr>
</tbody>
</table>

**Bolt-Loc BP Fusible Switch**

<table>
<thead>
<tr>
<th>Ampacity (A)</th>
<th>Width (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>800–2000</td>
<td>36 in. (914 mm)</td>
</tr>
<tr>
<td>2,500</td>
<td>42 in. (1,067 mm)</td>
</tr>
<tr>
<td>(2) 1,200</td>
<td>48 in. (1,219 mm)</td>
</tr>
</tbody>
</table>

### Group Mounted Fusible

**QMB Distribution**

<table>
<thead>
<tr>
<th>Maximum Switch Ampacity (A)</th>
<th>Width (W)</th>
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<tbody>
<tr>
<td>400</td>
<td>36 in. (914 mm)</td>
</tr>
<tr>
<td>1,200</td>
<td>42 in. (1,067 mm)</td>
</tr>
<tr>
<td>(2) 1,200</td>
<td>48 in. (1,219 mm)</td>
</tr>
</tbody>
</table>

Mounting space = 63 in. (1,600 mm)
Full-Height I-Line Distribution Sections (all sections have a depth of 24 in.)

<table>
<thead>
<tr>
<th>Interior Ampacity (A)</th>
<th>Max. C/B Frame (A)</th>
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<tbody>
<tr>
<td>2,000</td>
<td>R: 1,200</td>
</tr>
<tr>
<td>2,500</td>
<td></td>
</tr>
</tbody>
</table>

Mounting space = 63 in. (1,600 mm)
Circuit breaker with ground fault protection

Width (W) | Max. C/B Frame (A) |
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Left Side</td>
</tr>
<tr>
<td>36 in. (914 mm)</td>
<td>Q: 250</td>
</tr>
<tr>
<td>42 in. (1,067 mm)</td>
<td>L: 600</td>
</tr>
<tr>
<td>48 in. (1,219 mm)</td>
<td>R: 1,200</td>
</tr>
</tbody>
</table>

Mounting space: L = 54 in. (1,372 mm)
R = 63 in. (1,600 mm)
No circuit breaker with ground fault protection

With unknown loading, the minimum ampacity of the interior bus is as follows per UL 891:
- 1 device = 100% of rating
- 2–3 devices = 80% of sum of ratings
- 4–6 devices = 70% of sum of ratings
- 7–12 devices = 60% of sum of ratings
- 13+ devices = 50% of sum of ratings
I-Line SPDs

Square D™ Internally Mounted Surge Protective Devices

Square D™ brand Surgelogic™ I-Line Surge Protective Devices (SPDs) deliver specification grade performance for service entrance or critical branch panel applications. This multi-phase system provides suppression for all critical modes inside electrical equipment and shorter lead lengths with superior SPD performance.
I-Line Surge Protective Devices (SPDs) provide superior design and service life for a wide variety of commercial, industrial, or institutional applications. Square D brand Surgelogic SPDs offer first-rate performance and surge suppression for demanding service entrance applications or as part of a suppression network. The robust modular construction reduces possible down time and maintenance costs.

**Superior Performance**
Surgelogic SPDs utilize a high-energy suppression circuit that provides 10 modes of suppression from 100,000 to 240,000 peak Amps of surge current rating per phase. Modular SPDs feature circuitry that provides not only transient surge suppression, but also noise filtration. If more than 240,000 Amps is required, a second I-Line modular system can be installed.

**Installation**
Designed specifically for integral solutions that can come professionally pre-wired into electrical gear and panels from the factory or field installed into an existing I-Line panel. All units are tested at the factory before delivery to their final destination, maintaining Square D brand’s high standard of quality. There is also no need for additional enclosures or installation labor costs.

**Warranty**
Surgelogic I-Line SPDs have a 10-year warranty.

<table>
<thead>
<tr>
<th>FEATURES</th>
<th>ADVANTAGES</th>
<th>BENEFITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integral to electrical gear and panels</td>
<td>SPDs are installed inside electrical gear and panels</td>
<td>Delivers high levels of SPD performance and saves additional enclosure and installation expenses</td>
</tr>
<tr>
<td>100,000 to 240,000 Amp Capacity (depending on model)</td>
<td>Longer service life and suppression against high-energy lightning strikes</td>
<td>High performance surge suppression, even in severe electrical conditions</td>
</tr>
<tr>
<td>EMI/RFI Noise Rejection</td>
<td>Increased transient suppression</td>
<td>Improves surge suppression to the equipment</td>
</tr>
<tr>
<td>Advanced Diagnostics</td>
<td>Allows for online testing of the suppressor’s functionality</td>
<td>Provides immediate response if suppressor is damaged</td>
</tr>
<tr>
<td>Suppression Status Alarms</td>
<td>Allows multiple methods of alarm notification</td>
<td>Provides immediate notification through audible, visual and remote signaling if reduced suppression occurs</td>
</tr>
<tr>
<td>Coordinated Fuse Technology</td>
<td>Coordinated fusing allows disconnection methods for thermal and high-current events</td>
<td>Provides exceptional surge suppression while managing both thermal and high-current end-of-life events</td>
</tr>
</tbody>
</table>
I-Line Panelboard
The Square D brand I-Line power distribution panel is extremely versatile. It is used to feed NQ and NF lighting and appliance panelboards. I-Line panelboards can also feed large motors and temperature control systems. Interiors accept plug-on or bolt-on branch circuit breakers. (Max volts 600 Vac, max current 1,200 Amps)

I-Line SPDs
Features (continued)

Performance
- Surge Current Rating per Phase: Up to 240kA
- Short Circuit Current Rating: 200kA
- Modes of Protection: 6, 10
- Fusing: Individually fused MOVs
- Thermal Fusing: Yes
- Overcurrent Fusing: Yes
- Sine Wave Tracking: Yes
- EMI/RFI Filtering: Up to -42 dB
- Operating Frequency: 50/60 Hz

Mechanical Description
- Connection Method: Direct Bused
- Mounting Method/Circuit Type: I-Line bus/Parallel
- Operating Altitude: Sea Level-12,000' (3,658 m)
- Storage Temperature: -40˚ F (-40˚ C) to 149˚ F (65˚ C)
- Operating Temp.: -4˚ F (-20˚ C) to 149˚ F (65˚ C)
- LCD Operating Temp.: 14˚ F (-10˚ C) to 140˚ F (60˚ C)
- Operating Humidity: 0 to 95% non-condensing

Diagnostics
Push to test diagnostic switches, red and green status LEDs per phase (internal redundant status LEDs are green), module status LEDs per mode, dry contacts, audible alarm with disable switch, surge counter.

Safety and Performance

This Section Contains Products: Panelboards
<table>
<thead>
<tr>
<th>Seq #</th>
<th>Qty</th>
<th>Product Description</th>
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<tbody>
<tr>
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<td><strong>Designation</strong>: EV1</td>
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<td><strong>Product Details</strong></td>
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<tr>
<td></td>
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<td>1-NQ SPD Panel (INTERIOR)-NQ Panelboard</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consisting of 208Y/120V 3Ph 4W 60Hz SCCR: 10kA</td>
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<tr>
<td></td>
<td></td>
<td>Fully Rated SPD 120kA per Phase/60kA per Mode</td>
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<tr>
<td></td>
<td></td>
<td>SPD line to grd protect w/SPD Surge Counter</td>
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<tr>
<td></td>
<td></td>
<td>w/SPD Dry Contacts</td>
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<tr>
<td></td>
<td></td>
<td>Main Lug Only: 400A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Incoming Conductors: 1 - 1/0 - 750, (2) 1/0 - 350 kcmil</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bus: 400A Rated Copper: Silver/Tin Plated</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CU Ground Bar</td>
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<tr>
<td></td>
<td></td>
<td>72 Circuit Interior</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type 3R/5/12Box: 62H x 20W x 6.5D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Incoming: Bottom Trim w/ Box</td>
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<tr>
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<td></td>
<td>Box Cat No: MH62WP</td>
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<tr>
<td></td>
<td></td>
<td>Ref. Drawing: PBA711</td>
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<td>Feeders: 30 - 40A/2P QOB</td>
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<td>Optional Features: Standard Panel (Box Ahead), Copper Solid Neutral, Seismic Qualification - IBC/ASCE7/CBC/NBCC, SPD Model BIA, Copper Ground Bar</td>
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<td>Standard Nameplate: Engraved as Follows Line 1: EV1 Size: 3.50&quot; Wide x 1.00&quot; High (Std) Color: White Surface / Black Letters Plastic/Adhesive - Screw-on 1-MH62WP-PANELBOARD ENCLOSURE</td>
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<td><strong>Estimated days to ship, excluding transit</strong>: 14 working days after customer release to manufacturer. See Conditions of Sale.</td>
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<td>Fully Rated SPD 120kA per Phase/60kA per Mode</td>
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<td>SPD line to grd protect w/SPD Surge Counter</td>
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<td>w/SPD Dry Contacts</td>
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<td>Main Lug Only: 400A</td>
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<td>Incoming Conductors: 1 - 1/0 - 750, (2) 1/0 - 350 kcmil</td>
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<td>Bus: 400A Rated Copper: Silver/Tin Plated</td>
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<td>CU Ground Bar</td>
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<td>72 Circuit Interior</td>
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<td>Type 3R/5/12Box: 62H x 20W x 6.5D</td>
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<td>Optional Features: Standard Panel (Box Ahead), Copper Solid Neutral, Seismic Qualification - IBC/ASCE7/CBC/NBCC, SPD Model BIA, Copper</td>
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Ground Bar
Branch User Placement
Standard Nameplate:
Engraved as Follows
Line 1: EV2
Size: 3.50” Wide x 1.00” High (Std)
Color: White Surface / Black Letters
Plastic/Adhesive - Screw-on
1-MH62WP-PANELBOARD ENCLOSURE

Estimated days to ship, excluding transit: 14 working days after customer release to manufacturer. See Conditions of Sale.

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<td></td>
<td>SPD 120kA per Phase/60kA per Mode</td>
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<td>SPD line to grd protect</td>
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<td>w/SPD Dry Contacts</td>
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<td>Incoming Conductors: 1 - 1/0 - 750, (2) 1/0 - 350 kcmil</td>
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<td>CU Ground Bar</td>
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<td>1-MH66WP-PANELBOARD ENCLOSURE</td>
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Estimated days to ship, excluding transit: 14 working days after customer release to manufacturer. See Conditions of Sale.

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<td>SPD line to grd protect</td>
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<td>w/SPD Surge Counter</td>
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<tr>
<td></td>
<td></td>
<td>w/SPD Dry Contacts</td>
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<tr>
<td></td>
<td></td>
<td>Single Main: 200A/3P QB Circuit Breaker</td>
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<tr>
<td></td>
<td></td>
<td>Incoming Conductors: 1 - #4 - 300 kcmil</td>
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</table>
Bus: 225A Rated Copper: Silver/Tin Plated
CU Ground Bar
54 Circuit Interior
Type 1, Box: 50H x 20W x 5.75D
Incoming: Bottom Trim: Flush with Door
Box Cat No: MH50 Front Cat No: NC50F
Ref. Drawing: PBA707A
Feeders:
20 - 40A/2P QOB
Optional Features:
Standard Panel (Box Ahead), Copper Solid Neutral, Seismic Qualification - IBC/ASCE7/CBC/NBCC, SPD Model BIA, Copper
Ground Bar
Branch User Placement
Standard Nameplate:
Engraved as Follows
Line 1: EVEOC
Size: 3.50" Wide x 1.00" High (Std)
Color: White Surface / Black Letters
Plastic/Adhesive - Screw-on
1-MH50- PANELBOARD ENCLOSURE
1-NC50F-20 X 50 FLUSH TRIM

Estimated days to ship, excluding transit: 15 working days after customer release to manufacturer. See Conditions of Sale.

<table>
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<th>Seq #</th>
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<th>Product Description</th>
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<td>15</td>
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<td>Designation : HEV1</td>
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Product Details
1-NQ SPD Panel (INTERIOR)-NQ Panelboard
Consisting of
208Y/120V 3Ph 4W 60Hz SCCR: 10kA
Fully Rated
SPD 120kA per Phase/60kA per Mode
SPD line to grd protect
w/SPD Surge Counter
w/SPD Dry Contacts
Main Lug Only: 400A
Incoming Conductors: 1 - 1/0 - 750, (2) 1/0 - 350 kcmil
Bus: 400A Rated Copper: Silver/Tin Plated
CU Ground Bar
72 Circuit Interior
Type 3R/5/12 Box: 62H x 20W x 6.5D
Incoming: Bottom Trim w/ Box
Box Cat No: MH62WP
Ref. Drawing: PBA711
Feeders:
30 - 40A/2P QOB
Optional Features:
Standard Panel (Box Ahead), Copper Solid Neutral, Seismic Qualification - IBC/ASCE7/CBC/NBCC, SPD Model BIA, Copper
Ground Bar
Standard Nameplate:
Engraved as Follows
Line 1: HEV1
Size: 3.50" Wide x 1.00" High (Std)
Color: White Surface / Black Letters
Plastic/Adhesive - Screw-on
1-MH62WP-PANELBOARD ENCLOSURE

Estimated days to ship, excluding transit: 14 working days after customer release to manufacturer. See Conditions of Sale.
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<td>18</td>
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<td><strong>Designation : SSEV</strong></td>
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</tbody>
</table>

**Product Details**
1-NQ SPD Panel (INTERIOR)-NQ Panelboard
Consisting of
208Y/120V 3Ph 4W 60Hz  SCCR: 10kA
Fully Rated
SPD 120kA per Phase/60kA per Mode
SPD line to grd protect
w/SPD Surge Counter
w/SPD Dry Contacts
Single Main: 400A/3P LA Circuit Breaker
Incoming Conductors: 1 - #1 - 600,(2)#1 - 250 kcmil
Bus: 400A Rated Copper: Silver/Tin Plated
CU Ground Bar
54 Circuit Interior
Type 3R/5/12Box: 68H x 20W x 6.5D
Incoming: Bottom Trim w/ Box
Box Cat No: MH68WP
Ref. Drawing: PBA711
Feeders:
20 - 40A/2P QOB
Optional Features:
Standard Panel (Box Ahead),Copper Solid Neutral,Seismic Qualification - IBC/ASCE7/CBC/NBCC,SPD Model BIA,Copper Ground Bar
Standard Nameplate:
Engraved as Follows
Line 1: SSEV
Size: 3.50” Wide x 1.00” High (Std)
Color: White Surface / Black Letters
Plastic/Adhesive - Screw-on
1-MH68WP-PANELBOARD ENCLOSURE

**Estimated days to ship, excluding transit:** 14 working days after customer release to manufacturer. See Conditions of Sale.

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**Product Details**
1-NQ SPD Panel (INTERIOR)-NQ Panelboard
Consisting of
208Y/120V 3Ph 4W 60Hz  SCCR: 10kA
Fully Rated
SPD 120kA per Phase/60kA per Mode
SPD line to grd protect
w/SPD Surge Counter
w/SPD Dry Contacts
Main Lug Only: 400A
Incoming Conductors: 1 - 1/0 - 750, (2) 1/0 - 350 kcmil
Bus: 400A Rated Copper: Silver/Tin Plated
CU Ground Bar
72 Circuit Interior
Type 3R/5/12Box: 62H x 20W x 6.5D
Incoming: Bottom Trim w/ Box
Box Cat No: MH62WP
Ref. Drawing: PBA711
Feeders:
30 - 40A/2P QOB
Optional Features:
Standard Panel (Box Ahead),Copper Solid Neutral,Seismic Qualification - IBC/ASCE7/CBC/NBCC,SPD Model BIA,Copper
Ground Bar
Standard Nameplate:
  Engraved as Follows
  Line 1:  EVL
  Size: 3.50” Wide x 1.00” High (Std)
  Color: White Surface / Black Letters
  Plastic/Adhesive - Screw-on
  1-MH62WP-PANELBOARD ENCLOSURE

Estimated days to ship, excluding transit: 14 working days after customer release to manufacturer. See Conditions of Sale.
PHYSICAL DATA
ENCLOSURE Type 3R/5/12
FRONT CAT#: Trimm w/Box
BOX CAT#: MH62WP
DIMENSIONS:
62"(1575mm)Hx20"(508mm)Wx6.5"(165mm)D
WIRE BENDING SPACE:
TOP – 12.25"(311)mm
BOTTOM – 17.1"(434)mm
SIDE – 5.9"(150)mm
PBA: 711
BUSSING: 400A RATED COPPER BUS
Silver/Tin Plated
OPTIONAL FEATURES:
SEISMICALLY QUALIFIED : IBC/ASCE7/CBC/NBCCC
Copper GROUND BAR
COPPER SOLID NEUTRAL
Maximum Panel Weight 170.
(Continued on next page.)

ELECTRICAL DATA
SYSTEM: 208Y/120V 3Ph 4W 60Hz
System Amperacity: 400A
10kA SYMS. SCCR
MAIN: MAIN LUGS : 400A
Bottom FEED
INCOMING CONDUCTORS(S) PER NEC, CEC, NOM:
Wire Bending Space:
Phase Lugs: 1 – 1/0 – 750, (2) 1/0 – 350 kcmil
30 – 40A/2P QOB

--- BRANCH SUMMATION ---

JOB NAME: Santa Barbara County EV Charging Stations
EQUIPMENT DESIGNATION: EV1
EQUIPMENT TYPE: NO (Circuit Breaker Type) PANEL 1 OF 1
DRAWN BY: Q2C
DRAWING TYPE: ONE LINE DIAGRAM
ENG #: SQUARE
DATE: April 16 2020
DRAWING STATUS: QUOTE
DWG#: 00-1678575-44848445-01
PHYSICAL DATA CONTINUED

Depth Center of Gravity 6.5
Elevation Center of Gravity 31.0
Vertical Center of Gravity 10.0

SPD DRY CONTACTS
SPD SURGE COUNTER
SPD PEAK SURGE RATING/PHASE: 120kA
SPD LINE TO GRD PROTECT

---STANDARD EQUIPMENT NAMEPLATE---

Engraved as Follows
LINE 1: EV1
COLOR: White Surface / Black Letters
SIZE: 3.50" Wide x 1.00" High (Std)
TYPE: Plastic/Adhesive – Screw-on
REQUIREMENTS FOR SEISMIC RATING


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<th>PANELBOARD TYPE</th>
<th>ENCLOSURE TYPE</th>
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<td>TYPE 1, 3R, 5, 12, 4/4X (SS)</td>
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<td>TYPE 1, 3R, 5, 12, 4/4X (SS)</td>
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<td>NQ &amp; NQOB COLUMN WIDTH</td>
<td>TYPE 1</td>
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<td>NF (STANDARD OR COLUMN WIDTH)</td>
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<td>TYPE 1, 3R, 5, 12, 4/4X (SS)</td>
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GUIDELINES:
1) BOLT-ON CIRCUIT BREAKERS ARE REQUIRED ON NQ, NQOD AND NF PANELBOARDS.
2) ENCLOSURES MUST BE SECURED TO THE WALL OR STRUCTURE BY UTILIZING ALL MOUNTING HOLES PROVIDED IN THE ENCLOSURE AND SECURED WITH SAE GRADE 5 STEEL BOLTS SIZED PER THE MOUNTING HOLES.

ANCHORING CONDITIONS
TO MAINTAIN SEISMIC QUALIFICATIONS, EQUIPMENT MUST BE INSTALLED PER MANUAL (SEE GENERAL NOTES) IN ADDITION TO ANY SEISMIC ANCHORING DETAILS PROVIDED BY OTHERS. DO NOT INSTALL EQUIPMENT BEFORE APPROVED SEISMIC ANCHORING DETAILS HAVE BEEN OBTAINED AND SITE PREPARATIONS HAVE BEEN MADE IN ACCORDANCE WITH THE APPROVED SEISMIC ANCHORING DETAILS. ALL POST-INSTALLED ANCHORS SHALL BE APPROVED FOR SEISMIC LOADS.

CENTER OF GRAVITY:
THE CG INFORMATION PROVIDED BELOW SHOULD ONLY BE USED FOR SEISMIC ANCHORING CALCULATIONS.
ELEVATION CENTER OF GRAVITY: 31.0 "ABOVE BOTTOM OF ENCLOSURE"
DEPTH CENTER OF GRAVITY: 6.5 "FROM BACK WALL OF ENCLOSURE"
VERTICAL CENTER OF GRAVITY: 10.0 "FROM LEFT WALL OF ENCLOSURE"

SECTION WEIGHT:
THE WEIGHTS GIVEN BELOW ARE THE MAXIMUM FOR EACH SECTION AND SHOULD BE USED FOR CALCULATING SEISMIC ANCHORING REQUIREMENTS
MAXIMUM PANEL WEIGHT: 170. LBS / 77.4 KGS
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**PHYSICAL DATA**

ENCLOSURE Type 3R/5/12  
FRONT CAT#: Trim w/Box  
BOX CAT#: MH62WP

DIMENSIONS:
62"(1575mm)Hx20"(508mm)Wx6.5"(165mm)D

WIRE BENDING SPACE:
- TOP = 12.25"(311)mm
- BOTTOM = 17.1"(434)mm
- SIDE = 5.9"(150)mm

PBA: 711

BUSSING: 400A RATED COPPER BUS  
Silver/Tin Plated

OPTIONAL FEATURES:
- SEISMICALLY QUALIFIED: IBC/ASCE7/CBC/NBCC
- BRANCH USER PLACEMENT
- Copper GROUND BAR
- COPPER SOLID NEUTRAL

(Continued on next page.)

**ELECTRICAL DATA**

SYSTEM: 208Y/120V 3Ph 4W 60Hz  
System Amperacity: 400A  
10kA SYMS. SCCR

MAIN: MAIN LUGS: 400A

Bottom FEED

INCOMING CONDUCTORS(S) PER NEC, CEC, NOM:

Wire Bending Space:

Phase Lugs: 1 - 1/0 - 750, (2) 1/0 - 350 kcmil

------------------------BRANCH SUMMATION------------------------

30 - 40A/2P QOB

---

**JOB NAME:** Santa Barbara County EV Charging Stations  
**EQUIPMENT DESIGNATION:** EV2

**JOB LOCATION:**  
**EQUIPMENT TYPE:** NO (Circuit Breaker Type) PANEL 1 OF 1

**DRAWN BY:** (Q2C)  
**DRAWING TYPE:** ONE LINE DIAGRAM

**ENGR:**  
**DATE:** April 16 2020

**DRAWING STATUS:** QUOTE  
**DWG#** 00-1678575-44848624-01  
**PG 1 OF 2**  
**REV:**
PHYSICAL DATA CONTINUED

Maximum Panel Weight 170.0
Depth Center of Gravity 6.5
Elevation Center of Gravity 31.0
Vertical Center of Gravity 10.0
SPD DRY CONTACTS
SPD SURGE COUNTER
SPD PEAK SURGE RATING/PHASE: 120kA
SPD LINE TO GRD PROTECT

---STANDARD EQUIPMENT NAMEPLATE---

Engraved as follows:
LINE 1: EV2
COLOR: White Surface / Black Letters
SIZE: 3.50” Wide x 1.00” High (Std)
TYPE: Plastic/Adhesive - Screw-on
REQUIREMENTS FOR SEISMIC RATING


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GUIDELINES:
1) BOLT-ON CIRCUIT BREAKERS ARE REQUIRED ON NQ, NQQD AND NF PANELBOARDS.
2) ENCLOSURES MUST BE SECURED TO THE WALL OR STRUCTURE BY UTILIZING ALL MOUNTING HOLES PROVIDED IN THE ENCLOSURE AND SECURED WITH SAE GRADE 5 STEEL BOLTS SIZED PER THE MOUNTING HOLES.

ANCHORING CONDITIONS
TO MAINTAIN SEISMIC QUALIFICATIONS, EQUIPMENT MUST BE INSTALLED PER MANUAL (SEE GENERAL NOTES) IN ADDITION TO ANY SEISMIC ANCHORING DETAILS PROVIDED BY OTHERS. DO NOT INSTALL EQUIPMENT BEFORE APPROVED SEISMIC ANCHORING DETAILS HAVE BEEN OBTAINED AND SITE-prePARATIONS HAVE BEEN MADE IN ACCORDANCE WITH THE APPROVED SEISMIC ANCHORING DETAILS. ALL POST-INSTALLED ANCHORS SHALL BE APPROVED FOR SEISMIC LOADS.

CENTER OF GRAVITY:
THE CG INFORMATION PROVIDED BELOW SHOULD ONLY BE USED FOR SEISMIC ANCHORING CALCULATIONS.
ELEVATION CENTER OF GRAVITY: 31.0 "ABOVE BOTTOM OF ENCLOSURE"
DEPTH CENTER OF GRAVITY: 6.5 "FROM BACK WALL OF ENCLOSURE"
VERTICAL CENTER OF GRAVITY: 10.0 "FROM LEFT WALL OF ENCLOSURE"

SECTION WEIGHT:
THE WEIGHTS GIVEN BELOW ARE THE MAXIMUM FOR EACH SECTION AND SHOULD BE USED FOR CALCULATING SEISMIC ANCHORING REQUIREMENTS
MAXIMUM PANEL WEIGHT: 170 LBS / 77.4 KGS
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**Physical Data**

Enclosure Type: 3R/5/12  
Front Cat#: Trim w/Box  
Box Cat#: MH56WP  
Dimensions:  
56"(1422mm)Hx20"(508mm)Wx6.5"(165mm)D  
Wire bending space:  
Top - 12.25"(311)mm  
Bottom - 17.1"(434)mm  
Side - 5.9"(150)mm  
PBA: 711  
Bussing: 400A Rated Copper Bus  
Silver/Tin Plated  
Optional Features:  
Seismically Qualified: IBC/ASCE7/CBC/NBCC  
Copper Ground Bar  
Copper Solid Neutral  
Maximum Panel Weight 154.  
(Continued on next page.)

**Electrical Data**

System: 208Y/120V 3Ph 4W 60Hz  
System Ampacity: 400A  
10kA SYMS. SCCR  
Main: Main Lugs: 400A  
Bottom Feed  
Incoming Conductors(S) per NEC, CEC, NOM:  
Wire bending space:  
Phase Lugs: 1 - 1/0 - 750, (2) 1/0 - 350 kcmil  
---------------Branch Summation---------------  
20 - 40A/2P QOB
**PHYSICAL DATA CONTINUED**

Depth Center of Gravity 6.5
Elevation Center of Gravity 28.0
Vertical Center of Gravity 10.0
SPD DRY CONTACTS
SPD SURGE COUNTER
SPD PEAK SURGE RATING/PHASE: 120kA
SPD LINE TO GRD PROTECT

---STANDARD EQUIPMENT NAMEPLATE---

Engraved as Follows
LINE 1: EV3
COLOR: White Surface / Black Letters
SIZE: 3.50" Wide x 1.00" High (Std)
TYPE: Plastic/Adhesive – Screw-on
REQUIREMENTS FOR SEISMIC RATING


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GUIDELINES:
1) BOLT-ON CIRCUIT BREAKERS ARE REQUIRED ON NQ, NQOD AND NF PANELBOARDS.
2) ENCLOSURES MUST BE SECURED TO THE WALL OR STRUCTURE BY UTILIZING ALL MOUNTING HOLES PROVIDED IN THE ENCLOSURE AND SECURED WITH SAE GRADE 5 STEEL BOLTS SIZED PER THE MOUNTING HOLES.

ANCHORING CONDITIONS
TO MAINTAIN SEISMIC QUALIFICATIONS, EQUIPMENT MUST BE INSTALLED PER MANUAL (SEE GENERAL NOTES) IN ADDITION TO ANY SEISMIC ANCHORING DETAILS PROVIDED BY OTHERS. DO NOT INSTALL EQUIPMENT BEFORE APPROVED SEISMIC ANCHORING DETAILS HAVE BEEN OBTAINED AND SITE PREPARATIONS HAVE BEEN MADE IN ACCORDANCE WITH THE APPROVED SEISMIC ANCHORING DETAILS. ALL POST-INSTALLED ANCHORS SHALL BE APPROVED FOR SEISMIC LOADS.

CENTER OF GRAVITY:
THE CG INFORMATION PROVIDED BELOW SHOULD ONLY BE USED FOR SEISMIC ANCHORING CALCULATIONS.
ELEVATION CENTER OF GRAVITY: 28.0 "ABOVE BOTTOM OF ENCLOSURE"
DEPTH CENTER OF GRAVITY: 6.5 "FROM BACK WALL OF ENCLOSURE"
VERTICAL CENTER OF GRAVITY: 10.0 "FROM LEFT WALL OF ENCLOSURE"

SECTION WEIGHT:
THE WEIGHTS GIVEN BELOW ARE THE MAXIMUM FOR EACH SECTION AND SHOULD BE USED FOR CALCULATING SEISMIC ANCHORING REQUIREMENTS.
MAXIMUM PANEL WEIGHT: 154. LBS / 69.9 KGS
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**Surge Counter**
**Dry Contacts**

**SPD**
120kA/3

**M/B**
200A

**Electrical Data**

**System:** 208Y/120V 3Ph 4W 60Hz
**System Ampacity:** 200A
10kA SYMS, SCCR

**Main:** MAIN BREAKER QB 200A
Bottom FEED
10kA AIR

**Incoming Conductors** PER NEC, CEC, NOM:
Wire Bending Space:
Phase Lugs: 1 - #4 - 300 kcmil
-------------------BRANCH SUMMATION-----------------
20 - 40A/2P QOB

**Physical Data**

**Enclosure Type:** 1
Flush with Door
FRONT CAT#: NC50F
BOX CAT#: MH50

**Dimensions:**
50"(1270mm)x20"(508mm)Wx5.75"(146mm)D

**Wire Bending Space:**
- Top: 5"(127mm)
- Bottom: 10.47"(267mm)
- Side: 6.13"(156mm)

**PBA:** 707A

**Bussing:** 225A RATED COPPER BUS
Silver/Tin Plated

**Optional Features:**
- Seismically Qualified: IBC/ASCE7/CBC/NBCC
- Branch User Placement
- Copper Ground BAR

(Continued on next page.)

**Job Name:** Santa Barbara County EV Charging Stations

**Equipment Designation:** EVEC

**Equipment Type:** NO (Circuit Breaker Type)

**Drawing Type:** ONE LINE DIAGRAM

**Drawn By:** Q2C

**Date:** April 16, 2020

**Drawing Status:** Quote
PHYSICAL DATA CONTINUED

COPPER SOLID NEUTRAL
Maximum Panel Weight 125.
Depth Center of Gravity 5.75
Elevation Center of Gravity 25.0
Vertical Center of Gravity 10.0
SPD DRY CONTACTS
SPD SURGE COUNTER
SPD PEAK SURGE RATING/PHASE: 120kA
SPD LINE TO GRD PROTECT

---STANDARD EQUIPMENT NAMEPLATE---
Engraved as Follows
LINE 1: EVEOC
COLOR: White Surface / Black Letters
SIZE: 3.50" Wide x 1.00" High (Std)
TYPE: Plastic/Adhesive – Screw-on
REQUIREMENTS FOR SEISMIC RATING


<table>
<thead>
<tr>
<th>PANELBOARD TYPE</th>
<th>ENCLOSURE TYPE</th>
</tr>
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<tr>
<td>NQ</td>
<td>TYPE 1, 3R, 5, 12, 4/4X (SS)</td>
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<td>TYPE 1, 3R, 5, 12, 4/4X (SS)</td>
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<td>NQ &amp; NQOB COLUMN WIDTH</td>
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GUIDELINES:
1) BOLT-ON CIRCUIT BREAKERS ARE REQUIRED ON NQ, NQOD AND NF PANELBOARDS.
2) ENCLOSURES MUST BE SECURED TO THE WALL OR STRUCTURE BY UTILIZING ALL MOUNTING HOLES PROVIDED IN THE ENCLOSURE AND SECURED WITH SAE GRADE 5 STEEL BOLTS SIZED PER THE MOUNTING HOLES.

ANCHORING CONDITIONS
TO MAINTAIN SEISMIC QUALIFICATIONS, EQUIPMENT MUST BE INSTALLED PER MANUAL (SEE GENERAL NOTES) IN ADDITION TO ANY SEISMIC ANCHORING DETAILS PROVIDED BY OTHERS. DO NOT INSTALL EQUIPMENT BEFORE APPROVED SEISMIC ANCHORING DETAILS HAVE BEEN OBTAINED AND SITE PREPARATIONS HAVE BEEN MADE IN ACCORDANCE WITH THE APPROVED SEISMIC ANCHORING DETAILS. ALL POST-INSTALLED ANCHORS SHALL BE APPROVED FOR SEISMIC LOADS.

CENTER OF GRAVITY:
THE CG INFORMATION PROVIDED BELOW SHOULD ONLY BE USED FOR SEISMIC ANCHORING CALCULATIONS. ELEVATION CENTER OF GRAVITY: 25.0 "ABOVE BOTTOM OF ENCLOSURE DEPTH CENTER OF GRAVITY: 5.75 "FROM BACK WALL OF ENCLOSURE VERTICAL CENTER OF GRAVITY: 10.0 "FROM LEFT WALL OF ENCLOSURE

SECTION WEIGHT:
The weights given below are the maximum for each section and should be used for calculating seismic anchoring requirements.
MAXIMUM PANEL WEIGHT: 125. LBS / 56.6 KGS
**PHYSICAL DATA**

ENCLOSURE Type 3R/5/12
FRONT CAT#: Trim w/Box
BOX CAT#: MH62WP

DIMENSIONS:
62"(1575mm)Hx20"(508mm)Wx6.5"(165mm)D

WIRE BENDING SPACE:
- TOP – 12.25"(311)mm
- BOTTOM – 17.1"(434)mm
- SIDE – 5.9"(150)mm

PBA: 711

BUSSING: 400A RATED COPPER BUS
Silver/Tin Plated

OPTIONAL FEATURES:
- SEISMICALLY QUALIFIED: IBC/ASCE7/CBC/NBCC
- Copper GROUND BAR
- COPPER SOLID NEUTRAL
- Maximum Panel Weight 170.

(Continued on next page.)

**ELECTRICAL DATA**

SYSTEM: 208Y/120V 3Ph 4W 60Hz
System Ampacity: 400A
10kA SYMS. SCCR

MAIN: MAIN LUGS: 400A
Bottom FEED

INCOMING CONDUCTORS(S) PER NEC, CEC, NOM:
Wire Bending Space:
Phase Lugs: 1 – 1/0 – 750, (2) 1/0 – 350 kcmil

30 – 40A/2P QOB

----------BRANCH SUMMATION----------
**PHYSICAL DATA CONTINUED**

Depth Center of Gravity 6.5  
Elevation Center of Gravity 31.0  
Vertical Center of Gravity 10.0  

SPD DRY CONTACTS  
SPD SURGE COUNTER  
SPD PEAK SURGE RATING/PHASE: 120kA  
SPD LINE TO GRD PROTECT  

---STANDARD EQUIPMENT NAMEPLATE---  
Engraved as Follows  
LINE 1: HEV1  
COLOR: White Surface / Black Letters  
SIZE: 3.50" Wide x 1.00" High (Std)  
TYPE: Plastic/Adhesive – Screw-on

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<th>BY</th>
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**JOB NAME:** Santa Barbara County EV Charging Stations  
**EQUIPMENT DESIGNATION:** HEV1  
**EQUIPMENT TYPE:** NQ (Circuit Breaker Type)  
**DRAWING TYPE:** ONE LINE DIAGRAM  
**DATE:** April 16 2020  
**DRAWING STATUS:** QUOTE  
**DWG#** 00-1678575-44851618-01  
**PG 2 OF 2**  
**REV -**
REQUIREMENTS FOR SEISMIC RATING


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GUIDELINES:
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ANCHORING CONDITIONS

TO MAINTAIN SEISMICQUALIFICATIONS, EQUIPMENT MUST BE INSTALLED PER MANUAL (SEE GENERAL NOTES) IN ADDITION TO ANY SEISMIC ANCHORING DETAILS PROVIDED BY OTHERS. DO NOT INSTALL EQUIPMENT BEFORE APPROVED SEISMIC ANCHORING DETAILS HAVE BEEN OBTAINED AND SITE PREPARATIONS HAVE BEEN MADE IN ACCORDANCE WITH THE APPROVED SEISMIC ANCHORING DETAILS. ALL POST-INSTALLED ANCHORS SHALL BE APPROVED FOR SEISMIC LOADS.

CENTER OF GRAVITY:

THE CG INFORMATION PROVIDED BELOW SHOULD ONLY BE USED FOR SEISMIC ANCHORING CALCULATIONS.
- ELEVATION CENTER OF GRAVITY: 31.0 "ABOVE BOTTOM OF ENCLOSURE"
- DEPTH CENTER OF GRAVITY: 6.5 "FROM BACK WALL OF ENCLOSURE"
- VERTICAL CENTER OF GRAVITY: 10.0 "FROM LEFT WALL OF ENCLOSURE"

SECTION WEIGHT:

THE WEIGHTS GIVEN BELOW ARE THE MAXIMUM FOR EACH SECTION AND SHOULD BE USED FOR CALCULATING SEISMIC ANCHORING REQUIREMENTS.

MAXIMUM PANEL WEIGHT: 170 LBS / 77.4 KGS
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**PHYSICAL DATA**

**ENCLOSURE** Type 3R/5/12  
**FRONT CAT#** Trim w/Box  
**BOX CAT#** MH68WP  
**DIMENSIONS:**  
68"(1727mm)Hx20"(508mm)Wx6.5"(165mm)D  
**WIRE BENDING SPACE:**  
TOP - 12.25"(312)mm  
BOTTOM - 15.43"(393)mm  
SIDE - 5.9"(150)mm  
**PSA:** 711  
**BUSSING:** 400A RATED COPPER BUS  
Silver/Tin Plated  
**OPTIONAL FEATURES:**  
SEISMICALLY QUALIFIED : IBC/ASCE7/CBC/NBCC  
Copper GROUND BAR  
COPPER SOLID NEUTRAL  
Maximum Panel Weight 187.  
(Continued on next page.)

**ELECTRICAL DATA**

**SYSTEM:** 208Y/120V 3Ph 4W 60Hz  
**System Amperacity:** 400A  
**10kA SYMS, SCCR**  
**MAIN:** MAIN BREAKER LA 400A  
**Bottom FEED**  
**42kA AIR**  
**INCOMING CONDUCTORS(S) PER NEC, CEC, NOM:**  
Wire Bending Space:  
Phase Lugs:1 - #1 - 600,(2)#1 - 250 kcmI  
**-------------BRANCH SUMMATION-------------**  
20 - 40A/2P QOB

**JOB NAME:** Santa Barbara County EV Charging Stations  
**EQUIPMENT DESIGNATION:** SSEV  
**JOB LOCATION:**  
**EQUIPMENT TYPE:** NQ (Circuit Breaker Type) PANEL 1 OF 1  
**DRAWN BY:** [Q2C]  
**DRAWING TYPE:** ONE LINE DIAGRAM  
**ENGR:**  
**DATE:** April 16 2020  
**DRAWING STATUS:** QUOTE  
**DWG#** 00-1678575-44852368-01  
**PG 1 OF 2**  
**REV** -
PHYSICAL DATA CONTINUED

Depth Center of Gravity 6.5
Elevation Center of Gravity 34.0
Vertical Center of Gravity 10.0

SPD DRY CONTACTS
SPD SURGE COUNTER
SPD PEAK SURGE RATING/PHASE: 120kA
SPD LINE TO GRD PROTECT

---STANDARD EQUIPMENT NAMEPLATE---

Engraved as follows

LINE 1: SSEV
COLOR: White Surface / Black Letters
SIZE: 3.50" Wide x 1.00" High (Std)
TYPE: Plastic/Adhesive – Screw-on
REQUIREMENTS FOR SEISMIC RATING


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GUIDELINES:
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ANCHORING CONDITIONS
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CENTER OF GRAVITY:
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ELEVATION CENTER OF GRAVITY: 34.0 "ABOVE BOTTOM OF ENCLOSURE"
DEPTH CENTER OF GRAVITY: 6.5 "FROM BACK WALL OF ENCLOSURE"
VERTICAL CENTER OF GRAVITY: 10.0 "FROM LEFT WALL OF ENCLOSURE"

SECTION WEIGHT:
THE WEIGHS GIVEN BELOW ARE THE MAXIMUM FOR EACH SECTION AND SHOULD BE USED FOR CALCULATING SEISMIC ANCHORING REQUIREMENTS
MAXIMUM PANEL WEIGHT: 187 LBS / 84.9 KGS

JOB NAME: Santa Barbara County EV Charging Stations
EQUIPMENT DESIGNATION: SSEV
EQUIPMENT TYPE: NQ (Circuit Breaker Type) PANEL 1 OF 1
DRAWN BY: [Q2C]
DRAWING TYPE: ONE LINE DIAGRAM
DATE: April 16 2020
DRAWING STATUS: QUOTE
DWG# 00-1678575-44852368-S1
PG 1 OF 1 REV -
PHYSICAL DATA CONTINUED

Depth Center of Gravity 6.5
Elevation Center of Gravity 31.0
Vertical Center of Gravity 10.0

SPD DRY CONTACTS
SPD SURGE COUNTER
SPD PEAK SURGE RATING/PHASE: 120kA
SPD LINE TO GRD PROTECT

---STANDARD EQUIPMENT NAMEPLATE---

Engraved as Follows

LINE 1: EVL
COLOR: White Surface / Black Letters
SIZE: 3.50” Wide x 1.00” High (Std)
TYPE: Plastic/Adhesive – Screw-on
REQUIREMENTS FOR SEISMIC RATING


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ELEVATION CENTER OF GRAVITY: 31.0 "ABOVE BOTTOM OF ENCLOSURE
DEPTH CENTER OF GRAVITY: 6.5 "FROM BACK WALL OF ENCLOSURE
VERTICAL CENTER OF GRAVITY: 10.0 "FROM LEFT WALL OF ENCLOSURE

SECTION WEIGHT:

THE WEIGHTS GIVEN BELOW ARE THE MAXIMUM FOR EACH SECTION AND SHOULD BE USED FOR CALCULATING SEISMIC ANCHORING REQUIREMENTS.
MAXIMUM PANEL WEIGHT: 170 LBS / 77.4 KGS

JOB NAME: Santa Barbara County EV Charging Stations
EQUIPMENT DESIGNATION: EVL

JOB LOCATION: [Q2C]
EQUIPMENT TYPE: NQ (Circuit Breaker Type) PANEL 1 OF 1

DRAWN BY: [Q2C]
DRAWING TYPE: ONE LINE DIAGRAM

ENGINEER: [Q2C]
DRAWING STATUS: QUOTE
DATE: April 16 2020

SQUARE D by Schneider Electric

DWG# 00-1675875-44852489-S1
PG 1 OF 1 REV -
Developed with electrical contractor input, the NQ family of lighting and appliance panelboards sets new standards for ease of installation and durability. Plus, new design innovations increase the availability of these panelboards by offering complete ready to install products.

**Features**
- 240Vac, 48Vdc maximum
- 600A maximum main circuit breakers or main lugs
- 150A maximum branch circuit breakers
- 10,000A through 200,000A SCCR
- Both fully rated and series rated systems are available
- Interiors are field convertible to top or bottom feed
- Interiors are available in plated copper or aluminum bus
- Interiors accept both bolt-on and plug-on branch circuit breakers
- Complete line of UL/cUL listed interiors with 200% rated neutrals for non-linear loads
- Suitable for use as service entrance equipment
- 20" wide trims and boxes common for NQ and NF panelboards
- Mono-flat™ or hinged trims

**Factory Options**
- 1P3W or 3P4W – 600A main lugs and main breaker panelboards
- Sub-feed and thru-feed lugs
- Sub-feed circuit breakers
- Optional 200% rated neutrals up to 400A
- Split bus bars
- TVSS
  - 100,000A – 240,000A surge current rating
  - All voltage systems
- Lighting contactors
- Customer equipment space

**“Ready-to-Install” Panels and Kits Available from Stock**
- 100A – 600A MLO 1P3W and 3P4W Interiors
- NEMA 1 and 3R/12 enclosures
- 100A – 400A main circuit breaker kits
- TVSS interiors
  - 120,000A or 160,000A surge current ratings
- 100A – 400A sub-feed and thru-feed lugs
- Sub-feed circuit breaker kits
  - 1 – 225A sub-feed circuit breaker per 225A panelboard
  - 2 – 225A sub-feed circuit breakers per 400A panelboard
- 200% neutral kits up to 400A
- Copper neutrals and equipment ground bars
SurgeLogic SurgeLoc
Advanced power and equipment protection for Square D NQ panelboards
Easy installation, space-saving, money-saving design

Setting a new standard for commercial internally mounted surge protective devices (SPDs), the Square D Surgelogic™ product line from Schneider Electric™ has revolutionized commercial surge protection with the SurgeLoc product.

Engineered with input from contractors and specifiers, the innovative SurgeLoc device saves time and money normally required when SPDs are factory-installed on any project.

**Installs in two minutes or less, a significant reduction from the typical 20 minutes for an externally mounted SPD.**

- Uses standard-sized panels, requiring only 0 to 6 inches of increased panel size based on the number of breaker slots needed
- Unique design for easy field mounting and retrofitting
- Custom bus bar, rails, dead front, and fasteners not required
- Eliminates the need for specialized hardware at the bottom of the panel
- Reduces the overall cost of adding internal surge protection to any panelboard
- Wider range of Surge Current Ratings (80 kA – 240 kA)
- Advanced diagnostics for improved SPD status information
Utility industry experts estimate that power quality problems, including those resulting from transient voltage surges, cost North American companies a stunning $80 billion annually. That figure not only includes the high price of direct damage to electrical distribution systems, electronic equipment, software, and tools, but also the crippling cost of lost productivity. Facility downtime, lost data, lost orders, and the disruption of critical processes can seriously reduce productivity. Minimizing the risk of damage from electrical surges is an absolute priority for companies of all types.

The Square D Surgelogic brand is a 30-year pioneer in the surge protective device industry. Building on a history and reputation for safety and reliability, Surgelogic SurgeLoc surge protective devices exceed competitor products with outstanding specifications in a compact device.

$80 billion annually

The estimated cost of power quality problems for North American companies
### Specifications:

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Voltage</th>
<th>Surge Current</th>
<th>Modes of Protection</th>
<th>I(n)</th>
<th>SCCR</th>
<th>VPR</th>
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<td>120 / 240 V</td>
<td>80 kA</td>
<td>6</td>
<td>20 kA</td>
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<td>700 L-N, L-G / 600 N-G / 1000 L-L</td>
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<td>10</td>
<td>20 kA</td>
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<td>700 L-N, L-G / 600 N-G / 1000 L-L</td>
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<td>10</td>
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<td>160 kA</td>
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<td>160 kA</td>
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<td>200 kA</td>
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<td>120 / 240 V</td>
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<td>6</td>
<td>20 kA</td>
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<td>10</td>
<td>20 kA</td>
<td>200 kA</td>
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<td>240 kA</td>
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<td>20 kA</td>
<td>200 kA</td>
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<tr>
<td>SSP03BIA24PBQ1</td>
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<td>240 kA</td>
<td>10</td>
<td>20 kA</td>
<td>200 kA</td>
<td>800 L-N, L-G / 700 N-G / 1200 L-L, H-N / 1500 H-L / 1,000 H-G</td>
</tr>
</tbody>
</table>

The Surgelogic SurgeLoc device is designed for Type 1 Surge Protection.
Unmatched surge suppression. Unequaled experience.

With the rapid growth of the internet and web-hosting facilities, and an explosion in the use of sensitive electronic equipment and controls in manufacturing plants, offices, hospitals, and water/wastewater facilities, there is a universal demand for reliable power. Schneider Electric is the world’s leader in power protection. From residential surge circuit breakers to large commercial surge protection, Square D Surgelogic brand products are dedicated to advancing technology to safely deliver and control electrical power for all of our customers around the world.
Take the next step to dependable power and equipment security with SurgeLoc surge protective devices. Whatever your requirements for products are, Schneider Electric has a solution to meet your needs. For more information, call us at 1-800-577-7353.

Snap this QR code to access the Surgelogic website.
This Section Contains Products:
Low Voltage Transformers
<table>
<thead>
<tr>
<th>Seq #</th>
<th>Qty</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>1</td>
<td><strong>Designation:</strong></td>
</tr>
</tbody>
</table>

**Product Details**
- Designation: 1-EXN150T3HCU-Transformer dry type 150kva 480D208Y CU
- Transformer Type: DOE 2016 EX or EXN
- Transformer Rating: 150kVA
- Transformer Phase: Three Phase
- Primary Voltage: 480V Delta
- Secondary Voltage: 208Y/120V
- Transformer Taps: 6 - 2.5% 2+4- Taps
- Frequency: 60Hz
- Transformer Winding Material: Copper
- Sound Level: 44DB
- Insulation & Temperature: Class 220 (H), 150 Deg C
- Enclosure Material: Standard Painted ANSI 49 Grey
- UL Labeled
- Primary Lug Kits: DASKP400
- Secondary Lug Kits: DASKGS600
- 1-DASKP400-PRIMARY LUG KIT 600 kcmil-4 STR
- 1-DASKGS600-SECONDARY LUG KIT 600KCMIL-2STR
- 1-7400WS22M-WEATHERSHIELD CONVERT 21M TO TYPE 3R
SEISMIC QUALIFICATION:
TO BE COMPLIANT WITH THE SEISMIC REQUIREMENTS OF ASCE/SEI 7,
THIS UNIT IS SELF-CERTIFIED TO ICES ES AC156
BY SHAKE TABLE QUALIFICATION TESTING
THE ENCLOSURE ABOVE IS 22M.

NOTES:
culus LISTED TO UL1561 AND C22. 2no47, FILE NUMBER E6888
NDMA ST-20 (2014) ROUTINE TESTS ARE COMPLETED ON ALL UNITS.
MANUFACTURED IN ES9001 FACILITIES
GREEN PREMIUM (RoHS/REACH COMPLIANT, PRODUCT ENVIRONMENTAL PROFILE)
REGISTERED TO DOE VIA 10 CFR 429.6 & NACAN
MINIMUM SIDE AND REAR CLEARANCE 1/2 INCH PER UL1561 ABOVE TESTING.
FRONT ACCESS MUST COMPLY WITH NEC WORK SPACE REQUIREMENTS.
WIRE ACCESS SHOWN SHADED ABOVE, LOCATIONS ARE FRONT SIDES AND FRONT BOTTOM.

TRANSFORMER SPECIFICATION:
150kVA 3 PHASE 60 HERTZ 4400B
PRIMARY VOLTAGE: 480V Delta, 6 - 2.0% 244- Taps
SECONDARY VOLTAGE: 208Y/120V
150 Deg C RISE ABOVE 40 Deg C AMBIENT
220 Deg C INSULATION SYSTEM Copper WINDING
MAXIMUM WEIGHT: 1207 LBS
Type 2 Standard Painted AVESTA 49 Grey
MINIMUM EFFICIENCY 98.63% @ 33% LOADING 75 Deg C
COMPLYING WITH 10 CFR 431 (78 FR 23335-APRIL 18, 2013)

EXN150T3HCU

DUAL DIMENSIONS INCHES MILLIMETERS
NEW TRANSFORMER SPECIFICATION DATA

Energy Efficient (EX) Three-phase Low Voltage Distribution Transformers

Energy efficiency levels for Distribution Transformer manufactured after December 31, 2015, is mandated by the Department of Energy (CFR 431.192 April 2013).

The new Square D™ Low Voltage Transformers comply with this new efficiency, plus provide customers with these National Electric Code (NEC) updates: (1) 450.9 Ventilation, (2) 450.10 Grounding, (3) 450.11 Markings, and (4) 450.12 Terminal wiring space.

To further improve the new EX model, we also incorporated contractor feedback from the 2007 EE model, including:

- Same conductor range for the Source and Load equipment as the Transformer, making the installation of the complete Square D package easier and faster
- Space-saving design allows transformers to be mounted within ½-inch of the wall, which reduces the footprint in the owner’s equipment room
- Shipping carton is fortified to protect unit top and side to reduce damage

<table>
<thead>
<tr>
<th>Features</th>
<th>15 – 150 kVA</th>
<th>225 – 750 kVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2” clearance from wall</td>
<td>1/2” clearance from wall</td>
<td></td>
</tr>
<tr>
<td>Defined conduit entry area on sides and bottom for ease of access</td>
<td>Entire bottom open for conduit entry or floor duct entry</td>
<td></td>
</tr>
<tr>
<td>Defined area for ground terminals to be landed</td>
<td>Defined area for ground terminals to be landed</td>
<td></td>
</tr>
<tr>
<td>Terminals — Primary and Secondary separated for ease of identification</td>
<td>Terminals — Primary and Secondary separated for ease of identification</td>
<td></td>
</tr>
<tr>
<td>Terminals located to meet NEC bending radius with published wire range</td>
<td>Terminals located to meet NEC bending radius with published wire range</td>
<td></td>
</tr>
<tr>
<td>External floor mounting brackets for installation of PAD mounting hardware</td>
<td>External floor mounting brackets for installation of PAD mounting hardware</td>
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</table>
SECTION 16000 Standard and Requirements

SANTA BARBARA COUNTY
ELECTRIC VEHICLE CHARGERS

SECTION 16000

SB County Electric Vehicle Chargers Standards and Requirements

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

Work in general includes, but is not limited to, the following:

A. Connect new Level 2 electrical vehicle chargers, furnished by S.B. County.

B. Connect new PC Fast Charge chargers, furnished by S.B. County.

C. Provide new electrical distribution.

D. Provide new electrical feeders and equipment.

E. Provide a complete power system as shown on Drawings and specified herein, including conduit, wiring, panelboards, circuit breakers, relays, switches, transformers, and other items necessary for complete and operable systems. Contractor shall provide and pay for all equipment stated on the drawings. Some of the equipment is in the “Equipment Required” document.

F. Several electrical components and equipment will be furnished by S.B. County only where it is stated on the Drawings. Everything else needed for the project shall be provided by the contractor at their expense. The contractor shall be responsible for all costs of the project including, but not limited to, labor, materials, parts, delivery, installation, commissioning, relocation of items as necessary to allow contractor to complete preparation, boring, trenching grading, transportation, relocation, removal, storage, upgrading/addition to existing (utility services, distribution panels, wires, transformers, breakers, disconnects, fuses, equipment, etc.), circumventing underground obstacles, circumventing above ground obstacles, equipment research and installation requirements, disposal fees (dump, hazardous material, transportation, etc.), plumbing, relays, wire, conduits, concrete, lights, bracing, lugs, connectors, junction boxes, paint, blocks, switch gear, transformers, surge protectors, disconnects, panels, automatic transfer switches, generator connection cam lock boxes, submeters, Cts, Pts, breakers, lifts, fencing, security, equipment, components, moving equipment / vehicles / plants / rocks / dirt / items for any reason, complying with all codes,
warranties costs, SCE/City of Lompoc, all items mentioned in the mandatory pre-proposal conference and all costs and terms included in this document and all the attached documents.

1.03 SITE VISITS, COORDINATION OF CONTRACT DOCUMENTS, VERIFICATION OF DIMENSIONS

A. Examine existing conditions as applicable. Become acquainted with Specifications and Drawings for all portions of the Project. Notify Project Manager of apparent discrepancies and of inconsistency between the Specifications and the existing conditions. The Drawings serve as working drawings only, indicating diagrammatically the general layout of the systems and their various components and equipment.

B. Scaled and figured dimensions are approximate and are given for estimate purposes only. Carefully check and verify dimensions and sizes in order to determine if equipment and materials will fit together and if the dimensions of the assembly are compatible with the space provided. Where equipment is furnished by others, verify that dimensions and requirements for assembly are compatible with the space provided before proceeding with the roughing-in connections. Field verifications of locations shown on Drawings are necessary since actual locations, distances, mounting heights, etc., may be affected by field conditions. The right is reserved to make reasonable changes in locations of equipment or other features shown on Drawings prior to rough-in without additional cost to the Owner.

C. Where apparatus and equipment have been indicated on the Drawings, dimensions have been taken from typical equipment of the class indicated. Carefully check the Drawings to see that the contemplated equipment will fit into the spaces provided, regardless of whether or not it may have been approved for quality and utility as an equal.

D. Rough in all equipment, etc., as designated on the Drawings and as specified herein. The Drawings indicate only the approximate location of rough-ins. The exact rough-in locations must be determined from large-scale certified Drawings. The Contractor shall obtain all certified rough-in information before progressing with any Work for rough-in connections.

E. Be responsible for providing outlets and services of proper size at the required locations.

F. Coordinate requirements of equipment furnished by others, prior to ordering and installation.

G. No allowance will be made for extra expense due to failure or neglect to follow foregoing directives.

1.04 RULES AND REGULATIONS

A. Materials and installation shall be in accordance with current rules and requirements of California Code of Regulations and local codes and ordinances including, but not necessarily limited to, the current editions of the following:

1. The California Electrical Code (CEC).
2. Title 8, Chapter 4, California Code of Regulations (Low Voltage Electrical Safety Orders).
3. Local Building Codes.
5. California Statewide Qualified Product List (QPL), Title 20.
7. NEMA (National Electrical Manufacturers Assoc.).
8. IEEE (Institute of Electrical and Electronic Engineers).
9. California Green Building Codes I and II.
12. UL (Underwriters Laboratories).
13. OSHA (Occupational Safety & Health Act) Federal.
17. NECA Standards of Installation.
   c. NECA 409-2018, Recommended Practice for Installing and Maintaining Dry-Type Transformers (ANSI).
   d. NECA 420-2018 Standard for Fuse Applications (ANSI).
   e. NECA 430-2018, Standard for Installing Medium-Voltage Metal-Clad Switchgear (ANSI).
   f. NECA 331-2018, Standard for Building and Service Entrance Grounding and Bonding

B. Where these Specifications call for a higher standard than the above-mentioned rules, the Specifications shall govern.

C. Should there be any direct conflict between the above-mentioned rules and these Specifications, the rules shall govern.

D. Nothing in the Drawings or Specifications is to be construed to permit Work not conforming to the rules, codes, and regulations.

E. All materials utilized shall be new and the best of their respective grades or kinds.

F. Contractor shall provide all job site security.

1.05 DEFINITIONS

A. Article 100 of the California Electrical Code shall serve as a guide for definitions.

B. Industry standard definitions.
C. Specific Definitions:

1. Concealed: Hidden from sight, as in trenches, chases, hollow construction, above furred spaces, suspended ceilings (acoustical or plastic type), or exposed to view only in tunnels, attics, shafts, crawl spaces, unfinished spaces, or other areas solely for maintenance and repair.

2. Exposed: Not concealed.

3. Unfinished Space: A room or space that is ordinarily accessible only to building maintenance personnel, a room noted on the "Finish Schedule" with exposed and unpainted construction for walls, floor or ceilings, or specifically mentioned as "unfinished".

4. Finished Spaces: Any space ordinarily visible to the visiting public, including exterior areas.

1.06 RECOGNIZED TEST LAB

A. All equipment specified or installed under this project shall be listed by a recognized test lab and bear that label of approval.

1.07 RECORD DRAWINGS

A. Include under this Work complete and accurate record information both during construction and before final acceptance by the Owner, and costs associated therewith shall be included under this Work.

B. Obtain from the Project Manager, at cost, a complete set of applicable blue-line prints. On these prints, systematically and accurately keep an up-to-date and legible dimensional record of Work installed differently from the location or manner indicated by the Drawings, as well as exact locations of stub-outs and hidden or underground features. Have these Drawings readily available for reference and review. When job status permits, submit them to the Project Manager and amend or correct and re-submit if requested.

C. When the above information is complete and acceptable, deliver Record Drawings to the Project Manager.

1.08 SUBMITTALS - SUBSTITUTIONS

A. Bids shall be based on Drawings and Specifications and references exactly as shown except as substitutions are permitted under terms of the Instructions to Bidders. Acceptance by the Project Manager of a variation or alternate shall not of itself waive other requirements of the Drawings and Specifications.
B. Before a substitute is used, it shall be equal in quality and utility to the material or make of equipment specified, and furthermore, shall be suitable for the particular application. The decision of the Project Manager as to the quality and utility of the substitute offered shall be final.

C. When submitting a substitute to a specified item, provide complete data for both the specified item and the substitute. Complete data includes:

1. Catalog cuts with complete dimensions, characteristics, electrical properties, Underwriter's Laboratory listing, harmonics, light output, mounting and support requirements.

2. Calculations, photometrics, system load data, energy effect on system, etc.

If the substitute is not deemed equal in both utility and quality to the specified item, the specified item will be approved and it shall be provided by the Contractor.

D. Submit in one package complete systematized lists of equipment and Drawings, catalog cuts, brochures, capacity tables and curves, descriptive information, performance data and guarantees and warranties referenced either to applicable Specification paragraphs or to item numbers as shown on the Drawings, or both. Submit six (6) copies.

E. Do not order or install equipment until submittals have been reviewed and approved.

F. Where accepted materials or equipment other than is specified or shown on the Drawings require redesign of structural, architectural, electrical or mechanical features or layouts, such changes shall be made by, or at the expense of the Contractor - all subject to complete review by the Project Manager.

G. Because of the contingencies involved, review and general acceptance of proposed substitutes shall not relieve the Contractor's responsibility under this Work for ensuring in all respects the suitability of such materials and equipment for the particular Project requirements.

1.09 SHOP DRAWINGS

A. Prepare shop Drawings of items as required by the Project Manager or by Drawings and Specifications; submit six (6) copies of each to the Project Manager as part of the submittal package, sufficiently in advance of construction, if necessary.

B. The shop drawings shall be submitted sufficiently in advance of construction to allow time for review and for resubmission, if necessary.

C. Submit all shop drawings and data at one time for equipment provided under this Section. The complete electrical shop drawings shall be bound in one pamphlet or binder indexed to this Section.
D. Shop drawing submittals processed are not change orders. The purpose of shop drawing submittals by the Contractor is to demonstrate that the Contractor understands the design concept; he demonstrates his understanding by indicating which equipment and material he intends to furnish and install and by detailing the fabrication and installation methods he intends to use. If deviations, discrepancies or conflicts between shop Drawings and Specifications are discovered, either prior to or after shop drawing submittals are processed, the design Drawings and Specifications shall control and shall be followed.

E. Manufacturers' data and dimension sheets shall be submitted giving all pertinent physical and engineering data including weights, cross-sections and maintenance instructions. Standard items of equipment such as receptacles, switches, plates, etc., which are cataloged items, shall be listed by manufacturer.

F. Index all submittals and reference to these Specifications.

1.10 COMPLETION DATA

A. Submit completion data to the Project Manager in acceptable quantity and form before requesting a final inspection. Such submittal shall be corrected, amended, or completed before final acceptance of the Work.

B. Include Record Drawings, maintenance manuals, and data; test results; control and wiring diagrams.

1.11 CUTTING, PATCHING, AND REPAIRING

A. Cutting, patching, and framing of wood members to accommodate this Work shall be done by the Contractor and shall be in conformance with Sections 613 and 617 (F) and (K), Title 24, California Code of Regulations. All such cutting, patching and framing shall be approved by the Project Manager.

B. Do minor miscellaneous cutting, drilling, and patching necessary and normally required at the time of actually installing this Work. Patching shall be of the same materials, workmanship, and finish as the original or surrounding Work to the complete satisfaction of the Project Manager. Comply with Division-1 CUTTING AND PATCHING Section.

C. Adequately inform other trades of openings and framing requirements for this Work and provide suitable instructions for establishing locations and sizes of openings or sleeves so that these may be provided in the proper location at the proper time. Concrete shall not be cut, except where approved by the Project Manager.

1.12 SIMILARITY OF MATERIALS
A. Unless specified otherwise, fixtures, fittings, hangers, and respective type features and equipment, of a similar type or having similar operative or functional features, shall be of the same manufacturer throughout the Project.

### 1.13 MANUFACTURERS' DIRECTIONS

A. Follow manufacturers' directions and recommendations in all cases where the manufacturers' equipment or articles are used for this Work. Compliance with the manufacturer's direction is a requirement for that product's listing with a recognized test lab.

### 1.14 VERIFICATION OF DIMENSIONS

A. Scaled and figured dimensions are approximate only. Before proceeding with Work, carefully check and verify dimensions, etc., on architectural Drawings, and be responsible for properly fitting equipment and materials together and to the structure in spaces provided.

B. Drawings are essentially diagrammatic, and many offsets, bends, pull boxes, special fittings, and exact locations are not indicated. Carefully study Drawings and premises in order to determine best methods, exact locations, routes, building obstructions, etc., and install apparatus and equipment in available locations. Install apparatus and equipment in manner and locations to avoid obstructions, preserve headroom, and keep openings and passageways clear.

### 1.15 SIGNAGE

A. Provide EV charging signage as shown on the Drawings.

### 1.16 IDENTIFICATION OF EQUIPMENT

A. All electrical equipment shall be labeled, tagged, stamped, or otherwise identified in accordance with the following schedule:

1. Branch Circuit Panelboards:
   a. Panel identification shall be P-Touch ¾” label.
   b. Circuit directory shall be a two-column, 8-1/2 x 11” sheet attached to the inside of the door. Each odd numbered circuit shall be in sequence in the left column and the even numbered circuit in the right column (e.g., 1, 3, 5..., 2, 4, 6...). Each circuit shall be identified as to the use and room name(s) or area(s). Confirm room names and/or room numbers with the Project Manager prior to project completion. Circuit breaker identification shall be by permanently installed metal numbers or plastic numbers under acrylic plastic. "Paste-on" numbers will not be accepted. Refer to "Panelboards" section for additional requirements.

2. Distribution Panelboards: Identification shall be with 1" x 4" laminated, white on black, micarta nameplates on each major component, each with name and/or number of unit and other pertinent data as required. Emergency power distribution panels shall
be identified with white on red micarta nameplates. Letters shall be no less than 3/8" high.

3. Circuit breakers shall be identified by number and name with 3/4" x 1-1/2" laminated micarta nameplates with 3/16" high letters mounted adjacent to circuit breaker or switch.

4. Miscellaneous equipment (electrical), such as individually mounted safety switches, starters, step-down transformers, pull boxes, junction boxes, etc., shall be identified by the use of such equipment with P-Touch labels as required.

5. In general, the installed nameplates, as herein called for shall also clearly indicate its use, area served, circuit identification, voltage and any other useful data.

6. All auxiliary systems, including communications, shall be labeled to indicate function.

7. All panels shall be full of breakers even if they are not being use, and labeled as spare. The size shall be similar to the breakers in the panels.

1.17 ARC FLASH LABELING

A. All panels, circuit breaker enclosures, switchboards and motor control centers shall be labeled with Arc Flash Warning Stickers.

1.18 CLOSING IN OF UNREVIEWED WORK

A. Do not allow or cause any of this Work to be covered up or enclosed until it has been reviewed by the Project Manager. Should any of this Work be enclosed or covered up before such review, uncover the Work and make repairs with such materials as may be necessary to restore the Work and that of the other trades to its original and proper condition at no additional cost to the Owner.

1.19 SAFETY PRECAUTIONS

A. It is intended that within the scope of this Work during construction and until final acceptance, strict attention be given to matters pertaining to public safety and to safety of the construction workers and complementing personnel; and to other health and building safety requirements as specified and indicated including, but not limited to: Protection of openings in fire-rated construction; clearances from and/or protection of combustibles; proper securement for fixtures, equipment materials; method of performing the Work, operational and safety check of electrical devices, etc.; erection and maintenance of suitable barriers, protective devices, lights and warning signs and adequate provisions for storage and protection of Work, materials and equipment.

B. It is understood that the responsibility for the proper attention to the above stipulations is included under this Work.
1.20 WIRING OF EQUIPMENT FURNISHED UNDER OTHER SECTIONS

A. All electrical wiring including power wiring and control wiring (except as specified under Automatic Temperature Control), including raceways, wiring, outlet and junction boxes, and labor for installation of the wiring and equipment shall be included in this section of the Specifications.

B. All control devices, and starters not in motor control centers, for equipment furnished under the Air Conditioning section (except as specified under Automatic Temperature Control paragraph), Plumbing section, Fire Sprinkler or Lawn Sprinkler section are to be furnished under that particular section and installed under this section.

C. Wiring diagrams complete with all connection details shall be furnished under each respective section.

1.21 PROTECTION OF EXISTING LINES

A. Exercise special care to avoid damaging and to maintain in operation, all existing utility runs during the construction period. Also avoid damaging existing piping, conduits, or equipment that is to remain, whether or not specifically indicated on the Drawings. Existing utilities, piping, conduits, and equipment may or may not be shown on the Drawings. The Drawings only reflect information intended to suggest the probable extent and possible location of indicated runs and equipment. There may be other runs. There may be other locations. Neither the Owner nor the Project Manager represents that either has any precise knowledge as to either the full extent or exact location of equipment and runs that may fall within the building or Project Site.

B. Locate all known existing installations before proceeding with construction operations which may cause damage to such installations. The existing installations shall be kept in service where possible and damage to them shall be repaired at no increases in Contract Sum.

1.22 MOUNTING

A. Provide materials and accessories necessary to properly mount and secure equipment furnished and/or installed under the electrical Work. This includes but is not limited to such items as conduit, outlets, junction boxes, switches, relays, disconnect switches, lighting fixtures, cabinets, and transformers.

B. Inserts and Anchors shall be:

1. Furnished and installed for support of Work under this Division.
2. Adjustable concrete hanger inserts installed in new concrete work as manufactured by Hilti or as approved.
3. Installed in locations as approved by Project Manager.
4. Expandable lead type anchors installed in existing concrete with minimum surface damage, as manufactured by Hilti.
5. Toggle bolts, or "molly anchors", where installed in concrete block walls.
6. Complete with 3/16" or heavier steel backup plate where used to support heavy items. Through-bolts or backup plate shall be concealed from view, except as otherwise indicated.

C. Mounting of equipment that is of such size as to be freestanding and that equipment which cannot conveniently be located on walls, such as motor starters, etc., shall be rigidly supported on a framework of galvanized steel angle, Unistrut or as approved.

D. Furnish and install sleeves for the installation of Work under all sections of this Division. Sleeves through floors, roof and walls shall be as described in conduit section.

1.23 MOUNTING HEIGHTS

A. Receptacles shall be mounted no lower than 15” to the bottom of the device.
B. Switches and lighting control stations shall be mounted no higher than 48” to the top of the device.
C. Overcurrent devices and circuit breakers or disconnect switches shall be mounted no higher than 6 feet-7 inches.

1.24 ACCESSIBILITY

A. Comply with all ADA requirements.

1.25 TESTS

A. Perform electrical tests as required or directed. Provide materials, labor, and equipment necessary for performances of these tests, and at completion of the Work perform a complete "in-service" operation of the entire electrical and power system to show compliance with the Drawings and Specifications. Replace Work showing faults under tests without additional cost to the Owner. Test system voltage at switchboards at completion of Work and provide a written report to the Project Manager.

1.26 EQUIPMENT LISTS AND MAINTENANCE MANUALS

A. Prior to completion of job, Contractor shall compile a complete equipment list and maintenance manual. The equipment list shall include the following items for every piece of material and equipment supplied under this section of the Specifications.

1. Name, model and manufacturer.
2. Complete parts Drawings and list.
3. Local supply for parts and replacement and telephone number.
4. All tags, inspection slips, instruction packages, etc. removed from equipment as shipped from the factory, properly identified as to the piece of equipment it was taken from.

B. Maintenance manuals shall be furnished for each applicable section of the Specifications, shall be suitably bound with hard covers, and shall include all available manufacturers' operation and maintenance instructions, together with as-built Drawings and lists hereinbefore specified and other diagrams and instructions necessary to properly operate and maintain the equipment. The equipment lists and maintenance manuals shall be submitted in duplicate to Architect for approval not less than 10 days prior to the completion of the job. The maintenance manuals shall also include the name, address and phone number of the General Contractor and all subcontractors involved in any of the Work specified herein. The maintenance manuals shall be finally provided in four copies.

1.27 CLEANING

A. During construction on a daily basis, and upon completion of the Work, remove from the site all debris and excess materials, tools, and removed items, resulting from this Work. Clean equipment, including lighting fixtures, free of dust, dirt, grease, paint, etc.

1.28 SALVAGE

A. Deliver salvaged equipment and material deemed salvageable by Project Manager to location designated by Project Manager. Remove other removed material and equipment from site.

1.29 GUARANTEE

A. Leave the entire installation in complete working order, free from defects in materials, workmanship or finish. Guarantee to repair or replace parts that may develop defects due to faulty materials, equipment, or workmanship within a period of one year after the Work is accepted by the Owner. Also, guarantee to repair or replace with like materials, other existing Work in the building damaged from or during the repair of any such defective equipment, materials, or workmanship.

1.30 INSTALLERS QUALIFICATIONS

A. Installer must have electrical certification per California Labor Code Section 3099.2.

B. All work described in the Electrical Specifications and shown on Electrical Drawings shall be performed by California State Certified Electricians.

C. All electricians shall have a minimum of 500 hours of documented classroom training.

D. All electricians shall have a minimum of 3,000 hours of documented on-the-job training.
E. At the time equipment submittals are made, provide copies of State Certification and training documents for electricians working on this project

PART 2 - PRODUCTS AND EXECUTION

2.01 GROUNDING

A. Grounding shall be executed in accordance with applicable codes and regulations of the State of California, California Electrical Code and local authorities having jurisdiction as well as any additional provisions specified or shown on Drawings.

B. Grounding bushings shall be used wherever conduits are grounded. Feeder conduits to panels and air conditioners shall have grounding bushings.

C. Grounding conductors should be located to permit the shortest and most direct path to ground. Connections shall be readily accessible for inspection and connections shall not be permanently concealed in floors or walls.

D. Non-current carrying metallic parts of electrical equipment and raceways shall be securely grounded to the common system ground. In all locations, ground conductors shall be run through conduits and shall be securely bonded to the conduit at the entrance and exit. The conduit for the grounding conductors shall be continuous from the point of attachment to cabinets or equipment to the grounding electrode, and shall be securely fastened to the ground clamp fittings.

E. Ground connections to equipment shall be made with an approved type of exothermic weld or shall be bolted or clamped to equipment or conduit. Sheet metal strap types of ground clamps shall not be used. Contact surfaces shall be thoroughly cleaned and bright before connection is made so as to ensure a good metal to metal contact.

F. Where nonmetallic conduit is used, ground shall be achieved through use of a separate, green-insulated, copper, code-size, ground conductor included in the conduit.

G. Bonding of cold water piping system shall be achieved at the service entrance. A copper saddle shall be installed over the copper pipe at the location of the clamp to avoid damage to the pipe.

2.02 CONDUIT

A. Rigid Steel Conduit:

1. Rigid steel conduit shall have zinc coated exterior, zinc or enamel interior, standard weight, zinc coated couplings, locknuts and bushings and shall bear the U.L. label. Rigid conduit shall not be installed underground.
2. Use rigid conduit only for exposed exterior conduit runs, wherever subject to physical damage, or where specifically called for on the Drawings or required by a serving utility.

3. Intermediate metallic conduit (I.M.C.) may be used in lieu of rigid steel conduit.

4. All rigid conduits shall be threaded with raintight connections.

B. Electrical Metallic Tubing:

1. Electrical metallic tubing (E.M.T.) shall bear the U.L. label and shall be zinc coated thinwall conduit with zinc-coated couplings and connections. "Indent" type fittings shall not be used.

2. E.M.T. may be used where rigid, flexible or non-metallic conduit is not required.

3. E.M.T. shall be used for interior dry locations. EMT shall be used where no specified conduit type is called for on the Drawings.

C. Flexible Metallic Conduit:

1. Flexible metallic conduit shall be galvanized steel and bear the U.L. label. Fittings for flexible conduit shall be squeeze type. Screw-in connectors and other connectors that decrease the interior diameter of the conduit shall not be used unless specifically approved by the Project Manager.

2. Liquid-tight flexible conduit shall bear the U.L. label and be plastic jacketed moisture and oil resistant with oil and vapor tight connectors.

3. Use flexible conduit for final connection to equipment where vibration may injure direct conduit connection. It may be used for indoor dry locations, for fixture whips not to exceed 72 inches and in other locations where structural conditions will not permit the use of EMT not to exceed six feet, only if approved by the Project Manager.

4. Use liquid-tight flexible conduit in lieu of flexible conduit for wet, damp, or outdoor areas or where weatherproof flexible conduit is called for on the Drawings or by code.

5. Liquid tight flexible conduit shall not be in direct sun light any time of the year.

D. Plastic Conduit:

1. Plastic conduit shall be rigid polyvinyl chloride (PVC) Underwriter's approval, Schedule 40. Connections and fittings shall be "outside" type assembled in accordance with the recommended methods of the manufacturer.

2. Plastic conduit shall not be in direct sun light any time of the year.
3. Provide a code size ground conductor in each conduit.

4. Only braided polyethylene or similar pull rope shall be used.

E. Installation of Conduit:

1. Underground conduit.
   a. Keep interior of conduit clean and clear. Clean underground conduits by pulling a mandrel through conduit run followed with a swab before pulling wire.
   b. Reroute conduit from locations shown on the Drawings where it is necessary to clear obstructions.
   c. Provide junction or pull boxes where required for pulling conductors due to excessive number of bends or length of conduit runs.
   d. Bury underground conduit, except those under buildings, a minimum of 24 inches below finished grade. Conduits under roadways shall be a minimum of 36 inches below finished grade. 4160-volt conduit runs shall have a red concrete slurry on top of them. See Drawings.
   e. Standard factory ells shall not be used in underground service conduits or other long underground runs. Field bends shall not be flattened or kinked and shall not materially reduce the internal diameter of the conduit. Bends in long underground runs shall be made in long sweeping bends. Do not bend at couplings. Approved conduit bending methods shall be used.
   f. All conduit runs shall have a code size insulated grounding conductor.
   g. Properly separate two or more conduits installed underground in a common concrete envelope with approved factory made conduit spacers.
   h. Locate conduit stub-outs dimensionally from building or curb lines on Record Drawings.
   i. Pull tape shall be installed in empty conduits and stub-outs. 5/8” wide mule tape or pull tape shall be used.
   j. Spare underground conduits shall be sealed with duct plugs that have pull tape. Duct tape shall not be used to seal unused conduits.

2. Exposed/Concealed Conduit:
   a. Provide secure mounting facilities for conduits. Wire or plumbers tape shall not be used for hanging conduit. Strap shall be factory made of the one hole malleable iron or two-hole galvanized clamp type.
b. Provide expansion couplings wherever conduits cross expansion joints.
c. Run conduit at right angles or parallel to structural members, walls, floors and ceilings. Where several conduits are run together or suspended, they shall be hung on Unistrut trapezes with minimum 3/8-inch rod hangers.
d. Cut ends of conduit square and ream to remove burrs or sharp edges. Terminate conduits properly with bushings, locknuts, etc. Terminate one (1) inch and larger conduits with insulated bushings.
e. Render conduits projecting through the roofing watertight by proper flashings. Securely fasten a sheet metal cap and tighten bank or storm collar to the conduits. Extend flashing a minimum of six (6) inches in all directions. Coordinate and install roof flashing for conduits to the satisfaction of the Project Manager.
f. All conduit runs shall have a code size insulated grounding conductor.
g. Pull tape shall be installed in empty conduits including stub-outs. Provide laminated card on each end of pull tape with copy of reduced site plan.
h. Flexible conduit connections shall comply with NEC Section 350-22.
i. Provide Dura Block or similar support for roof-mounted conduits.

2.03 OUTLET, JUNCTION AND PULL BOXES

A. Outlet boxes and junction boxes shall be galvanized one-piece pressed steel, knockout type. The size of each box shall be determined by the number of wires or conduits or size of conduits entering the box, but shall not be less than 4” square and 1-1/2” deep unless otherwise noted. All boxes shall be UL listed.

B. Locknuts shall be used on both sides of conduit connections to box or panel, in addition to bushing. Where a larger size opening occurs than size of conduit, use reducing washers.

C. Exposed boxes shall be weatherproof, threaded or hub condulet with gasketed condulet cover suitable for device installed or with blank cover plate when condulet is used as a junction box. Condulet wire fill capacity shall not be exceeded.

D. Large size junction or pull boxes shall be fabricated from code gauge sheet steel. Where located indoors, finish shall be gray enamel and covers shall be secured with screws. Where exposed to weather, they shall be weatherproof, NEMA 3R, and rain-tight and hot-dip galvanized after fabrication; also, they shall have weatherproof gaskets, flat covers and galvanized iron screws. Provide knockouts and/or threaded hubs as required for the conduit used. Boxes in finished areas shall be prime painted.

E. Any unused, removed knockouts shall be filled with a K.O. cover.

F. Provide bonding or grounding from metal conduit terminating in junction with concentric KO’s.

2.04 WIRE AND CABLE

A. 600 Volt Conductors:
1. Conductors shall be copper and delivered to the site in their original, unbroken packages plainly marked or tagged with U.L. label, size, kind, insulation, name of manufacturer and trade name of the wire.
2. Type "THWN/THHN", 600-volt insulation shall be used for all locations.
3. Minimum size conductor shall be #12.
4. Conductors shall be stranded copper only.
5. Ground conductors shall be bare copper or have green insulation.
6. 120 volt and 277 volt circuits shall have separate neutrals.
7. Conductors shall be colored per phase requirement.

B. Installation:

1. Conductors shall be continuous between outlets or junction boxes and no splices shall be made except in outlet boxes, pull boxes, panelboard gutters or handholes.
2. Joints, splices and taps No. 10 or smaller (including fixture pigtails) shall be connected with “floating spring” type connectors. No. 8 and larger shall be connected with solderless connectors of 100% electrolytic copper. Split-bolt connectors are not acceptable.
3. Tighten pressure type lugs on panels and equipment, and then retighten 24 hours or more later after energizing. Provide written report of torque values on lugs.
4. Oil or grease shall not be used when pulling conductors. Use U.L. approved cable lubrication only.
5. Lace or train conductors neatly in panels, cabinets and equipment. Use plastic wire ties to route conductors at edge of enclosure away from overcurrent devices.
6. Branch circuits shall be color coded in compliance with Section 210-5 of the California Electrical Code. Colored tape is not acceptable.
7. All wiring, both line and low voltage, shall be installed in conduit unless otherwise noted.
8. Conductors from different panels or from different power sources shall not be installed in the same conduit, junction box, gutter, or raceway.

C. Tag:

1. Branch circuits shall be left tagged with circuit numbers in gutters and junction boxes where unused circuits terminate.
2. Feeder conductors shall be tagged as phase "A" or "B" or "C".
3. The method of tagging shall be with adhesive preprinted tape numbered or lettered wrap around tags. Colored tape is not acceptable.

4. Tagging shall be applied after wire is installed in conduit.

5. Feeders in panel or equipment shall be tagged by phase letter in each panel or equipment.

6. Where it is impractical to use printed markers on certain wires or cables, use blank tape with identification marked thereon with indelible pen or pencil.

D. Color Coding for Phase Identification: Color code secondary service, feeder, and branch circuit conductors with factory applied color as follows:

<table>
<thead>
<tr>
<th>208v/120Volts</th>
<th>Phase</th>
<th>480Y/277 Volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>A</td>
<td>Brown</td>
</tr>
<tr>
<td>Red</td>
<td>B</td>
<td>Orange</td>
</tr>
<tr>
<td>Blue</td>
<td>C</td>
<td>Yellow</td>
</tr>
<tr>
<td>White</td>
<td>Neutral</td>
<td>Gray</td>
</tr>
<tr>
<td>Green</td>
<td>Ground</td>
<td>Green</td>
</tr>
</tbody>
</table>

2.05 DISCONNECT SWITCHES

A. Non-fusible or fusible as shown on the Drawings, heavy duty, 250 volts, NEMA Type 1 enclosure, except where WP is indicated or required by code, use NEMA Type 3R enclosure.

2.06 PANELBOARDS

A. Section Includes:

1. Power Distribution Panelboard: Furnish and install distribution panelboard(s) as specified herein and where shown on the associated schedules on Drawings.

2. Lighting and Appliance Panelboard: Furnish and install lighting and appliance panelboard(s) as specified herein and where shown on the associated schedules on Drawings.

B. References: The panelboard(s) and circuit breaker(s) referenced herein are designed and manufactured according to the latest revision of the following Specifications.

1. NEMA PB-1 - Panelboards.
2. NEMA PB-1.1 - Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less.
3. NEMA AB 1 - Molded Case Circuit Breakers.
4. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).
5. UL 50 - Enclosures for Electrical Equipment.
6. UL 67 - Panelboards.
7. UL 489 - Molded-Case Circuit Breakers and Circuit Breaker Enclosures.

C. Lighting and Appliance Panelboard: (Square D NQOD, no equal)

1. Interior:
   a. Shall be rated for 240 VAC/48 VDC maximum. Continuous main current ratings, as indicated on associated schedules, not to exceed 600 amperes maximum.
   b. Minimum short circuit current rating: As indicated on schedules in rms symmetrical amperes at 240 VAC.
   c. Provide one (1) continuous bus bar per phase. Each bus bar shall have sequentially phased branch circuit connectors suitable for plug-on or bolt-on branch circuit breakers. The bussing shall be fully rated. Panelboard bus current ratings shall be determined by heat-rise tests conducted in accordance with UL 67. Bussing rated 100-400 amperes shall be copper. Bussing rated for 600 amperes shall be copper as standard construction. Panelboards shall be suitable for use as Service Equipment when application requirements comply with UL 67 and NEC Articles 230-F and G.
   d. All current-carrying parts shall be insulated from ground and phase-to-phase by Noryl high dielectric strength thermoplastic or equivalent.
   e. Split solid neutral shall be plated and located in the mains compartment up to 225 amperes so all incoming neutral cable may be of the same length.
   f. Interior trim shall be of dead-front construction to shield user from energized parts. Dead-front trim shall have pre-formed twistouts covering unused mounting space.
   g. Nameplates shall contain system information and catalog number or factory order number. Interior wiring diagram, neutral wiring diagram, UL Listed label and short circuit current rating shall be displayed on the interior or in a booklet format.
   h. Interiors shall be field converted for top or bottom incoming feed. Main and subfeed circuit breakers shall be vertically mounted. Main lug interiors up to 400 amperes shall be field convertible to main breaker. Interior leveling provisions shall be provided for flush mounted applications.
   i. Panelboard lugs shall be tightened with a torque wrench to values listed on the equipment.
   j. Arc Flash labeling shall be provided in accordance with Section 1.18 of these specifications.

2. Main Circuit Breaker:
   a. Main circuit breakers shall have an overcenter, trip-free, toggle mechanism which will provide quick-make, quick-break contact action. Circuit breakers shall have a permanent trip unit with thermal and magnetic trip elements in each pole. Each thermal element shall be true rms sensing and be factory calibrated to
operate in a 40° C ambient environment. Thermal elements shall be ambient compensating above 40° C.

b. Two- and three-pole circuit breakers shall have common tripping of all poles. Circuit breakers frame sizes above 100 amperes shall have a single magnetic trip adjustment located on the front of the circuit breaker, which allows the user to simultaneously select the desired trip level of all poles. Circuit breakers shall have a push-to-trip button for maintenance and testing purposes.

c. Breaker handle and faceplate shall indicate rated ampacity. Standard construction circuit breakers shall be UL Listed for reverse connection without restrictive line or load markings.

d. Circuit breaker escutcheon shall have international I/O markings, in addition to standard ON/OFF markings. Circuit breaker handle accessories shall provide provisions for locking handle in the ON or OFF position.

e. Lugs shall be UL Listed to accept solid or stranded copper conductors only. Lugs shall be suitable for 90° C rated wire, sized according to the 75° C temperature rating per NEC Table 310-16. Lug body shall be bolted in place; snap-in designs are not acceptable. Lugs shall be torqued with a torque wrench to the value listed on the main circuit breaker.

f. All panelboards shall have a main circuit breaker.

3. Branch Circuit Breakers:

a. Circuit breakers shall be UL Listed with amperage ratings, interrupting ratings, and number of poles as indicated on the panelboard schedules.

b. Molded case branch circuit breakers shall have bolt-on type bus connectors.

c. Circuit breakers shall have an overcenter toggle mechanism which will provide quick-make, quick-break contact action. Circuit breakers shall have thermal and magnetic trip elements in each pole. Two- and three-pole circuit breakers shall have common tripping of all poles.

d. There shall be two forms of visible trip indication. The breaker handle shall reside in a position between ON and OFF.

e. The exposed faceplates of all branch circuit breakers shall be flush with one another.

f. Lugs shall be UL Listed to accept solid or stranded copper conductors only. Lugs shall be suitable for 90° C rated wire, sized according to the 75° C temperature rating per NEC Table 310-16. Lugs shall be torqued with a torque wrench to the value listed on the main circuit breaker.

4. Enclosures:

a. Type 1 Boxes:

1) Boxes shall be galvanized steel constructed in accordance with UL 50 requirements. Galvanized steel will not be acceptable.

2) Boxes shall have removable endwalls with knockouts located on one end. Boxes shall have welded interior mounting studs. Interior mounting brackets are not required.
3) Box width shall be [20 in wide] [14 in wide] [8.625 in wide - NQOB column width only].

b. Type 1 Fronts:
   1) Front shall meet strength and rigidity requirements per UL 50 standards. Fronts shall have ANSI 49 gray enamel electrodeposited over cleaned phosphatized steel.
   2) Fronts shall be hinged 1-piece with door. Mounting shall be as indicated on associated schedules.

c. Type 3R, 3S, 5, and 12:
   1) Enclosures shall be constructed in accordance with UL 50 requirements. Enclosures shall be painted with ANSI 49 gray enamel electrodeposited over cleaned phosphatized steel.
   2) All doors shall be gasketed and equipped with a tumbler type vault lock and two (2) additional trunk type latches. All lock assemblies shall be keyed alike. Two (2) keys shall be provided with each lock. A clear plastic directory cardholder shall be mounted on the inside of door.
   3) Maximum enclosure dimensions shall not exceed 20 in. wide and 6.5 in. deep.

END OF SECTION
SECTION 16441 - SWITCHBOARDS

PART 1 - GENERAL

1.01 SUMMARY

A. Scope: Provide labor, material, equipment, related services, and supervision required, including, but not limited to, manufacturing, fabrication, configuration and installation for low voltage switchboards (also identified as SWBDs) as required for the complete performance of the Work, as shown on the Drawings as specified herein.

B. Related Sections: Related sections include, but shall not be limited to, the following:
   1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
   2. Applicable general requirements for electrical Work specified within Division 26 Specification Sections apply to this Section.
   3. The following SWBD information is typically depicted on the Drawings: bus configuration, but ratings, interrupting ratings, component size and type, power line and feeder connections, application specific control wiring, elevation and footprint, etc. Where not shown on or able to be derived from the Drawings, the minimum requirements specified herein shall be provided.

1.02 REFERENCES

A. General, Publications: The publications listed below form a part of this Specification to the extend referenced. The publications are referred to in the text by the basic designation only. The edition/revision of the referenced publications shall be the latest date as of the date of the Contract Documents, unless otherwise specified.
   1. ASTM (ASTM):
   2. Federal Specifications (FS):
      a. FS W-C-375, "Circuit Breakers, Molded Case, Branch Circuit and Service".
   3. Institute of Electrical and Electronics Engineers, Inc. (IEEE):
      a. ANSI/IEEE C57.13, "Standard Requirements for Instrument Transformers".
   5. International Organization for Standardization (ISO):
   6. Military Standardization Documents (MIL):
   7. National Electrical Contractors Association (NECA):
a. NECA 400 "Standard for Installing and Maintaining Switchboards."
8. National Electrical Manufacturers Association (NEMA):
   a. NEMA E1 21.1 "Instrument Transformers for Revenue Metering (110 kV BIL and Less)."
   b. NEMA KS 1, "Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum)."
   c. NEMA PB 2, "Deadfront Distribution Switchboards."
   d. NEMA PB 2.1 "General Instructions for Proper Handling, Installation, Operation and Maintenance of Deadfront Distribution Switchboards Rated 600 Volts or Less."
   a. NFPA 70, "National Electrical Code" (NEC).
   b. NFPA 70B, "Electrical Equipment Maintenance."
   c. NFPA 70E, "Standard for Electrical Safety in the Workplace."
10. Underwriters Laboratories, Inc. (UL):
    a. UL 98, "Standard for Enclosed and Dead-Front Switches."
    b. UL 489, "Standard for Molded-Case Circuit Breakers and Circuit Breaker Enclosures."
    c. UL 891, "Standard for Dead-Front Switchboards."
    d. UL 943, "Standard for Ground-Fault Circuit Interrupters."
    e. UL 1283, "Standard for Safety for Electro-Magnetic Interference Filters."
    f. UL 1449, "Standard for Surge Protective Devices."

1.03 DEFINITIONS

A. Unless specifically defined within the Contract Documents, the words or acronyms contained within this specification shall be as defined within, or by the references listed within this specification, the Contract Documents, or, if not listed by either, by common industry practices.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Products: Switchboard specified herein shall be the product of a single manufacturer. Products and manufacturers specified are to establish a standard of quality for design, function, materials, and appearance. Products shall be modified as necessary by the manufacturer without exception, unless approved as a substitute by addendum to the Contract Documents prior to the bid date.
   1. Square D QED-2 Switchboard by Schneider Electric.

2.02 GENERAL REQUIREMENTS

A. The following SWBD information is typically depicted on the Drawings: bus configuration, bus ratings, interrupting ratings, component size and type, power line and feeder connections, application specific control wiring, elevation and footprint, etc. Where not
shown on or able to be derived from the Drawings, the minimum requirements specified herein shall be provided.

B. Enclosure: Provide steel enclosure in compliance with UL 891, Type 3R.

C. Enclosure Finish: Provide factory-applied finish in manufacturer's paint over a rust-inhibiting primer on treated metal surface. Paint finish shall be medium gray in color, ANSI #49.

D. Barriers: Provide barriers between adjacent switchboard sections.

E. Insulation and isolation: Provide taped bus for through bus.

F. Bus Transition and Incoming Pull Sections: Match and align with basic switchboard.

G. Front Covers and Doors:
   1. Front covers shall be screw removable with a single tool.
   2. All doors shall be hinged with removable hinge pins.

H. Buses and Connections: Three phase, four wire, unless otherwise indicated. Provide hard-drawn plated copper of 98 percent conductivity.
   1. Group-Mounted Feeder Vertical Bus Stack:
      a. Bus stack shall be capable of mounting feeder breakers with different frame sizes and number of poles across from one another on the bus stack.
      b. Non-conducting surface films shall be removed during circuit breaker installation by a wiping action of the circuit breaker jaws.
      c. The design of the circuit breaker jaws and bus stack shall create blow-on forces under fault conditions.
      d. Bolted lap joint connections for feeder breakers shall not be allowed for group-mounted feeders.
   2. Ground Bus: Size per current NEC and UL 891 Tables 28.1 and 28.2, hard-drawn copper of 98 percent conductivity, equipped with pressure connectors for feeder and branch circuit ground conductors. For busway feeders, extend insulated equipment grounding cable to busway ground connection and support cable at intervals in vertical run.
   3. Bus Composition: Tin plated copper. Plating shall be applied continuously to bus work. The switchboard bussing shall be of sufficient cross-sectional area to meet UL 891 temperature rise requirements. The phase and neutral through-bus shall have an ampacity as shown on the Drawings. For four-wire systems, the neutral shall be of equivalent ampacity as the phase bus bar. Tapered bus is not permitted. Full provisions for the addition of future sections shall be provided. Bussing shall include, but shall not be limited to, necessary hardware to accommodate splicing for future additions.

I. Future Devices: Equip compartments with mounting brackets, supports, bus connections, and appurtenances at full rating of circuit breaker compartment.

2.03 SURGE PROTECTIVE DEVICES (SPD)
A. Surge protection devices shall be as shown on the Drawings.

B. Surge protective devices shall be listed and components shall be recognized in accordance with UL 1449 to include Section 37.3 highest fault current category. Surge protective devices shall be UL 1283 listed.

C. Surge protective devices shall be installed by, and shipped from, the electrical distribution equipment manufacturer’s factory.

D. Provide surge current diversion paths for all modes of protection; L-N, L-G and N-G in WYE systems.

E. Surge protective devices shall be modular in design. Each mode, including N-G, shall be fused with a 200 kA IR UL-classified surge-rated fuse and incorporating a thermal cutout device.

F. Audible diagnostic monitoring shall be by way of audible alarm. Alarm shall activate upon a fault condition. Provide an alarm on/off switch to silence alarm. Provide an alarm push-to-test switch.

G. If a dedicated breaker for the surge protective device is not provided, the surge protective device shall include an UL-recognized disconnect switch.

H. EMI/RFI filtering shall be minimum -50 dB at 100 kHz with insertion ratio of 50:1 using MIL-STD-220 methodology.

I. Provide with one set of NO/NC dry contacts.

J. Accessories shall include but shall not be limited to, six-digit transient counter set to total transient surges that deviate from the sine wave envelope by more than 125 volts.

K. All panelboards and switchboards shall have a surge protective device.

2.04 OVERCURRENT PROTECTIVE DEVICES

A. Breaker Type: Thermal magnetic/basic electronic circuit breakers.

B. Molded Case Circuit Breaker Features and Accessories: Standard frame sizes, trip ratings, and number of poles.
   1. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor material.
   2. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HACR for heating, air-conditioning, and refrigerating equipment.
   3. Ground Fault Protection: Integral to circuit breaker with adjustable pickup and time delay settings, push-to-test feature, and ground fault indicator.
4. Shunt Trip: 120 volt trip coil energized from separate circuit, set to trip at 75 percent of rated voltage.
5. Undervoltage Trip: Set to operate at 35 to 75 percent of rated voltage with field-adjustable 0.1 second to 0.6 second time delay.

2.05 MARKINGS AND LABELING

A. All identification and warning labels and nameplates exterior to the SWBD shall be resistant to weather, UV and their intended installation environment.

B. Each SWBD shall be provided with an engraved nameplate identifying the project specific equipment tag and service description.

C. Warning labels and nameplates shall be present at access locations to advise personnel of possible hazards. The SWBD shall be marked in accordance with UL, NFPA 70 NEC, NFPA 70E, and other applicable standards.

PART 3 – EXECUTION

3.01 GENERAL

A. In addition to the requirements specified herein, execution shall be in accordance with the requirements of Specification Section 16000 and Drawings.

B. Examine equipment exterior and interior prior to installation. Report any damage and do not install any equipment that is structurally, moisture, or mildew damaged.

C. Verification of Conditions: Examine areas and conditions under which the work is to be installed, and notify the Contractor in writing, with a copy to the Owner and the Engineer, of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.
   1. Check that concrete pads are level and free of irregularities.
   2. Installation space is enclosed and weatherproof.
   3. Any wet-work located in or in close proximity to switchboard installation location is completed and nominally dry.

D. Beginning of the work shall indicate acceptance of the areas and conditions as satisfactory by the Installer.

E. Install equipment in accordance with reviewed product data, final shop drawings, manufacturer’s written instructions and recommendations, and as indicated on the Drawings.

F. Provide final protection and maintain conditions in a manner acceptable to the manufacturer that shall help ensure that the equipment is without damage at time of Substantial Completion.
3.02 INSTALLATION

A. Install switchboards and accessories according to NEMA PB 2.1 and NECA 400.

B. Install and anchor switchboards level on concrete bases, as shown on the Drawings.

END OF SECTION
SECTION 16444

MEDIUM VOLTAGE METAL-ENCLOSED LOAD INTERRUPTER SWITCHGEAR
(AIR INTERRUPTER SWITCHES)

PART 1 – GENERAL

1.01 SECTION INCLUDES
   A. Medium voltage metal-enclosed switchgear with air load interrupter switches.

1.02 REFERENCES
   A. ANSI/IEEE C37.20.3 - Standard for Metal-Enclosed Interrupter Switchgear.
   B. ANSI/IEEE C37.20.4 - Standard for Indoor AC Medium Voltage Switches used in Metal-Enclosed Switchgear.
   C. NEMA.

1.03 SUBMITTALS
   A. The metal-enclosed switchgear assembly shall be in accordance with the contract documents, applicable codes, whichever is the most stringent.
   B. The manufacturer shall furnish a detailed Bill of Material and complete set of drawings.
   C. The manufacturer shall furnish comprehensive instruction manuals.

1.04 QUALITY ASSURANCE
   A. Manufacturer: The manufacturer of the switchgear must be the same as the manufacturer of the load interrupter switch.

1.05 DELIVERY, STORAGE, AND HANDLING

   The following paragraphs apply only to the installing contractor.

   A. Accept equipment on site and inspect for shipping damage.
   B. Protect equipment from weather and moisture by covering with heavy plastic or canvas and by maintaining heat within enclosure in accordance with manufacturer's instructions.
PART 2 – PRODUCT

2.01 MANUFACTURERS

A. Switchgear: The metal-enclosed load interrupter switchgear shall be Square D type HVL or approved equal.

B. Fuses:
   1. The switchgear shall be equipped with a FuseLogic (fuse tripping) system to provide anti-single-phase protection with the following features:
      a. Direct acting, (5 kV up to 150 A and 15 kV up to 65 A "E" rated fuses) fuses to automatically open the manually operated load interrupter switch in the event of a blown fuse. Blocking the closing of the switch shall further prevent potential single-phasing conditions when a fuse is blown or if a fuse is not installed.
      b. Prevention of potential anti-single-phase conditions by blocking the closing of the manually operated load interrupter switch when a fuse is blown or if a fuse is not installed.
      c. Fuses shall be fixed in position in a non-disconnect fuse mounting.

2.02 LOAD INTERRUPTER SWITCHGEAR ASSEMBLY

A. The metal-enclosed switchgear with load interrupter switches shall consist of a single section and be of outdoor non-walk-in type construction. The equipment shall be factory-assembled with necessary shipping splits and operationally checked. The assembly shall be a self-supporting and floor mounted.

B. A viewing window shall be installed in the switch enclosure and located so as to enable visible inspection of the switch blades and blown fuse indicators from outside the enclosure.

C. System Voltage: 5 kV, 3-phase, solidly grounded 3-phase, 3-wire without neutral bus.

D. Operating Frequency: 60 Hz.

E. Maximum Short Circuit Current: 25 kA rms symmetrical.

F. Maximum Design Voltage: 4.76 kV.

G. Basic Impulse Level (BIL): 60 kV.kV

H. Power Frequency Withstand: 19 kV.

I. Short-Time Current (two second): 25 kA.
J. Main Bus Ampacity: 200 amps, continuous.


2.03 COMPONENTS

A. Load Interrupter Switch:
1. Stored-Energy Mechanism: The load interrupter switch shall be rated at 200 amperes continuous and interrupting; and fixed mounted on glass reinforced polyester standoff insulators. The stored-energy, manually operated mechanism shall be equipped with separate opening and closing springs. Operation of the load interrupter switch shall be by means of a close/open lever. Operation shall be quick-make, quick-break with the speed of operation independent of the operator.

B. Switches shall utilize main current carrying paths and arcing interruption path type poles.

C. The switch operating handle shall be permanently attached to the outside front of the switchgear and ready for immediate use, except for outdoor applications where the front of the switchgear shall be covered by a full-height solid door. The handle must operate in the conventional fashion with the switch closed with the handle in the up position and the switch open with the handle in the down position. Provisions shall be available for padlocking the switch in either the open or closed position.

D. Voltage and Short Circuit Ratings: Match ratings specified for assembly.

E. Momentary Rating: 40 kA, rms asymmetrical.

F. Fault Closing: 40 kA, rms asymmetrical.

2.04 FABRICATION

A. Construction: Outdoor, non-walk-in. Each equipment bay shall be a separately constructed cubicle assembled to form a rigid free standing unit. Minimum sheet metal thickness shall be 11 gauge steel on all exterior surfaces. Adjacent bays shall be securely bolted together to form an integrated rigid structure. To assist installation and maintenance of bus and cables, the rear covers shall be removable. Provide split rear doors with a padlockable handle and three-point latching. Each individual unit shall be braced to prevent distortion.

B. A viewing window shall be installed in a fixed panel of the enclosure to enable visual inspection of the disconnect blades from outside the enclosure.

C. The high voltage fuses (when required) and non-disconnect type fuse mountings, shall be accessible only through a separate door mechanically interlocked with the load.
interrupter switch, so the load interrupter switch is opened before the door is opened and that the switch cannot be closed when the door is open.

D. Main Bus shall be tin-plated copper, insulated rated 200 amps, and is to be supported from the top of the enclosure on NEMA class A-20 glass reinforced polyester standoff insulators.

E. For single bays, include a ground pad with lug.

F. Outdoor units shall be designed with a sloped, drip-proof roof. The cubicles must have a door-in-door construction. The outer door shall be a bulkhead type door with three-point latching and vault type handle with provisions for padlocking.

2.06 FACTORY FINISHING

A. All steel parts, shall be cleaned and a zinc-phosphate (outdoor equipment) or iron phosphate (indoor equipment) pre-treatment applied prior to paint application.

B. Paint color shall be ANSI-61 (light gray); TGIC polyester powder, applied electrostatically through air. Following paint application, parts shall be baked to produce a hard durable finish. The average thickness of the paint film shall be 2.0 mils. Paint film shall be uniform in color and free from blisters, sags, flaking and peeling.

END OF SECTION
PART 2 – GENERAL

2.01 SUMMARY

A. Scope: Provide labor, material, equipment, related services, and supervision required, including, but not limited to, manufacturing, fabrication, configuration and installation for low voltage distribution dry-type transformers as required for the complete performance of the Work, as shown on the Drawings, as specified herein.

B. Section includes transformers with a nominal primary and secondary rating of 600 V and less.

C. Buck/boost or auto transformers shall not be permitted on this project.

D. Related Sections: Related sections include, but shall not be limited to, the following:
   1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
   2. Applicable general requirements for electrical Work specified within Division626 Specification Sections apply to this Section.

2.02 REFERENCES

A. General, Publications: The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only. The edition/revision of the referenced publications shall be the latest date as of the date of the Contract Documents, unless otherwise specified.
   1. American Society of Civil Engineers (ASCE)
   2. Canadian Standards Association (CSA)
      a. CSA C22.2 No.47 Air-Cooled Transformer (Dry Type)
      b. CSA C22.1 Canadian Electrical Code, Part I (CEC)
   3. Institute of Electrical and Electronics Engineers (IEEE)
      a. The following IEEE/ANSI standards when referenced in NEMA ST-20 or UL 1561:
         1) C57.94 “Recommended Practice for Installation, Application, Operation, and Maintenance of Dry-Type Distribution and Power Transformers”
         2) C57.96, “IEEE Guide for Loading Dry-Type Distribution and Power Transformers”
3) C57.12.91, "IEEE Standard Test Code for Dry-Type Distribution and Power Transformers"
4) C57.12.01, “IEEE Standard General Requirements for Dry-Type Distribution and Power Transformers Including Those with Solid Cast and/or Resin Encapsulated Windings”

4. International Code Council (ICC):
   a. ICC IBC, "International Building Code."
   c. AC156, “Acceptance criteria for Seismic Certification by Shake Table Testing of Nonstructural Components”

5. International Organization for Standardization (ISO):
   b. ISO 14001, “Environmental management systems -- Requirements with guidance for use”

6. National Electrical Manufacture Association (NEMA)
   a. NEMA ST-20, “Dry Type Transformers for General Application”

7. National Fire Protection Association
   a. NFPA 70, “National Electrical Code (NEC)”
   b. NFPA 70E, Standard for Electrical Safety in the Work Place

8. Occupational Health and Safety Assessment Series (OHSAS)

9. Underwriters Laboratories, Inc. (UL):
   a. UL 1561, Dry-Type General Purpose and Power Transformers
   b. UL50, Enclosures for Electrical Equipment, Non-Environmental Considerations
   c. UL50E, Enclosures for Electrical Equipment, Environmental Considerations
      (Units self-certified to NEMA 250 shall not be accepted – must have Third Party Testing)
   d. UL 969, Marking and Labelling Systems

10. USA Federal Regulations, Policies and Acts
    b. 10 CFR 429, Certification, Compliance, and Enforcement for Consumer Products and Commercial and Industrial Equipment
    c. 10 CFR 431, Energy Efficient Program for Certain Commercial and Industrial Equipment

11. Local Building Codes
    b. California Electrical Code.
2.03 DEFINITIONS

A. Unless specifically defined within the Contract Documents, the words or acronyms contained within this specification shall be as defined within, or by the references listed within this specification, the Contract Documents, or, if not listed by either, by common industry practice.

1. Low-voltage dry-type distribution transformer:
   a. Has an input voltage of 600V or less
   b. Has an output voltage of 600V or less
   c. Covers Step-up and Step-down transformers
   d. Is rated for operation at a frequency of 60 Hz
   e. 15 kVA to 1000 kVA for dry-type units
   f. Is air-cooled; and
   g. Does not use oil as a coolant

PART 3 - PRODUCTS

3.01 MANUFACTURERS

A. Acceptable Products: Energy efficient low voltage distribution transformers specified herein shall be the product of a single manufacturer. Products and manufacturers specified are to establish a standard of quality for design, function, materials, and appearance. Products shall be modified as necessary by the manufacturer for compliance with requirements. Provide the following specified product and manufacturer without exception, unless approved as a substitute by addendum to the Contract Documents prior to the bid date:


3.02 SYSTEM REQUIREMENTS

A. Low Voltage Distribution Transformers are one component of the electrical distribution system in commercial and industrial buildings:

1. The Low Voltage Transformer Manufacturer, when also Over Current Protection Manufacturer, shall supply list of acceptable devices to energize the transformers without nuisance tripping.

2. If manufacturer is not also an over current protection manufacture, then Inrush Data shall be supplied in advance per the following formula, so the inrush can be plotted on breaker and fuse curves from chosen manufacture of those devices

   a. \[ I_{\text{peak (max)}} = 6.45 \times 1000 \times h \times A_c \times (B_r + 2B_m - B_s) / (3.2 \times N \times A_w \times K), \]

   1) \( h \) is the coil electrical height in inches
   2) \( A_c \) is the core area in square inches
   3) \( A_w \) is the mean area of the exciting winding
   4) \( N \) is the number of turns of conductor in the exciting winding
   5) \( B_r \) is the core remnant (residual) in kilogauss
   6) \( B_m \) is the nominal peak operating core induction in kilogauss
3. Low Voltage Transformers shall have IZ levels to allow for Panels Boards AIC levels. Data shall be published by the manufacturer.
   a. Series Ratings of the systems are acceptable.

B. Metering of Low Voltage Transformers:
   1. The CEC requires primary over current protection and line-of-sight disconnect means. Metering for the Low Voltage Distribution Transformer shall be installed at the location of either of these devices, not in or on the transformer itself.
   2. Secondary panel board or Over Current Protection Device (OCPD):
      a. Metering can be added to these devices to obtain the various performance characteristics of the transformer.

C. Arc Flash study must be completed with the following information supplied on the cover:
   1. Available Fault Current – Primary Terminals – Voltage
   2. Available Fault Current – Secondary Terminals Voltage
   3. Available instantaneous Energy Level

D. Transformer shall not be installed in areas that are readily accessible.

3.03 PERFORMANCE REQUIREMENTS

A. The transformer(s) shall be rated as indicated in the following schedule:
   1. Identification Number(s).
   2. Three phase.
   3. kVA Rating (shall be specified on Single Line Diagram on the Drawings.
      a. Secondary
         1) 208Y/120
      b. Primary
         1) 480 Delta
   5. Frequency – 60 Hertz.

B. All insulating materials are to exceed standards and be rated for 220°C UL component recognized insulation system.
   1. Temperature Rise 150°C

C. Maximum Enclosure Temperature shall not exceed 50°C above 40°C Ambient.

D. Transformers shall have minimum Efficiency per DOE 10 CFR 431 NRCan.

E. Sound Level shall be warranted by the manufacturer not to exceed the NEMA ST-20 Table Average Sound Levels Decibels by kVA.
F. Common Mode Noise Attenuation:
   1. Delta to Wye Isolation Transformer, with Secondary Grounded:
      a. With transformers connected under normal, loaded operating conditions, the
         attenuation of line noise shall equal or exceed the following limits: 0 to
         1.5kHZ - 120dB; 1.5kHZ to 10kHZ - 90dB; 10kHZ to 100kHZ - 65dB;
         100kHZ to 1MHZ - 40dB
   2. Any transformer located within 20 feet of a building shall be less than 50db at all
times and not transmit sound or vibration into the building.

G. Transverse Mode Noise Attenuation:
   1. Address with the latest technology of Trans Voltage Surge Suppression, installed
      at the most advantages electrical distribution system locations, i.e., Panels and
      Switchboards
      a. Shall not be installed in Distribution Transformers

3.04 DESIGN AND FABRICATION

A. Transformers shall be designed to withstand Seismic Forces:
   1. Forces without added brackets or braces:
      a. \( Fp/Wp = 2.28 \ G's, (Sds – 1.42) \)
      b. Ground Level or Roof Top installation shall not change values.
   2. Will allow field installed brackets or bracing.
      a. \( Fp/Wp = 304 \ G's, (Sds – 1.90) \)
      b. Ground Level or Roof Top installation shall not change values.
   3. Forces must be verified via Tri-Axial shake table test results in accordance with
      the AC156 test protocol.
   4. Supplier shall upon request provide self-certification of seismic conformance for
      transformers installed at a specific cite (zip code, latitude/longitude, street
      address) per the following building codes.
      a. International Building Code
      b. Uniform Building Code
      c. California Building Code
      d. NFPA 5000 Building Construction
      e. National Building Code of Canada

B. Transformer coils shall be of the continuous wound construction:
   1. Only copper windings shall be permitted.
   2. Shall have wire wrapped with 220°C Insulation material or Higher.
      a. Wire left bare will not be accepted – all conductors must have insulation
         material.

C. All cores to be constructed with low hysteresis and eddy current losses. Magnetic flux
   densities are to be kept well below the saturation point to prevent core overheating

D. Core and Coil assembly shall be impregnated with non-hygrosopic thermosetting
   varnish:
1. Must be a dip and bake system – spray and room cure systems will not be accepted.

E. The core of the transformer shall be visibly grounded to the enclosure by means of a flexible grounding conductor sized in accordance with applicable UL and CEC standards.

F. The completed core and coil shall be bolted to the base of the enclosure but isolated by means of rubber vibration-absorbing mounts. There shall be no metal-to-metal contact between the core and coil and the enclosure except for a flexible safety ground strap.

G. Transformers shall have full capacity primary taps to allow for small changes in voltages. The taps increments shall be between 10 and 15 volts, with a minimum of ONE ABOVE and ONE BELOW.

1. 10 to 15 Volt steps give the following tap percentages:
   a. 120 Volts – 10% - 12.0 Volts
   b. 208 Volts – 5% - 10.4 Volts
   c. 240 Volts – 5% - 12.0 Volts
   d. 277 Volts – 5% - 13.9 Volts
   e. 380 Volts – 2.5% - 9.5 Volts
   f. 400 Volts – 2.5% - 10 Volts
   g. 415 Volts – 2.5% - 10.4 Volts
   h. 480 Volts – 2.5% - 12.0 Volts
   i. 600 Volts – 2.5% - 15.0 Volts

H. Terminals
1. Allow AL9CU Lugs
2. Must have NEMA two-hole configurations
3. Primary terminals must be clearly separate from the secondary terminals
4. Primary terminals must accommodate wire sized for 125% of nameplate current
   a. Provisions for 250% of nameplate current
5. Secondary terminals must accommodate wire sized for 125% of nameplate current
6. XO or HO terminals shall be designed to accommodate wire sized for up to 200% of rated line current.
7. Terminals shall allow for parallel conductors once wire range exceed 400kcmil
8. Terminals shall be located in enclosure to allow for either bottom or side entry. Wiring compartment shall meet NEC bending radius for conductors sized at 125% of nameplate current.
   a. When primary wire is sized for 250% terminals shall comply with ONE BEND access point

I. The transformer enclosures shall be ventilated and be fabricated of heavy gauge, sheet steel construction. The entire enclosure shall be finished utilizing a continuous UL Component Recognized paint process:
2. 600-hour UL Salt Spray Test minimum.
3. Mounting SPECIFIED ON ONE LINE or Panel Schedule.
   a. Floor Mounted
   b. Optional Wall Mounting up to 800 Pounds
   c. Optional Trapeze Mounting up to 1200 Pounds
4. Ventilated Openings shall comply with Type 1
   a. Optional Type 2 rating available using field installed kits
   b. Optional Type 3R rating available using field installed kits
5. Ventilated openings on the Left and/or Right Side will not be accepted.
6. Transformers shall give minimum distance on nameplate from ventilated openings.
   a. Distance shall not be greater than 3.0”
7. Transformers shall give minimum distance on drawings from all sides without ventilated openings.
   a. Distance shall not be greater than ½”
8. Conductors cannot enter the enclosure through front cover ventilation openings – conduit or wire way cut outs must be made in solid areas on the sides or the slotted base as noted on approval drawings.

3.05 MARKINGS AND LABELING

A. All identification, warning labels and nameplates mounted on the exterior shall be resistant to weather, UV, and their intended installation environment.

B. Nameplate shall contain the minimum information required by latest version of NEC and NEMA ST-20 and be part of a UL Component Recognized outdoor marking system

C. Other information shall also be supplied
   1. Efficiency Level @ 35% loading correct for 75°C temperature
   2. DOE 10 CFR 429 Data base identifier
   3. Statement on Nameplate identifying that it is a Distribution Transformer, or why it is not

D. Warning labels and nameplates shall be present at access locations to advise personnel of possible hazards.

PART 4 - EXECUTION

4.01 GENERAL

A. In addition to the requirements specified herein, execution shall be in accordance with the requirements of Specification Section 16010 and Drawings.
B. Examine equipment exterior and interior prior to installation. Report any damage and do not install any equipment that is structurally, moisture, or mildew damaged.

C. Verification of Conditions: Examine areas and conditions under which the work is to be installed, and notify the Contractor in writing, with a copy to the Owner and the Engineer, of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

D. Beginning of the work shall indicate acceptance of the areas and conditions as satisfactory by the Installer.

E. Install equipment in accordance with reviewed product data, final shop drawings, manufacturer’s written instructions and recommendations, and as indicated on the Drawings.

F. Functional testing, commissioning, and first parameter adjusting shall be carried out by a factory trained manufacturer’s representative field service engineer. Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment. Report to the Engineer any discrepancies or issues with the installation.

G. Provide final protection and maintain conditions in a manner acceptable to the manufacturer that shall help ensure that the equipment is without damage at time of Substantial Completion.

4.02 INSTALLATION

A. If transformer needs to be stored, follow manufacture instructions – (storage shall also include after installation, if units are not immediately energized).
   1. During storage make sure all ventilated openings do not allow for dust or other debris to enter transformers.
   2. Transformer cannot be stored outdoors, even if Type 3R, without maintaining uniform temperature above dew point.

B. Mount transformers per drawings, location shall be readily accessible. When mounted on walls, columns, or other support structure in visible site are not required to be readily accessible.
   1. Verify that minimum distance from rear and side are in compliance with manufacture drawings and information on nameplate.

C. Using Flexible raceways, conduits, and connectors – connected in locations identified by manufacture drawings or instruction manuals

D. Land wire on proper terminals, tight all connections via calibrated torque wrench

E. Grounding – comply with Electrical Code and manufacturer’s instructions
   1. Ground Bar or Ground Bus
2. Verify that core assembly is factory grounded to enclosure

F. Bonding – comply with Electrical Code and manufacturer’s instructions

4.03 TESTING

A. Established safety procedures shall be followed including but not limited to: Proper Personal Protective Equipment, accordance with incident energy levels.

B. Megger Transformer to verify all connections are cleared from ground.

C. Take Measurements of Primary Voltages – match nameplate.

D. Take Measurements of Secondary Voltages – match nameplate.

E. With front cover installed verify that the transformer when energized is not emitting excess if noise – contact manufacture if noise is not 120 hertz constant hum.

END OF SECTION

F.

END OF SPECIFICATIONS
# GENERAL CONDITIONS

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ARTICLE 1: CONTRACT DOCUMENTS

1.1 DEFINITIONS

1.1.1 The Contract Documents: The Contract Documents consist of the Agreement between the Owner and the Contractor, the Conditions of the Contract (General Conditions, General Requirements and other Conditions), the Drawings, the Specifications, all Addenda, Supplements, Advertisements for Bids, Invitations to Bid and Proposal Forms issued prior to execution of the Contract and all Modifications issued after the execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a written interpretation issued by the Architect/Engineer pursuant to Subparagraph 3.2.2 or (4) a written order for a minor change in the Work issued on the Owner's behalf pursuant to Paragraph 13.4.1.

1.1.2 The Contract: The Contract Documents form the Contract with the Contractor. This Contract represents the entire and integrated agreement and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification as defined in Subparagraph 1.1.1. The Contract Documents shall not be construed to create any contractual relationship of any kind between the Architect/Engineer and the Contractor or between the Architect/Engineer and the Designated Representative but the Architect/Engineer and the Designated Representative shall be entitled to performance of the obligations of the Contractor intended for their benefit and to enforcement thereof. Nothing contained in the Contract Documents shall create any contractual relationship between the Owner, the Designated Representative or the Architect/Engineer and any Subcontractor or Sub-subcontractor.

1.1.3 The Work: The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or part of the project.

1.1.4 The Project: The "Project" is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner or by separate contractors.

1.1.5 The Owner: As defined in Article 2 of the General Conditions, the Owner for this project is: Santa Barbara County, through its Board of Supervisors

1.1.6 Architect/Engineer: As defined in Article 3 of the General Conditions.

1.1.7 Designated Representative: As defined in Article 4 of the General Conditions, the Designated Representative is also the Labor Compliance Coordinator for the Work.

1.1.8 Contractor: As defined in Article 5 of the General Conditions.

1.1.9 Product: The term "product" shall include materials, equipment and systems.

1.1.10 The Drawings: The Drawings are the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

1.1.11 The Specifications: The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards and workmanship for the Work and performance of related services.

1.1.12 The Project Manual: The Project Manual is the volume usually assembled for the Work which may include the bidding requirements, sample forms, conditions of the Contracts and Specifications.

1.1.13 As Approved: Where used in conjunction with the Designated Representative or the Architect/Engineer's response to submittal's, requests, applications, inquiries, reports and claims by the Contractor, the meaning of the term "approved" shall not exceed the limitations of the Designated Representative or the Architect/Engineer's responsibilities and duties as established in these General Conditions.

1.1.13.1 In no case shall "approval" by the Designated Representative or the Architect/Engineer be interpreted as a release of the Contractor from the responsibilities to fulfill the requirements of the Contract Documents.

1.1.13.2 Approval, where required for an item, shall be obtained from the Architect/Engineer through the Designated Representative in writing.

1.1.14 Indicated: The term "indicated" is a cross reference to details, notes or schedules on the drawings, other paragraphs
or schedules in the Specifications and similar means of recording requirements in the Contract Documents.

1.1.14.1 Where terms such as "shown", "noted", "scheduled", and "specified" are used instead of "indicated", it is for the purpose of helping the reader accomplish the cross reference and no limitation of locations is intended except as specifically noted.

1.1.14.2 Directed, Requested, Etc.: Where not otherwise explained, terms such as "directed", "requested", "authorized", "selected", "approved", "required", "accepted", and "permitted" mean "directed by the Architect/Engineer, Designated Representative or Owner's Representative", "requested by the Architect/Engineer, Designated Representative or the Owner's Representative", etc. However, no such implied meaning will be interpreted to extend to the Architect/Engineer's or Designated Representative's responsibility in the Contractor's area of construction supervision.

1.1.15 Installer: The person or entity engaged by the Contractor or its Subcontractor or Sub-subcontractor for the performance of a particular unit of Work at the project site, including installation, erection, application and similar required operations. It is a General Requirement that installers be recognized as experienced and competent in the Work that they are engaged to perform.

1.1.16 Suitable, Reasonable, Proper, Correct, and Necessary: Such terms shall mean as suitable, reasonable, proper, correct or necessary for the purpose intended as required by the Contract Documents, subject to the judgment of the Architect/Engineer or the Designated Representative.

1.1.17 Including, Such As: The Terms "including" and "such as" shall always be taken in the most inclusive sense, namely, "including, but not limited to", and "such as, but not limited to."

1.1.18 Option: The term "option" shall mean a choice from the specified products which shall be made by the Contractor. The choice is not "whether" the Work is to be performed, but "which" product or "which" procedure is to be used. The product or procedure chosen by the Contractor shall be provided at no increase in the cost to the Owner or the Designated Representative and with no lessening of the Contractor's responsibility for its performance. All or any options selected or proposed are still subject to all requirements for submittals and for approval of same.

1.1.19 Exposed: The term "exposed" shall mean any item or surface, exterior or interior, which can be seen by a person outside the building, or seen by a person inside any usable space within the building during normal activity.

1.1.20 At No Additional Cost: The term "at no additional cost" shall mean at no additional cost to the Owner and at no cost to the Architect/Engineer or the Designated Representative.

1.1.21 Testing Laboratory: An independent entity engaged to perform specific inspections or tests of the Work, either at the project site or elsewhere; and to report and interpret the results of those inspections or tests.

1.1.22 Record Documents: Construction Documents revised to show changes made during the construction process, usually based on marked-up prints, drawings and other data furnished by the Contractor to the Designated Representative.

1.1.23 Compliance Group Representative: The person or entity representing a third-party observer whose sole purpose on the PROJECT is to interview contractor employees, including any subcontractor for prevailing wage compliance consistent with federal and state prevailing wage requirements as set forth in the David-Bacon Act and other related codes, laws or regulations.

1.2 ABBREVIATIONS

1.2.1 The language of the specifications and elsewhere in the Contract Documents is of the abbreviated type in certain instances and implies words and meanings which will be appropriately interpreted.

1.2.2 Actual word abbreviations of a self-explanatory nature have been included in the Specifications and Drawings. These are generally defined in the Specifications Section at the first instance of use of each term so abbreviated. They are generally summarized in a list on the Drawings.

1.2.3 Singular words will be interpreted as plural and plural words will be interpreted as singular where applicable and the full context of the requirements so indicates.
1.3 EXECUTION, CORRELATION AND INTENT

1.3.1 By executing this Agreement, the Contractor represents that he has visited the site, familiarized himself with the local conditions under which the Work is to be performed and correlated its observations with the requirements of the Contract Documents. Claims, as a result of failure to do so, will not be considered.

1.3.2 The contract agreement shall be signed in triplicate by the Owner and Contractor. Original copies are to be provided to Owner, Contractor, and Designated Representative.

1.3.3 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work. The Contract Documents are complementary and what is required by any one shall be as binding as if required by all. Work not covered in the Contract Documents will not be required unless it is consistent therewith and is reasonably inferable therefrom as being necessary to produce the intended results. Words and abbreviations in the Contract Documents which have well-known technical or trade meanings are used in accordance with such recognized meanings.

1.3.4 The organization of the Specification into divisions, sections and articles and the arrangements of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any Trade.

1.3.5 All indications or notations which apply to one or a number of similar situations, materials or processes shall be deemed to apply to all such situations, materials or processes wherever they appear in the Work, unless otherwise indicated in the Contract Documents.

1.3.5.1 Where the word "similar" appears on the drawings, it shall be interpreted in its general sense and not as meaning identical and all details shall be worked out in relations to their location and connection with other parts of the Work.

1.3.5.2 Where, on any drawings, a portion of the Work is drawn out and the remainder is indicated in outline, the parts drawn out shall also apply to parts outlined.

1.3.6 All manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the manufacturer's written or printed directions and instructions unless otherwise indicated in the Contract Documents.

1.3.7 The Contract Documents should be read as one package and are dependent on one another for interpretation. If there is an ambiguity or conflict between documents, the Contractor or its Subcontractor has the duty of inquiring with the Designated Representative and the Architect/Engineer before he bids on the job. Conflicts and discrepancies discovered during the process of the Work shall be referred to the Architect/Engineer and Owner via the Designated Representative for resolution.

1.3.8 Any noted discrepancies between the Contract Documents shall be promptly called to the attention of the Designated Representative and the Architect/Engineer and no Work so affected shall be undertaken in advance of the Designated Representative's and the Architect/Engineer's decision, except at the Contractor's own risk.

1.4 OWNERSHIP AND USE OF DOCUMENTS

1.4.1 Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, up to eight (8) sets of approved Working Drawings and Specifications for the execution of the Work.

1.4.2 All Drawings, Specifications and copies thereof furnished by the Owner are and shall remain its property. They are to be used only with respect to this project and are not to be used on any other project. With the exception of one contract set for each party, such documents are to be returned or suitably accounted for to the Owner on request at the completion of the Work.

ARTICLE 2: OWNER

2.1 DEFINITION

2.1.1 The Owner is the person or entity identified as such in the Agreement between the Owner and the Contractor and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Owner means the Owner or its authorized representative.

2.2 INFORMATION AND SERVICES FURNISHED BY THE OWNER

2.2.1 The Owner will furnish all surveys describing the physical characteristics and approximate known utility locations for the site of the Project.

2.2.2 Except as provided in Subparagraph 5.7.1, the Owner will secure and pay for necessary approvals, easements, assessments and charges required for the construction, use, or occupancy of permanent structures or for permanent changes in existing facilities unless otherwise noted.
2.2.3 Information or services under the Owner's control will be furnished by the Owner with reasonable promptness to avoid delay in the orderly progress of the Work.

2.2.4 The Owner shall forward all instructions to the Contractor through the Designated Representative.

2.2.5 The Owner shall at all times have access to the Work for inspection, wherever it is in preparation or in progress. When directed by the Designated Representative, the Contractor shall provide facilities for such access and inspection at the Contractor's cost.

2.3 DELEGATION

2.3.1 The Board of Supervisors delegates to the County Director of General Services the authority to act on its behalf in the administration of this contract.

2.3.2 The Director of General Services has the authority to change the Designated Representative when the Designated Representative is an employee of the County.

2.3.3 If the Designated Representative is a person or entity other than an employee of the County, the Director of General Services shall recommend to the Board of Supervisors a replacement for the Designated Representative whenever such replacement is in the best interest of the County. An affirmative majority vote by the Board of Supervisors is required to complete the replacement of the Designated Representative.

2.3.4 The Director of General Services may execute Change Orders in accordance with Article 13 in a cumulative amount not to exceed 10% of the first $250,000 of the base contract amount plus 5% of the base contract amount over $250,000, and for time extensions as the director may deem equitable. Any Change Orders in excess of 10% of the first $250,000 of the base contract amount plus 5% of the base contract amount over $250,000 shall be approved by a majority vote of the Board of Supervisors.

2.4 AUTHORITY OF BOARD AND INSPECTION

2.4.1 The Board of Supervisors has the final authority in all matters affecting the work covered by the plans and specifications. Within the scope of the contract, the Designated Representative has the authority to enforce compliance with the plans and specifications. The Contractor shall promptly comply with instructions from the Designated Representative.

2.4.2 On all questions relating to quantities, the acceptability of material, equipment, or work, the execution, progress or sequence of work, and the interpretation of specifications or drawings, the decision of the Designated Representative is final and binding, and shall be precedent to any payment under the contract, unless otherwise ordered by the Board.

2.4.3 Labor Compliance Monitoring: To ensure compliance with prevailing wage requirements in the WORK, the Board of Supervisors has adopted a Joint Labor Compliance Monitoring Program. This program monitors labor compliance by conducting interviews with CONTRACTOR employees and subcontractors at the project site. A copy of the Joint Labor Compliance Monitoring Program is available at the Capital Projects Division Office. A copy of the Joint Labor Compliance Monitoring Program will be provided upon request. The Contractor, and all subcontractors, shall cooperate by allowing approved Compliance Group Representatives access to its employees on the project site for the purpose of conducting prevailing wage compliance interviews. The Compliance Group Representative shall restrict their on-site activities to prevailing wage compliance interviews only. Promotion, advertising or other related activities of the Compliance Group Representative is strictly prohibited. Any additional effort required by the Contractor in compliance with this Article shall be incorporated into the Bid Scope of Work and no additional compensation will be considered.
ARTICLE 3: ARCHITECT/ENGINEER

3.1 DEFINITIONS

3.1.1 The Architect/Engineer is the person lawfully licensed to practice architecture or engineering or an entity lawfully practicing architecture or engineering who has entered into an Agreement with the Owner to serve as Architect/Engineer and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Architect/Engineer means the Architect/Engineer or its authorized representative.

3.1.2 Architect/Engineer shall be entitled to performance by the Contractor of any obligations expressly set forth which are intended for the Architect/Engineer's benefit and to enforcement thereof.

3.1.3 In the case of the termination of the employment of the Architect/Engineer, the Owner shall appoint a capable and reputable Architect/Engineer. The status under the Contract of the Architect/Engineer so appointed shall be that of the former Architect/Engineer. The Owner shall notify the Contractor whenever the Architect/Engineer is replaced.

3.1.4 The Architect/Engineer may be an employee of the County or other governmental entity.

3.2 ARCHITECT/ENGINEER'S DUTIES DURING CONSTRUCTION

3.2.1 The Architect/Engineer shall at all times have access to the Work wherever it is in preparation and progress. When directed by the Designated Representative, the Contractor shall provide facilities for such access at the Contractor's cost so the Architect/Engineer may perform its functions under the Contract Documents.

3.2.2 The Architect/Engineer will be the interpreter of the requirements of the Drawings and Specifications. Written interpretations necessary for the proper execution or progress of the Work, in the form of drawings or otherwise, will be issued with reasonable promptness by the Architect/Engineer through the Designated Representative and in accordance with any schedule agreed upon. The Contractor or Owner shall make written dated request through the Designated Representative to the Architect/Engineer for such interpretations. Such interpretations shall be consistent with and reasonably inferable from the Contract Documents. The Contractor or Owner shall execute and complete the Work in accordance with such interpretations. The Architect/Engineer shall not be liable to the Contractor for the result of any interpretation or decision rendered in good faith in such capacity.

3.2.2.1 The Architect/Engineer shall interpret the requirements of Change Orders and he shall decide all other questions of design intent in connection with the Work.

3.2.2.2 It shall be the responsibility of the Architect/Engineer to make interpretations and render opinions in regard to all claims to the Owner or Designated Representative involving questions of interpretation of the intent of the drawings and specifications. Such opinions and interpretations, together with the reasons therefore, shall be furnished in writing by the Architect/Engineer to the Owner, Designated Representative and Contractor within ten (10) days after a request is made thereof.

3.2.2.3 Neither the Contractor, the Designated Representative nor the Owner shall be bound by any determination, interpretation or opinion of the Architect/Engineer if it is determined that such is not in accord with the true intent of the Contract Documents. The party taking issue with the determination, interpretation, or decision of the Architect/Engineer shall give the other party or parties, as the case may be, written notice of such fact within ten (10) days after the determination, interpretation, or opinion is rendered by the Architect/Engineer. However, it is the intent of this Paragraph 3.2 that in the actual performance of the Work, the Contractor and the Designated Representative shall, in the first instance, proceed in accordance with the instruction given by the Architect/Engineer unless the Owner and the Designated Representative mutually agree that the Contractor and the Designated Representative shall proceed otherwise.

3.2.3 The Architect/Engineer's decisions in matters relating to artistic effect will be final if consistent with the intent of the Contract Documents.

3.2.4 The Architect/Engineer will have the authority to reject Work which does not conform to the Contract Documents. Whenever, in its opinion, he considers it necessary or advisable for the implementation of the intent of the Contract Documents, he will have authority to require special inspection or testing of the Work in accordance with Subparagraph 8.7.2 whether or not such Work be then fabricated, installed or completed. However, neither the Architect/Engineer's authority to act under this Subparagraph 3.2.4, nor any decision made by him in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the Architect/Engineer to the Contractor, any Subcontractor, any of their agents or employees, or any other person performing any of the Work.

3.2.4.1 The Architect/Engineer will be the judge of the performance of the Work and will use its powers under the Contract to enforce its faithful performance. The Architect/Engineer will determine the amount, quality, acceptability and
fitness of all parts of the Work.

3.2.4.2 The Architect/Engineer will recommend suspension of the Work whenever suspension may be necessary to ensure the proper execution of the Work.

3.2.5 The Architect/Engineer will review and approve or take other appropriate action upon Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for conformance with the design concept of the Work and with the information given in the Contract Documents. Such action shall be taken with reasonable promptness so as to cause no delay. The Architect/Engineer approval of a specific item shall not indicate approval of an assembly of which item is a component.

3.2.6 The Architect/Engineer along with the Designated Representative will conduct inspections to determine the dates of Substantial Completion and Final Completion and will receive and review written warranties and related documents required by the Contract and assembled by the Contractor.

3.2.7 Architect/Engineer shall prepare and deliver to the Owner a set of reproducible mylar record construction drawings and record construction specifications showing significant changes in the Work during the construction process based upon marked up prints of drawings and other data provided by the Contractor through the Designated Representative.

3.2.8 The Architect/Engineer will communicate with the Contractor through the Designated Representative.

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

3.2.10 The Architect/Engineer will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility as provided in Paragraph 5.3. The Architect/Engineer will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Architect/Engineer will not have control or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractor, or their agents or employees, or of any other persons performing portions of the Work.

3.2.11 The Architect/Engineer has no authority to issue change orders. All requests for proposals shall be prepared by the Architect/Engineer, shall be approved by the Owner or Director of General Services, and shall be issued to the Contractor through the Designated Representative.

ARTICLE 4: DESIGNATED REPRESENTATIVE

4.1 DEFINITION

4.1.1 The Designated Representative is the person or entity who has been identified in writing by the Owner to serve as Designated Representative and is referred to throughout the Contract Documents as if singular in number and masculine in gender. When the Designated Representative is an entity, other than a singular person, the term Designated Representative includes the Designated Representative acting through its authorized representatives as indicated to the Contractor in writing at the preconstruction meeting or whenever changes in personnel assignments occur.

4.2 ADMINISTRATION OF THE CONTRACT

4.2.1 The Designated Representative will provide, as the Owner's authorized representative, the general administration of the Project as herein described.

4.2.2 The Designated Representative will be the Owner's construction representative during the construction until final payment and shall have the responsibility to monitor the Work of the Contractor.

4.2.3 The Designated Representative shall monitor the Work to be performed through completion. His activities shall in no way supersede or dilute the Contractor's obligation to perform the Work in conformance with all contract requirements, but he is empowered, by the Owner, to act on its behalf with respect to the proper execution of the Work and shall give instructions to require such corrective measures as may be necessary, in its opinion, to ensure the proper execution of the contract or to protect the Owner's interest. The Designated Representative shall have the authority to require prompt execution of Work whenever such action may be necessary, in its opinion, to ensure the proper execution of the Work or to protect the interests of the Owner. Except as otherwise provided herein, the Designated Representative shall determine the amount, quality, acceptability, fitness and progress of the Work covered by the Contract without, however, assuming any of the Architect/Engineer's statutory or customary obligations.

4.2.4 The Designated Representative shall be deemed to be the Owner's Representative to the extent set forth below...
and elsewhere in this Contract. The Designated Representative shall have no authority to obligate or otherwise bind the Owner.

4.2.5 The Designated Representative shall review and monitor the Contractor's Work and construction schedule and establish specific measures and actions which the Contractor shall take to maintain the current approved schedule.

4.2.6 The Designated Representative shall examine the Contractor's Work to determine if the construction conforms to the requirements of this Contract (provided, however, that such action by the Designated Representative shall not supersede or diminish the Contractor's obligation to furnish materials and perform the Work in conformity with all requirements of this Contract).

4.2.7 The Designated Representative shall determine any corrective measures which may be necessary to bring the Contractor's performance into conformity with Contract requirements.

4.2.8 The Designated Representative shall monitor the Contractor's performance in coordinating the Contractor's Work under this Contract with the Work being performed or to be performed by other separate contractors.

4.2.9 The Designated Representative shall assist the Owner and the Architect/Engineer in the resolution of questions of Contract interpretation. If the Contractor either disagrees with the Designated Representative's interpretation or considers that such interpretation constitutes a constructive change in Contract requirements, the question shall be referred to the Owner for contract interpretation.

4.2.10 The Designated Representative shall establish and recommend administrative procedures for coordinating the activities of the Contractor, the Designated Representative, the Architect/Engineer and the Owner.

4.2.11 The Designated Representative shall monitor the Contractor's submittal schedule.

4.2.12 The Designated Representative shall coordinate the activities of the Testing Agencies with the activities of the Contractor.

4.2.13 The Designated Representative shall review all requests or recommendations for changes affecting this Contract, review proposals, assist in negotiating and submit recommendations thereon to the Owner.

4.2.14 The Designated Representative shall make recommendations, together with the Architect/Engineer where appropriate, to the Owner as to the qualifications of Subcontractors or Suppliers wherever submittals of Subcontractors and Suppliers are required to be furnished under this contract.

4.2.15 The Designated Representative shall transmit to the Owner all written guarantees and warranties which the Contractor is required to furnish under this contract.

4.2.16 The Designated Representative may call meetings which shall be attended by the Contractor, Subcontractors and Material Suppliers, as the Designated Representative may deem necessary.

4.2.17 The Designated Representative shall have the authority to reject Work which does not conform to the Contract Documents and to require any Special Inspection and Testing in accordance with Subparagraph 8.7.2.
4.2.18 The Designated Representative shall review all applications by the Contractor for progress payments and final payment and make recommendations to the Architect/Engineer and Owner for approval thereof in accordance with the Owner's procedures.

4.2.19 The Designated Representative along with the Architect/Engineer will conduct inspections to determine the dates of Substantial Completion and Final Completion and will receive and review written warranties and related documents required by the Contract and assembled by the Contractor.

4.2.20 In the event any claim is made or any action brought in any way relating to the design or construction of the Project, the Designated Representative will render to the Owner any and all assistance required of it.

4.2.21 The Owner may, at his option, designate the Designated Representative as its representative to perform additional functions, including functions for which other authorized representatives may be designated by the provisions of this contract.

4.2.22 It shall be the duty of the Contractor to comply with all procedures established and implemented by the Designated Representative and approved by the Owner as stated above. In the event any such procedures are at a variance with other provisions of the Contract Documents, such procedures shall prevail.

4.2.23 The Designated Representative shall, at all times, have access to the Work wherever it is in preparation and progress. When directed by the Designated Representative, the Contractor shall provide facilities for such access so the Designated Representative may perform its functions under the Contract Documents.

4.2.24 In no event shall any act or omission on the part of the Designated Representative relieve the Contractor from its obligation to perform its Work in full compliance with the Contract.

4.3 OWNER'S AND DESIGNATED REPRESENTATIVE'S RIGHT TO STOP WORK

4.3.1 If the Contractor fails to correct defective Work as required by Paragraph 14.2 or persistently fails to carry out the Work in accordance with the Contract Documents, the Designated Representative or the Owner through the Designated Representative may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated.

4.3.1.1 The Contractor shall bear all costs of such Work stoppage unless it is determined that no fault existed in the Contractor's Work. Any Work stoppage for the correction of defective Work or removal and replacement of unacceptable materials and equipment will not be considered as the basis for any time extension.

4.3.2 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Document and fails within 48 hours after receipt of written notice from the Designated Representative to commence and continue correction of such default or neglect with diligence and promptness, the Designated Representative may, by written notice and without prejudice to any other remedy he or the Owner may have, make good such deficiencies. In such case an appropriate Change Order shall be issued deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the Architect/Engineer's and the Designated Representative's additional services made necessary by such default, neglect or failure.

4.3.3 The relationship of the Designated Representative to the Owner may be that of an independent contractor and the Designated Representative shall have no authority to bind the Owner in any way with the Contractor, its subcontractors, materials suppliers or any third parties.

ARTICLE 5: CONTRACTOR

5.1 DEFINITION

5.1.1 A Contractor is the person or entity identified as such in the Agreement between the Owner and a Contractor and is referred to throughout the Contract Document as if singular in number and masculine in gender. The term Contractor means the Contractor or its authorized representative.

5.1.2 It is the duty of the Contractor to comply with all procedures established and implemented by the Designated Representative and approved by the Owner as stated herein.

5.2 REVIEW OF CONTRACT DOCUMENTS

5.2.1 The Contractor shall carefully study and compare the Contract Documents, shall investigate existing site conditions, and shall at once report to the Designated Representative any error, inconsistency or omission he may or reasonably should discover.

5.2.2 All soil and test borehole data, water table elevations, and soil analyses shown on the drawings or included in the specifications apply only at the locations of the test holes and to the depths indicated. Soil test reports for the test holes which have been drilled are available for inspection at the office of the Director of General Services. Any
additional subsurface exploration shall be done by bidders or the Contractor at their own expense.

5.2.3 The indicated elevation of the water table is that existing at the date the test hole was determined. It is the Contractor's responsibility to determine and allow for the elevation of groundwater at the date of project construction. A difference in elevations between groundwater shown in soil boring logs and groundwater actually encountered during construction will not be considered as a basis for extra work.

5.3 SUPERVISION AND CONSTRUCTION PROCEDURES

5.3.1 The Contractor shall supervise and direct the Work, using the best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract.

5.3.1.1 The Designated Representative may reject any means, methods, techniques, sequences or procedures proposed by the Contractor, which might constitute or create a hazard to the Work or to persons or property, or which will not provide Work in accordance with the Contract Documents. However, neither the Designated Representative's acceptance of nor its failure to reject any means, methods, techniques, sequences and procedures shall relieve the Contractor of its responsibilities to safely and properly complete the Work.

5.3.2 The Contractor shall be responsible to the Owner and the Designated Representative for the acts and omissions of its employees and all its Subcontractors and their agents and employees and other persons performing any of the Work under a contract with the Contractor.

5.3.3 Neither observations, inspections, tests or approvals by persons other than the Contractor shall relieve the Contractor from its obligations to perform the Work in accordance with the Contract Documents.

5.3.4 The Contractor shall do and be responsible for the correct horizontal and vertical layout out and completion of the Work as per the drawings and written instruction of the Designated Representative including all necessary leveling and checking. The Contractor shall protect and preserve all permanent survey monuments or bench marks and shall bear the expense of replacing any that may be disturbed without permission of the Designated Representative. Replacement of damaged permanent survey monuments or benchmarks shall be performed by a licensed land surveyor hired by the Owner.

5.3.5 The Contractor shall keep the Designated Representative informed of the plan and progress of its Work. No Work shall be closed or covered until it has been duly inspected and approved. Should uninspected Work be covered, the Contractor shall, at its own expense, uncover all such Work so that it can be properly inspected; and after such inspection, he shall properly repair and replace all such Work.

5.4 LABOR AND MATERIALS

5.4.1 The Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, transportation and other facilities and services necessary for the proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

5.4.1.1 The Contractor shall accept delivery and store, protect and provide security for any Owner-purchased materials, systems and equipment which are a part of the Work until such items are incorporated into the Work. The Contractor shall document receipt of such materials, systems and equipment on forms acceptable to the Designated Representative.

5.4.1.2 The Contractor shall furnish, install, connect, make operable, and test all heating, ventilating and air conditioning equipment, plumbing fixtures, lighting fixtures, kitchen equipment, and any other mechanical or electrical equipment shown on the plans or called for in the specifications or change orders. In connection therewith, the Contractor shall also furnish and install all necessary devices, hardware, and systems required to make said equipment properly and safely operable including, but not limited to, mounting hardware and framing, insulation, vibration control devices, duct systems, gas piping systems, hot and cold water systems, venting ducts, control systems, and electrical circuits.

5.4.1.3 The Contractor shall furnish and install complete utility systems ready for use and shall pay any special fees, permits or assessments required by the serving utility.

5.4.2 The Contractor shall at all times enforce strict discipline and good order among its employees and shall not employ on the Work any unfit person or anyone not skilled in the task assigned to him.

5.4.2.1 Any person employed, who is found to be incompetent, intemperate, troublesome, disorderly or otherwise objectionable, or who fails or refuses to perform its work properly and acceptably, shall be immediately removed from the work by the Contractor and not be re-employed on the work.

5.4.2.2 The Owner may remove and may order the Contractor to remove any person who is incompetent or otherwise objectionable from the site of the Work.

5.4.3 Approval of the Architect/Engineer under any substitution clause shall be obtained in writing before any substitution is made. In the event of the Contractor failing to obtain such approval, no consideration will be given to any appeal
5.4.14 The Contractor shall submit completed Payroll Reporting Forms for all Tradesmen employed on the Work with the monthly Progress Payment Application.

5.4.15 Payroll Reporting Forms shall be the forms prescribed by the Owner or computer generated payroll reporting forms which have been approved in writing by the Owner or the Designated Representative.

5.4.16 The Contractor’s attention is directed to Sections 1777.5, 1777.6, and 1777.7 of the California Labor Code and Title 8, California Administrative Code Section 200 et seq.

5.4.17 To ensure compliance and complete understanding of the law regarding apprentices, and specifically the required ratio thereunder, the Contractor and Subcontractors should, where some question exists, contact the Division of Apprenticeship Standards prior to commencement of the Work. Responsibility for compliance with the law lies with the Contractor.

5.4.18 The Owner’s policy is to encourage the employment and training of apprentices in its construction contracts as may be permitted under local apprenticeship standards.
5.4.19 As required by Section 1773.8 of the California Labor Code, the Contractor shall pay travel and subsistence payments to each worker needed to execute the Work, as such travel and subsistence payments are defined in the applicable collective bargaining agreements filed in accordance with this section.

5.4.20 To establish such travel and subsistence payments, the representative of any craft, classification, or type of workman needed to execute the Work shall file with the Department of Industrial Relations fully executed copies of collective bargaining agreements for the particular craft classification or type of work involved. Such agreements shall be filed within ten (10) days after their execution and thereafter shall establish such travel and subsistence payments whenever filed thirty (30) days prior to the call for bids.

5.4.21 The Contractor shall comply with all applicable provisions of Sections 1810 to 1815, inclusive of the California Labor Code relating to working hours. As a penalty, the Contractor shall forfeit twenty-five dollars ($25.00) for each worker employed in the execution of the Work by the Contractor or by any Subcontractor for each calendar day during which such work is required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week, unless such worker receives compensation for all hours worked in excess of these limits at not less than one and one half (1.5) times the basic rate of pay.

5.5 WARRANTIES AND GUARANTEES

5.5.1 The Contractor, prior to or at the time of Substantial Completion for the Work and during administrative closeout of the project, shall submit three (3) copies of all warranties and guarantees to the Designated Representative for subsequent transmittal to the Architect/Engineer and Owner. All guarantees and warranties shall be in writing on guarantors' stationery or official forms and signed by a responsible company official, and shall be submitted in full force and effect by the Contractor.

5.5.1.1 The Contractor warrants to the Owner and the Designated Representative that all materials and equipment furnished under this contract will be new unless otherwise specified and that all Work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All Work not so conforming to these requirements, including substitutions not properly approved or authorized, shall be considered defective unless specifically accepted by the Owner. If required by the Designated Representative, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty is not limited by the provisions of Paragraph 14.2.

5.5.1.2 The warranty of materials, equipment and workmanship defined in 5.5.1 is separate from, independent of and in addition to any other guarantees in this contract or any other warranties required by the Contract Documents.

5.5.1.3 Except as otherwise specified, all Work shall be guaranteed by the Contractor against defects resulting from the use of inferior materials, equipment or workmanship for one year from the date of Substantial Completion of the Project and acceptance/occupancy by the Owner in writing, provided that if prior to the acceptance of the entire project, the Owner occupies or uses any separate unit of Work, the guarantee period shall, as to the unit so occupied or used, commence on the date of such occupancy or use, with the further provision that the Owner shall have first agreed in writing that the separate unit shall be occupied or used by the Owner until such certificate has been given. Equipment and facilities, which have seasonal limitations on their operations, shall be guaranteed for one full year from the date of test and acceptance in writing by the Owner.

5.5.1.4 If within any guarantee period, repairs or changes are required in connection the guaranteed Work, as the result of the use of materials, equipment or workmanship which are defective or inferior or not in accordance with the terms of the Contract, the Contractor shall, promptly, within 48 hours after receipt of notice from the Designated Representative or Owner and without expense to the Owner or the Designated Representative, commence and continue to effect such repairs or changes.

(a.) The Contractor shall place in satisfactory condition, in every particular, all of such guaranteed Work and correct all defects therein.

(b.) The Contractor shall make good all changes to the structure or site or equipment or contents thereof, which, in the opinion of the Architect/Engineer and the Designated Representative is the result of the use of materials, equipment or workmanship which are inferior, defective or not in accordance with the terms of the Contract. The Contractor shall make good any Work or materials, or the equipment and contents of structures or site disturbed in fulfilling such guarantee.

(c.) Notifications by Owner of defects shall stop the warranty time period. The guarantee or warranty period for that replaced or restored Work shall be reinstated for the remaining time period, starting on the date of acceptance of the replaced or restored Work.

5.5.1.5 In any case, where in fulfilling the requirement of the Contract or of any guarantee embraced in or required thereby, the Contractor disturbs any Work guaranteed under another contract, he shall restore such Work to a condition satisfactory to the Architect/Engineer and the Designated Representative and guarantee such restored Work to the same extent as it was guaranteed under such other contract.

5.5.1.6 If the Contractor, after notice, fails to proceed within 48 hours to commence and continue to comply with the terms of the guarantee, the Owner or Designated Representative may have the defect corrected in which case the Contractor and its surety shall be liable for all expenses incurred.
5.5.1.7 All special guarantees or warranties applicable to definite parts of the Work that may be stipulated in the Specifications or other papers forming a part of the Contract shall be subject to the terms of the Subparagraph 5.5.1.2 during the first year of the life of such special guarantee.

5.5.1.8 Nothing contained in Subparagraph 5.5.1 shall be construed to establish a period of limitation with respect to any other obligation which the Contractor might have under the Contract Documents, including liability for defective Work under Subparagraph 5.5.1. Subparagraph 5.5.1 relates to the specific obligation of the Contractor to correct the Work and does not limit the time within which its obligation to comply with the Contract Documents may be sought to be enforced, nor of the time within which proceedings may be commenced to establish the Contractor's Liability with respect to its other obligations under this contract.

5.5.1.9 In the event the Work of the Contractor is to be modified by another Contractor, either before or after the Inspection provided for in Subparagraph 10.7.1, the first Contractor shall remain responsible in all respects under the warranty given in Paragraph 5.5 and under any other warranties provided in the General Conditions or by law. However, the first Contractor shall not be responsible for any defects in materials or workmanship introduced by the Contractor modifying its Work. Both the first Contractor and the Contractor making the modifications shall be responsible solely for the Work done by each. The Contractor modifying the earlier Work shall be responsible for any damage to or defect introduced into the Work which it is modifying.

5.5.1.10 Warranties and guarantees shall clearly define what is to be guaranteed; the extent, terms, conditions, time and effective dates.

5.5.1.11 Copies of the same warranties and guarantees shall be included in the "Owner's Maintenance Manual" as specified herein.

5.5.2 The Owner shall schedule an end of warranty review meeting with the Designated Representative, Architect/Engineer, and Contractor prior to the end of one year warranty to determine any work requiring correction.

5.6 CONTROL OF OPERATIONS AND EMPLOYEES

5.6.1 The Contractor shall not use any of the existing Owner's facilities, such as, but not limited to, toilets, cafeteria, parking areas, power hookup, except with the Owner's written approval.

5.6.2 The Contractor shall confine and perform its operations in those areas where construction is required. Contractor shall protect the contiguous non-construction property. The Contractor shall protect from damage all existing trees, utilities, or other improvements at the site. Should damage result from the Contractor's failure to exercise reasonable care in the performance of its Work, the Contractor shall repair or restore any such damage at its own expense.

5.6.3 Obnoxious behavior or possession or consumption of alcoholic beverages or drugs on the premises is strictly prohibited. Violators shall be promptly discharged from the site.

5.6.4 All roads, siding and other transportation facilities at the site where Work under the Contract is being performed are for the general use and the Contractor's operations must conform to the regulations of the local authorities. If the Work of a Contractor requires that such facilities be temporarily discontinued, after obtaining Designated Representative's and local authorities' approval, the Work shall be done expeditiously and detour roads, bridges or other temporary structures shall be erected by such Contractor and maintained as directed.

5.6.4.1 To minimize public inconvenience and possible hazards and to restore streets and other work areas to their original condition and former state of usefulness as soon as practicable, the Contractor shall diligently prosecute the work to completion. If, in the Designated Representative's opinion the Contractor fails to prosecute the work to the extent that the above purposes are not being accomplished, the Contractor shall, upon orders from the Designated Representative, immediately take the steps necessary to fully accomplish said purposes. All costs of prosecuting the work as described herein shall be borne by the Contractor. Should the Contractor fail to take the necessary steps to fully accomplish said purposes, after orders of the Designated Representative to do so, the Owner may suspend the work in whole or in part, until the Contractor takes said steps.

5.6.4.2 As soon as possible under the provisions of these specifications, the Contractor shall back fill all excavations and restore to usefulness all improvements existing prior to the start of the work.

5.6.4.3 If work is suspended through no fault of the Owner, all expenses and losses incurred by the Contractor during such suspensions shall be borne by him. If the Contractor fails to property provide for public safety, traffic, and protection of the work during periods of suspension, the Owner may elect to do so, and deduct the cost thereof from monies due the Contractor. Such action will not relieve the Contractor from liability.

5.6.5 The Contractor shall not disturb any existing structure, piping, apparatus or other Work unless expressly required by the contract. Where cutting, drilling or removals are required in existing walls, floor or roof construction, the Work shall be done in such a manner to safeguard and not endanger the structure and shall in all cases be as approved by the Architect/Engineer. Prior to any cutting, drilling or removals, the Contractor shall investigate both sides of the surface involved, shall determine the exact location of adjacent structural members by visual examination and shall avoid interference with such members. No structural members, such as joists, beams or columns supporting
Work that are to remain shall be cut, drilled or removed unless such conditions are shown in detail on the Drawings and reinforcing of members affected or new members to compensate for such cutting, drilling and removals are shown. If unforeseen obstructions are encountered, the Contractor shall take all precautions necessary to prevent damage and shall apply for and obtain full instructions from the Designated Representative, in writing, before proceeding with the Work.

5.6.6 Rights of way or easements for the improvement as shown on the plans will be provided by the Owner. Unless otherwise provided, the Contractor shall make its own arrangements, pay for, and assume all responsibility for acquiring, using, and disposing of additional work areas and facilities temporarily required by him. The Contractor shall indemnify and hold the Owner, Designated Representative, and Architect/Engineer harmless from all claims for damages occasioned by such actions.

5.6.7 The Contractor shall remove and dispose at no cost to the Owner and with the Owner's approval, existing improvements for which no specific disposition is made on the plans but which could interfere with the work.

5.7 PERMITS, FEES AND NOTICES

5.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for all permits including encroachment permits, governmental fees, licenses and inspections necessary for the proper execution and completion of this Work, which are customarily secured after execution of the contract and which are legally required at the time bids or proposals are received.

5.7.1.1 The Project pays County Building Permit Fees.

5.7.1.2 The Owner will pay for building permits required by other governmental entities.

5.7.1.3 The Contractor shall sign for all building permits and shall be responsible for all inspections required.

5.7.2 The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and orders of any public authority bearing on the performance of the Work.

5.7.3 Unless otherwise provided in the Contract Documents, it is the responsibility of the Contractor to make certain that the Contract Documents are in accordance with the applicable laws, statutes, building codes and regulations. If the Contractor observes that any of the Contract Documents are at variance therewith in any respect, he shall promptly notify the Designated Representative in writing and any necessary changes shall be by appropriate Modification.

5.7.4 If the Contractor performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations and without such notices to the Designated Representative he shall assume full responsibility therefore and shall bear all costs attributable thereto.

5.8 ALLOWANCES

5.8.1 The Contractor shall include in the Contract Sum as defined in Subparagraph 10.1.1, all allowances stated in the Contract Documents. Items covered by these allowances shall be supplied for such amounts and by such persons as the Designated Representative may direct, but the Contractor will not be required to employ persons against whom he makes a reasonable objection.

5.8.2 Unless otherwise provided in the Contract Documents, all allowances shall cover the cost to the Contractor, less applicable trade discount, of the materials and equipment required by the allowances delivered at the site and all applicable taxes.

5.8.3 Unless otherwise provided in the Contract Documents, the Contractor's costs for unloading and handling (including hoisting) on the site, labor, installation costs, overhead, profit and other expenses contemplated for the original allowance shall be included in the Contract Sum and not in the allowance.

5.8.4 Unless otherwise provided in the Contract Documents, whenever the cost is more than or less than the allowance, the Contract Sum shall be adjusted accordingly by Change Order, the amount of which recognizes changes, if any, in handling costs on the site, labor, installation costs, overhead, profit and other expenses.

5.9 SUPERINTENDENT

5.9.1 The Contractor shall employ an experienced, competent superintendent and necessary assistants who shall be in attendance at the Project site full time during the progress of the Work until the date of Substantial Completion and for such additional time thereafter as the Designated Representative may deem necessary for the expeditious completion of the Work. The superintendent shall be satisfactory to the Designated Representative and shall not be changed without the consent of the Designated Representative, unless the superintendent proves to be unsatisfactory to the Contractor or ceases to be in its employ. The superintendent shall represent the Contractor and all communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be so confirmed on written request in each case.

5.9.2 The Contractor shall submit a job organization chart and resumes which identify the key personnel he intends to
assign to the project, to the Designated Representative within 48 hours after receipt of the Notice to Proceed. The Owner, acting through the Designated Representative, reserves the right to approve the Contractor's proposed personnel and anyone not so approved shall be immediately replaced by someone acceptable. If in the course of construction, the Owner, on advice of the Designated Representative, determines that it would be in its best interest to request a change in the Contractor's personnel, he may do so; and the Contractor shall immediately assign a suitable replacement who is acceptable to the Owner and the Designated Representative at no additional cost.

5.9.2.1 A duly authorized representative of the Contractor shall be available for emergency telephone communication from the Owner or Designated Representative on a 24 hour basis, seven days a week during the performance of the Work.

5.10 CONSTRUCTION SCHEDULE

5.10.1 Submission of Schedule and Format

5.10.1.1 Within 5 calendar days of the Notice to Proceed, the Contractor shall submit to the Designated Representative a construction Schedule covering the entire project.

5.10.1.2 The Schedule shall be prepared utilizing the critical path method of scheduling. The Schedule will show the Contractor's plan for construction in sufficient detail to indicate the sequence of construction and planned dates for achieving major milestones.

5.10.1.3 The maximum duration for any single activity will be twenty (20) working days, with the exception of "Fabrication and Delivery" activities. Although portions of the Work may take longer than 20 working days, all work shall be presented in the schedule to allow for monitoring of progress through completion of incremental activities with a duration not exceeding 5 days.

5.10.1.4 A sufficient number of activities will be carried in the schedule so that each subcontract subdivision is represented and the planned start and completion of each Subcontractor's Work can be determined.

5.10.1.5 All submittals required by the specifications will be scheduled along with the approval period (fifteen calendar days minimum) and fabrication and delivery periods.

5.10.1.6 The Contractor shall submit to the Designated Representative for approval a hand prepared critical path schedule and bar charts. The hand prepared schedule shall contain the following information and shall be presented in a legible format acceptable to the Designated Representative. In lieu of the hand prepared documents, a computer generated schedule and reports may be submitted.

(a.) The critical path schedule shall indicate for each activity:

- Description
- Original Duration
- Remaining Duration
- Percentage Complete
- Total Float (critical path highlighted)
- Responsibility Code (who will perform the work)
- Early Start/Finish Dates (current update)
- Late Start/Finish Dates (current update)
- Predecessor and Successor Activities to the activity (arrow connections)

(b.) The Contractor shall submit a bar chart schedule listing all activities in the schedule as organized by responsibility, area or date as approved by the Designated Representative. The bar chart shall include all the information listed in paragraph (a.) above for each activity except the listing of predecessor and successor activities.

5.10.1.7 If construction must commence during Schedule preparation and approval period, the Contractor shall prepare a sixty (60) calendar day schedule to cover the initial field construction and submittals. Activities on this Schedule should have maximum durations of five (5) days to allow for monitoring of progress through completion of the incremental activities.

5.10.1.8 The Schedule documents will be submitted in six (6) copies. At the time of submittal, The Contractor's lead on-site manager or superintendent will make a presentation to the Designated Representative on the planned construction sequence/schedule. Within thirty (30) calendar days of receipt, the Designated Representative will notify the Contractor, in writing, as to any objections to the Schedule submitted. If the Schedule is deemed objectionable, the Contractor will have five (5) calendar days from receipt to revise the schedule and resubmit it as above. The Contractor's presentation will include, but not be limited to:

(a.) Describing the sequence and phasing of work.
(b.) Delineating any area subdivision used to plan the work sequence/schedule.
(c.) Identifying the critical path.
(d.) Identifying when the milestone events specified herein are planned to be achieved (earliest and latest times).
(e.) Any plans for shift work, weekend work, or extended work weeks and non-work days (i.e. holidays observed).
(f.) Any planned interruptions of building power, water, communications, or other utilities.
(g.) Any assumptions used in planning and sequencing the work.
(h.) Long lead fabrication items.
(i.) Manpower projections for the project.
(j.) Noise/dust control measures.
(k.) Safety plan.
(l.) Plans for moving materials into the building and removing refuse and debris.
(m.) Any other planning information requested by the Owner or its Designated Representative prior to the presentation.

5.10.2 Updating of the Schedule

5.10.2.1 The Schedule documents will be updated monthly at a minimum to reflect progress through the "Data Date". All contract changes as they are agreed to shall be specifically incorporated into the appropriate Schedule update. The Data Date may be the last working day of the month or it may be the "closure" date of the requisition for payment, as the Contractor may choose and as approved by the Designated Representative. However, when one of the above Data Dates is selected, it will be used throughout the project. The update will be submitted within seven (7) calendar days following the Data Date.

5.10.3 Revision of the Schedule

5.10.3.1 Every effort shall be made by all parties to Work in accordance with the accepted Project Schedule. The Schedule will be revised only if the actual status of Work cannot be brought into conformance with the existing Schedule. If the Schedule is revised, the revised Schedule will be submitted as if any initial Schedule.

5.10.4 Minor Changes of the Schedule

5.10.4.1 The Schedule is not considered to be "revised" if the Contractor must make minor changes, such as:
(a.) Adding additional details to a sub-network to facilitate coordination of subcontract Work.
(b.) Additions/deletions/modifications of Schedule activities to reflect Work added or deleted by change order.

5.10.5 Extensions of Contract Time

5.10.5.1 All claims for extensions to contract time shall be supported by a detailed comprehensive analysis of the accepted Schedule. This analysis shall provide sufficient supporting evidence to justify a time extension. No time claims will be considered without the supporting analysis. If a time extension is granted, it shall be included in the next update of the Schedule.

5.10.6 During Construction

5.10.6.1 Construction milestone event dates will be incorporated into the detailed Construction Schedule as "target dates". These dates will be clearly noted and fixed on the Schedule graphics and corresponding computer file. It is the intent that the Work will be undertaken so as to achieve each target date and thereby achieve overall project completion as specified in the Contract.

5.10.6.2 The milestone event target dates will not be revised unless delays beyond the control of the Contractor occur.

5.10.6.3 If, when the Schedule is updated, the planned dates for achieving any milestone(s) falls more than ten (10) working days behind the target date(s), and if this has occurred through no fault of the Owner, the Architect/Engineer or their consultants, the Contractor may be directed by the Owner or the Designated Representative, to take any and all actions required to bring the actual construction back into accordance with the target dates.

5.10.6.4 When the Contractor falls behind its schedule and is not entitled to any time extension other than extensions already reflected in the current approved schedule, he shall submit its plan for bringing the Work back up to schedule and shall implement the plan. If other measures will not be sufficient to make up the lag, the Contractor's plan and implementation thereof shall include, but not be limited to increasing the number of shifts and days of Work, additional Work, additional equipment, increasing manpower and expediting deliveries, all at the Contractor's sole expense.

5.10.6.5 If the Contractor works overtime, more than forty (40) hours per week, Saturdays, Sundays or holidays; whether by choice or by necessity, the Contractor shall be responsible for the reimbursement of the Owner for additional costs incurred for the Owner's, Designated Representative's and Architect/Engineer's overtime services.

5.10.6.6 In the event the Contractor fails or refuses to implement such measures as will bring its Work back up to conformity with the approved schedule, its right to proceed with any or all portions of the Contract requirements may be canceled or suspended; but permitting the Contractor to proceed shall in no way operate as a waiver of any rights of the Owner or deprive the Owner of its rights under any provisions of this contract.

5.10.6.7 The Contractor shall include milestone activities in the Schedule as applicable to the Work. Milestone events shall
at a minimum include the following:

(a.) Demolition and Excavation complete
(b.) Start foundation concrete
(c.) Complete footings and piers
(d.) Complete all subgrade concrete construction
(e.) Each level's structural slab complete
(f.) Roof level structural slab complete
(g.) Penthouse Level structural slab complete
(h.) Begin structural steel
(i.) Complete structural steel
(j.) Complete decks/structure
(k.) Permanent power available
(l.) Temporary heating/cooling available
(m.) Begin roofing
(n.) Complete roofing
(o.) Begin exterior facades
(p.) Complete exterior facades
(q.) Begin exterior glazing
(r.) Complete exterior glazing
(s.) Building dry-in
(t.) Elevators operational
(u.) Begin mechanical/electrical/plumbing rough-in
(v.) Begin building controls
(w.) Complete building controls
(x.) System start-up
(y.) Begin partition rough-in
(z.) Complete partition rough-in
(aa) Begin drywall
(bb) Begin finishes and millwork
(cc) Complete finishes and millwork
(dd) Begin site work and landscaping
(ee) Complete grading
(ff) Begin underground utilities
(gg) Complete underground utilities
(hh) Complete site paving
(ii) Complete landscaping
(jj) Substantial completion
(kk) Start installation of Owner furnished equipment
(ll) Project complete/beneficial occupancy

5.10.7  Owner Directed Schedule

5.10.7.1 On projects involving extensive coordination between the Contractor and the Owner's ongoing operations, the Owner may issue with the Contract Documents an Owner Directed Schedule which shall be used by the Contractor in preparing its plan of operations. The Contractor shall not deviate from the Owner Directed Schedule without the written prior approval of the Owner or Designated Representative. As indicated in Paragraph 5.10.6, the Contractor may be directed by the Owner or Designated Representative to take any and all actions required to perform the actual construction in accordance with the Owner Directed Schedule and its "target dates".

5.11  SUBMITTAL SCHEDULE

5.11.1 The Contractor shall prepare a schedule of required submittals not later than fourteen (14) days after the receipt of the Notice to Proceed. The schedule shall include a complete list of items requiring shop drawings, design mixes, material certification, product data, brochures, catalog cuts, etc., to be approved by the Architect/Engineer. The Contractor shall coordinate all submittals requiring approvals by code enforcement agencies and shall include these special approvals in the submittal schedule. The schedule is to be submitted on a form approved by the Designated Representative. The schedule shall be updated monthly or as required by the Designated Representative. All shop drawings and other submittals shall be accompanied by a transmittal letter and reference should be indicated to the item numbers of the above mentioned schedule. The Contractor is to indicate the following in its submittal schedule.

(a.) Description of item
(b.) Specification division, page numbers, article and paragraph
(c.) Type of submittal (shop drawings, sample, product data)
(d.) Date that submittal shall be delivered to the Designated Representative's office.
(e.) Date that Contractor must have approval.
(f.) Date that material, equipment must be on site in order to maintain the Contractor's progress schedule.

5.11.2 The Contractor's submittal schedule shall allow reasonable time (15 calendar days minimum) for review by the Designated Representative and the Architect/Engineer, and revision or correction, resubmittal and approval, sufficiently in advance of the time that the item is scheduled for incorporation into the Work.
5.11.3 The Designated Representative and the Architect/Engineer shall review the Contractor's submittal schedule for completeness, fulfillment of Specification requirements and compatibility with the anticipated construction schedule. The sequence and duration of Contractor, Architect/Engineer, Designated Representative activities on the submittal schedule may be adjusted by the Designated Representative.

5.12 DRAWINGS AND SPECIFICATIONS AT THE SITE

5.12.1 The Contractor shall maintain at the site for the Designated Representative and the Architect/Engineer, two (2) copies of all drawings, specifications, addenda, change orders, responses to requests for information, proposals and other modifications, in good order and marked currently to record all changes made during the construction, including any changes in locations, size and arrangement of the various components of the Work or any other variations from the drawings or shop drawings. The Contractor shall mark each drawing as the Work shown thereon is completed in the field, revising any or adding lines, dimensions, elevations, depths, notes or any other information required to accurately record conditions. These drawings, marked to record all changes during the construction and approved shop drawings, product data, samples, addenda, change orders, responses to requests for information, proposals and other records of modifications shall be delivered to the Designated Representative, for the Owner, upon completion of the Work.

5.12.1.1 In addition to maintaining and delivering to the Designated Representative those record drawings required by Subparagraph 5.12.1, the Contractor shall also prepare and submit to the Designated Representative, upon completion of the Work, record reproducible drawings if the technical specifications so require.

5.13 USE OF SITE

5.13.1 The Contractor shall confine operations at the site to areas approved by the Designated Representative, permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with any materials or equipment.

5.13.2 The Contractor shall not disturb existing monuments and markers at the site. Should monuments or markers or both be disturbed at any time by the Contractor, he shall bear the cost of a licensed surveyor engaged by the Owner for the purpose of relocating such monuments or markers.

5.13.3 The Contractor shall lay out its Work and shall be responsible for the accuracy of all lines, elevations and measurements, grading, utilities and other Work executed by him under its Contract. He must exercise proper precaution to verify figures shown on drawing before laying out Work and will be held responsible for any error resulting from its failure to exercise such precaution.

5.13.4 All discrepancies shall be brought to the attention of the Designated Representative in writing for review and direction before proceeding with the Work. Should the Contractor proceed without direction, he shall be responsible to make whatever changes are necessary and pay call costs incurred by that Contractor, the Designated Representative, the Owner or other Contractors.

5.13.5 Any enclosure including safety barricades, perimeter rails, opening covers and devices required to protect the Work, workmen, materials or equipment shall be provided by the Contractor.

5.13.6 Weather protection shall be supplied by the Contractor and shall include all enclosure, supplemental heating and furnishing all other features (insulation, etc.), or meeting conditions required by the Designated Representative or by the specifications relative to the Contractor's Work, to protect the Work and any materials stored on site.

5.13.7 Protection of finished Work until acceptance shall be furnished by the Contractor.

5.14 CUTTING AND PATCHING WORK

5.14.1 The Contractor shall be responsible for all cutting or patching that may be required to complete the Work or to make its several parts fit together properly. He shall provide protection of existing Work as required.

5.14.2 The Contractor shall not damage or endanger any portion of the Work or the Work of any separate contractors by cutting, patching or otherwise altering any Work or by excavation. The Contractor shall not cut or otherwise alter the Work of any separate contractor except with the written consent of the Designated Representative and of such separate contractor. The Contractor shall not unreasonably withhold from any separate contractor its consent to cutting or otherwise altering the Work.

5.14.3 The Contractor shall not cut, weld to or otherwise alter any structural member without the written consent of the Architect/Engineer obtained through the Designated Representative.

5.15 DAILY AND FINAL CLEAN UP

5.15.1 The Contractor shall be responsible for daily and final clean up and continuous removal of all rubbish and debris from the building and site.

5.15.1.1 The Contractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by its operations. At the completion of the Work he shall remove all its waste materials and rubbish from and about
the Project, as well as all its tools, construction equipment, machinery and surplus materials.

5.15.2 The job site shall be maintained in a neat and orderly condition and kept free from accumulations of waste materials and rubbish during the entire construction period. Remove all crates, cartons and other flammable waste materials or trash from the Work areas at the end of each working day to appropriate waste hauling receptacles.

5.15.3 Elevator shafts, electrical closets, pipe and duct shafts, chases, furred spaces and similar spaces which are generally unfinished, shall be cleaned and left free from rubbish, loose plaster, mortar drippings, extraneous construction materials, dirt and dust before Substantial Completion inspection.

5.15.4 The Contractor shall be responsible for the cleaning of all surfaces as necessary to make them free of spatters or other deposits of paint, plaster, mortar, concrete, adhesives, roofing, dirt, soil, oil, and all other materials foreign to the surface involved.

5.16 COMMUNICATIONS

5.16.1 The Contractor shall forward all communications to the Owner and Architect/Engineer through the Designated Representative.

5.16.1.1 The Contractor shall promptly return telephone calls or respond to any other form of communication initiated by the Designated Representative. Failure to promptly do so shall be considered lack of performance on the part of the Contractor.

5.16.1.2 All written correspondence to the Designated Representative shall be dated and signed by the Contractor or its authorized representative.

5.16.2 Weekly project progress review meetings will be conducted with Designated Representative, Architect/Engineer, their consultants as necessary, and Contractor in attendance. The Designated Representative may call for special meetings of the Contractor, Subcontractors and material suppliers as he deems necessary for the proper coordination of the Work. Such meetings shall be held at the job site on regular working days during regular working hours. Unless otherwise directed by the Designated Representative, attendance shall be mandatory for all parties notified to attend the meeting.

5.17 ROYALTIES AND PATENTS

5.17.1 The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner and Designated Representative harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified, but if the Contractor has reason to believe the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Designated Representative.

5.18 INSURANCE

5.18.1 Indemnification

5.18.1.1 CONTRACTOR shall defend, indemnify and save harmless the COUNTY, its officers, agents and employees from any and all claims, demands, damages, costs, expenses (including attorney's fees), judgments or liabilities arising out of this Agreement or occasioned by the performance or attempted performance of the provisions hereof; including, but not limited to, any act or omission to act on the part of the CONTRACTOR or its agents or employees or other independent contractors directly responsible to him; except those claims, demands, damages, costs, expenses (including attorney's fees), judgments or liabilities resulting from the sole negligence or willful misconduct of the COUNTY.

5.18.1.2 CONTRACTOR shall notify the COUNTY immediately in the event of any accident or injury arising out of or in connection with this Agreement.

5.18.2 Insurance Requirements for Contractor

5.18.2.1 Without limiting the CONTRACTOR's indemnification of the COUNTY, CONTRACTOR shall procure the following required insurance coverage's at its sole cost and expense. All insurance coverage's are to be placed with insurers which (1) have a Best's rating of no less than A: VII, and (2) are admitted insurance companies in the State of California. All other insurers require the prior approval of the COUNTY. Such insurance coverage shall be maintained during the term of this Agreement. Failure to comply with the insurance requirements shall place CONTRACTOR in default. Upon request by the COUNTY, CONTRACTOR shall provide a certified copy of any insurance policy to the COUNTY within ten (10) working days.

5.18.2.2 Workers' Compensation Insurance: Statutory Workers' Compensation and Employers Liability Insurance shall cover all CONTRACTOR's staff while performing any work incidental to the performance of this Agreement. The policy shall provide that no cancellation, or expiration or reduction of coverage shall be effective or occur until at least thirty (30) days after receipt of such notice by the COUNTY. In the event CONTRACTOR is self-insured, it shall furnish a copy of Certificate of Consent to Self-Insure issued by the Department of Industrial Relations for the
5.18.2.3 General and Automobile Liability Insurance: The general liability insurance shall include bodily injury, property damage and personal injury liability coverage, shall afford coverage for all premises, operations, products and completed operations of CONTRACTOR and shall include contractual liability coverage sufficiently broad so as to include the insurable liability assumed by the CONTRACTOR in the indemnity and hold harmless provisions [above] of the Indemnification Section of this Agreement between COUNTY and CONTRACTOR. The automobile liability insurance shall cover all owned, non-owned and hired motor vehicles that are operated on behalf of CONTRACTOR pursuant to CONTRACTOR's activities hereunder. CONTRACTORS shall require all subcontractors to be included under its policies or furnish separate certificates and endorsements to meet the standards of these provisions by each subcontractor. COUNTY, its officers, agents, and employees shall be Additional Insured status on any policy. A cross liability clause, or equivalent wording, stating that coverage will apply separately to each named or additional insured as if separate policies had been issued to each shall be included in the policies. A copy of the endorsement evidencing that the policy has been changed to reflect the Additional Insured status must be attached to the certificate of insurance. The limit of liability of said policy or policies for general and automobile liability insurance shall not be less than $1,000,000 per occurrence and $2,000,000 in the aggregate. Any deductible or Self-Insured Retention (SIR) over $10,000 requires approval by the COUNTY.

Said policy or policies shall include a severability of interest or cross liability clause or equivalent wording. Said policy or policies shall contain a provision of the following form: "Such insurance as is afforded by this policy shall be primary and non-contributory to the full limits stated in the declarations, and if the COUNTY has other valid and collectible insurance for a loss covered by this policy, that other insurance shall be excess only."

If the policy providing liability coverage is on a ‘claims-made’ form, the CONTRACTOR is required to maintain such coverage for a minimum of three years following completion of the performance or attempted performance of the provisions of this agreement. Said policy or policies shall provide that the COUNTY shall be given thirty (30) days written notice prior to cancellation or expiration of the policy or reduction in coverage.

5.18.2.4 CONTRACTOR shall submit to the office of the designated COUNTY representative certificate(s) of insurance documenting the required insurance as specified above prior to this Agreement becoming effective. COUNTY shall maintain current certificate(s) of insurance at all times in the office of the designated County representative as a condition precedent to any payment under this Agreement. Approval of insurance by COUNTY or acceptance of the certificate of insurance by COUNTY shall not relieve or decrease the extent to which the CONTRACTOR may be held responsible for payment of damages resulting from CONTRACTOR'S services of operation pursuant to the contract, nor shall it be deemed a waiver of COUNTY’S rights to insurance coverage hereunder. In the event the CONTRACTOR is not able to comply with the COUNTY’S insurance requirements, COUNTY may, at their sole discretion and at the CONTRACTOR’S expense, provide compliant coverage.

5.18.2.5 The above insurance requirements are subject to periodic review by the COUNTY. The COUNTY'S Risk Management is authorized to change the above insurance requirements, with the concurrence of County Counsel, to include additional types of insurance coverage or higher coverage limits, provided that such changes are reasonably based on changed risk of loss or in light of past claims against the COUNTY or inflation. This option may be exercised during any amendment of this Agreement that results in an increase in the nature of COUNTY’s risk and such change of provisions will be in effect for the term of the amended Agreement. Such change pertaining to types of insurance coverage or higher coverage limits must be made by written amendment to this Agreement. CONTRACTOR agrees to execute any such amendment within thirty (30) days of acceptance of the amendment or modification.

5.19 CONTRACTOR QUALITY CONTROL SYSTEM

5.19.1 The Contractor shall provide and maintain an effective quality control program of Contractor inspection system, which will assure that all supplies and services required under the Contract conform to the Contract Documents whether constructed or processed by the Contractor or procured from subcontractors or vendors. The Contractor shall substantiate that all supplies and services conform to the Contract Documents and shall also perform or have performed all inspections and tests otherwise required by the Contract Documents unless the required inspection and test is specifically designated to be performed by the Owner or the Owner's designated representative. Mechanical and electrical personnel, either engineers or highly qualified technicians shall be provided during the testing, balancing, adjusting and regulating mechanical and electrical devices and systems. The Contractor's inspection system shall be documented, as specified herein, and shall be available for review by the Designated Representative prior to the start of construction and throughout the life of the Contract. The Contractor shall notify the Designated Representative in writing of any proposed change to its inspection system and change shall be subject to disapproval if they would, in the opinion of the Designated Representative, result in non-conformance with the Contract requirements. The Contractor's inspection system shall include the minimum requirements stated below. The Contractor's full time job site superintendent may function as the Contractor's Contractor Quality Control representative.

5.19.1.1 Preparatory Inspection: The Contractor's Quality Control organization shall perform prior to the beginning any Work on any definable segment of Work; a review of contract requirements; a check to assure that all materials and equipment have been tested, submitted and approved; a check to assure that provisions have been made to provide required control testing; examination of the Work area to ascertain that all preliminary Work has been completed;
5.19.1.6 The Contractor shall maintain marked-up documents depicting Record Document conditions. These drawings will be maintained in a current condition at all times until completion of the Work and will be available for review by the Designated Representative at all times. All variations from the Contract Documents, for whatever reason, including those occasioned by the required coordination between trades, will be indicated. These variations will be shown in the same general detail utilized in the Contract Documents. Upon Substantial Completion, the marked-up documents shall be furnished to the Designated Representative for delivery to the Owner or the Owner's designated representative. The Contractor shall also furnish Record Documents as provided in the Technical Provisions of the specifications.

5.19.1.7 After the Contract is awarded and before construction operations are started, the Contractor shall meet with the Designated Representative and discuss the inspection system requirements. The meeting shall develop mutual understanding relative to details of the Contractor's Quality Control system including the form to be used for recording the inspection, administration of the system and the interrelationship of the Contractor and the Designated Representative. The Contractor shall furnish to the Designated Representative within five (5) days after receipt of the Notice to Proceed, an inspection system plan which shall include the procedures, instructions and reports to be used. No progress payments will be processed under this Contract until the inspection plan is acceptable to the Owner and the Designated Representative. The Contractor's Quality Control plan documentation will include the following minimum elements:

(a.) The inspection organization.
5.20  COMPLETION INSPECTIONS

5.20.1  Contractor's Quality Control Completion Inspection: Based upon the Designated Representative's concurrence that the Work is nearing Substantial Completion, at least 15 days prior to pre-final inspection, the Contractor's Quality Control Inspection personnel shall conduct a detailed inspection. The Designated Representative shall be notified of the inspection date in order that he may participate, if he so elects. The Work shall be inspected for conformance to plans, specifications, quality, workmanship and completeness. The Contractor shall prepare an itemized list of Work not properly completed, inferior workmanship or not conforming to Contract Documents. The list shall also include outstanding administrative items such as Record Documents, operations and maintenance manuals, spare parts, installed property list, etc. The list shall be included in the Quality Control documentation and submitted to the Designated Representative with an estimated date for correction of each deficiency within five (5) working days after conducting this inspection.

5.20.2  Pre-Final Inspection: The Contractor's Quality Control Inspection personnel, its superintendent, or other primary management person and the Designated Representative will be in attendance at this inspection. Additional Owner personnel, including but not limited to those from the Owner's General Services Department user groups, Board of Supervisors and the Architect/Engineer may be in attendance. The pre-final inspection will be formally scheduled by the Owner or the Designated Representative based upon notice from the Contractor. This notice will be given
5.20.3 Final Acceptance Inspection: The Contractor’s Quality Control Inspection personnel, its superintendent or other primary management persons and the Owner or the Designated Representative will be in attendance at this inspection. Additional Owner personnel including, but not limited to, those from the Owner’s General Services Department, user groups, Board of Supervisors and the Architect/Engineer may also be in attendance. The final acceptance inspection will be formally scheduled by the Owner based upon the Contractor’s written assertion to the Owner that the Work is complete. This notice will be given to the Owner or the Designated Representative at least fifteen (15) days prior to the final acceptance inspection and must include the Contractor’s assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining Work performed under the Contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all Work acceptably complete for this inspection will be cause for the Owner and the Designated Representative to bill the Contractor for any additional inspection costs.

5.21 WARRANTY OF CONSTRUCTION

5.21.1 Performance Bond: The Performance Bond shall remain in effect for a 12 month warranty period after the date of substantial completion, as determined by the County. Extended warranty periods shall be provided under manufacturer warranties, as required by project specifications.

5.21.2 In the event that the Contractor or its designated representative fails to commence and diligently pursue all Work required under Paragraph 5.5 within a reasonable time after receipt of written notification pursuant to the requirements thereof, the Owner or the Designated Representative shall have the right to demand that said Work be performed under the Performance Bond by making written notice on the surety. If the surety fails or refuses to perform the obligation it assumed under the Performance Bond, the Owner or the Designated Representative shall have the Work performed by others, and after completion of the Work, shall make demand for reimbursement of any or all expenses incurred by the Owner while performing the Work, including, but not limited to, administrative personnel.

5.21.3 Warranty repair work which arises to threaten the health or safety of personnel or the safety of property or equipment will be handled by the Contractor on an immediate basis as directed verbally by the Owner or the Designated Representative. Written verification will follow the Owner’s or the Designated Representative’s verbal instructions. Failure of the Contractor to respond as verbally directed will be cause for the Owner or the Designated Representative to have the warranty repair work performed by others and to proceed against the Contractor as outlined in Paragraph 5.21.2 above.

5.21.4 Pre-Warranty Conference: Prior to Substantial Completion and at a time designated by the Owner or the Designated Representative, the Contractor shall meet with the Owner or the Designated Representative to develop a mutual understanding with respect to the requirements of Paragraph 5.5 of this specification. The Owner or the Designated Representative shall establish communication procedures for the Contractor notification of warranty defects, priorities with respect to the type of defect and reasonable time required for the Contractor response and other details deemed necessary by the Owner or the Designated Representative for the execution of the construction warranty. In connection with these requirements, the Contractor will furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and maintain warranty Work action on behalf of the Contractor. This single point of contact will be located within the local service area of the warranted construction and will be responsive to the Owner’s inquiry on warranty Work action and status. This requirement does not relieve the Contractor of any of its responsibilities in connection with Paragraph 5.5.

5.22 SUBCONTRACTS

5.22.1 Each bidder shall file with its bid the name, license number, and the location of the place of business of each subcontractor who will perform work or labor or render service to the Contractor in or about the construction of the work or improvement, or a subcontractor licensed by the State of California who, under subcontract to the Contractor, specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of one percent of the Contractor’s total
bid. Each bidder shall state the portion of the work which will be done by each subcontractor under this act. The Contractor shall list only one subcontractor for each such portion as is defined by the Contractor in its bid.

5.22.2 In each instance, the nature and extent of the work to be sublet shall be described. The failure of the Contractor to specify a subcontractor, or the listing of more than one subcontractor for the same portion of the work, constitutes an agreement by the Contractor that he is fully qualified to perform that portion himself, and that he shall perform that portion himself.

5.22.3 The Contractor must have the written consent of the Owner to substitute a subcontractor other than that designated in the original bid, to permit any subcontract to be assigned or transferred, or to allow a subcontract to be performed by other than the original subcontractor. The Contractor shall submit an acknowledgement signed by the original subcontractor that there is no objection to its replacement by another subcontractor. Any substitution of subcontractors must comply with California Public Contract Code.

5.22.4 Subcontracting of work for which no subcontractor was designated in the original bid, and which is more than one-half of one percent of the work, will be allowed only in cases of public emergency or necessity, and then only after a finding reduced to writing as a public record of the Owner, setting forth the facts constituting the emergency or necessity.

5.22.5 Violation of any of the above provisions will be considered a violation of the Contract, and the Owner may cancel the Contract or assess the Contractor a penalty of not more than 10% of the subcontract involved.

5.22.6 All persons engaged in the work, including subcontractors and their employees, will be considered as employees of the Contractor. He will be held responsible for their work. The Owner will deal directly with, and make all payments to the Contractor.

5.22.7 When subcontracted work is not being prosecuted in a satisfactory manner, the Contractor will be notified to take corrective action. If the Owner so orders, and on receipt by the Contractor of written instructions from the Owner, the subcontractor shall be removed immediately from the work. He shall not again be employed on the work.

5.23 LAWS TO BE OBSERVED

5.23.1 The Contractor shall keep himself fully informed of State and National laws and County and municipal ordinances and regulations which in any manner affect those employed in the work or the materials used in the work or in any way affect the conduct of the work. He shall at all times observe and comply with all such laws, ordinances and regulations.

5.23.2 Santa Barbara County Ordinance 2946 Unlawful Discrimination in Employment Practices: Contractor agrees with the County of Santa Barbara that it will not discriminate against any employee or applicant for employment in violation of any applicable State or Federal laws, rules or regulations which may now or hereafter specifically prohibit such discrimination on such grounds as race, religion, sex, color, national origin, physical handicap when otherwise qualified, Vietnam era veteran/disabled or age. If it is determined by the Board of Supervisors upon recommendation of the Affirmative Action Officer and the County Counsel that during the life of this contract any such unlawful discriminations have occurred, the County Board of Supervisors may forthwith terminate this contract. Contractor further agrees that whether or not the term of this contract is still in existence at the time of final determination of such unlawful discrimination, that it will forthwith reimburse the County for any and all damages, costs and expenses incurred in connection with such unlawful discrimination, including but not limited to damages from loss of Federal or State grants, subventions or loans; costs of processing, investigating and reporting complaints of unlawful discrimination; additional costs or expenses incurred in completion of this agreement by another party if this agreement is terminated before completion; all costs of suit including reasonable attorney's fees incurred in collecting any such damages, costs and expenses; and interest at 7% on all such damages, costs and expenses from the date they are incurred to date of payment.

5.23.2.1 Employment practices shall include, but are not limited to employment, promotion, demotion, transfer, recruitment and advertising for recruitment, layoff or other termination, rates of pay, employee benefits and all other forms of compensation, selection for training and apprenticeship and probationary periods.

5.23.2.2 Contractor further agrees to permit access at all reasonable times and places to all of its records of employment advertising, application forms, tests and all other pertinent employment data and records, to the County of Santa Barbara, its officers, employees and agents for the purpose of investigation to ascertain if any unlawful discrimination as described herein has occurred or is being practiced.

5.23.2.3 Failure to fully comply with any of the foregoing provisions relating to unlawful discrimination in employment practices shall be deemed to be a material breach of this contract.

ARTICLE 6: SUBCONTRACTORS

6.1 DEFINITION

6.1.1 A Subcontractor is a person or entity who has a direct contract with a Contractor to perform any of the Work at the site. The term Subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Subcontractor or its authorized representative.
6.1.2 Nothing in the Contract Documents shall create any contractual relationship between the Owner, the Architect/Engineer or the Designated Representative and any Contractor, any Subcontractor, or any Sub-subcontractor or its authorized representative.

6.2 SUB-CONTRACTUAL RELATIONS

6.2.1 By an appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor, by the terms of the Contract Documents and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these documents, assumes toward the Owner, the Designated Representative or the Architect/Engineer. Said agreement shall preserve and protect the rights of the Owner, the Designated Representative and the Architect/Engineer under the Contract Documents with respect to the Work to be performed by the Subcontractor so that the subcontracting thereof will not prejudice such rights and shall allow to the Subcontractor, unless specifically provided otherwise in the Contractor-Subcontractor agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Documents has against the Owner or Designated Representative. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with its Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the Subcontract, copies of the Contract Documents to which the Subcontractor will be bound by this Paragraph 6.3 and shall identify to the Subcontractor any terms and conditions of the proposed Subcontract which may be at variance with the Contract Documents. Each Subcontractor shall similarly make copies of such Documents to its Subcontractors.

ARTICLE 7: SEPARATE CONTRACTS

7.1 OTHER CONTRACTORS

7.1.1 The Owner reserves the right to let other separate contracts in connection with the Work of the Project. The Contractor shall cooperate with other separate contractors and he shall afford the Designated Representative and other Contractors reasonable opportunity for the introduction and storage of their materials and equipment and execution of their Work and shall properly connect and coordinate its Work with others under the general direction of the Designated Representative. Temporary structures, equipment or materials shall be located where directed by the Designated Representative and if not so located, they shall be moved by the Contractor when directed at no additional cost.

7.2 CONTRACTOR TO INSPECT OTHER WORK

7.2.1 If any part of the Contractor's Work depends, for proper execution or results, upon the Work of the Designated Representative or any separate contractor, the Contractor shall, prior to proceeding with the Work, inspect and measure Work already in place and promptly report to the Designated Representative any discrepancies from the drawings and specifications or defects in such Work that render it unsuitable for such proper execution and results. The Contractor shall submit the report of discrepancies or defects in the form of a written request for information. Failure of the Contractor to so report shall constitute an acceptance of the other contractor's Work as fit and proper to receive its Work, except as to defect which may develop after the execution of its Work.

7.2.2 Copies of Drawings and specifications relating to these separate contracts will be available to the Contractor, upon request, for its information in carrying out the above provisions. The Contractor shall be held responsible for any damage or misfit resulting from its neglect to comply with the foregoing.

7.3 COORDINATION AND COOPERATION

7.3.1 The Contractor shall coordinate Work to be done hereunder with the Work of such other contractors in such manner as the Designated Representative may direct. The Work shall be scheduled and executed at such time and in such a way as to cause the least inconvenience to the Owner and with proper consideration for the rights of other contractors and public. The Contractor shall keep fully informed with the entire operation and install its Work promptly.

7.3.2 If the Designated Representative determines that the Contractor is failing to coordinate its Work with the Work of other contractors as directed, he may, upon written notice to the Contractor recommend the following actions by the Owner:

7.3.2.1 The Owner may withhold any payment otherwise due hereunder until the Designated Representative's directions are complied with by the Contractor.

7.3.2.2 The Owner, through the Designated Representative, may direct other contractors to perform portions of the contract and charge the cost of such Work to the contract amount.

7.3.2.3 The Owner may terminate any and all portions of the contract for the Contractor's failure to perform in accordance with the contract.

7.3.3 If the Contractor notifies the Designated Representative, in writing, that another contractor on this project is failing to coordinate its Work with the Work of this contract, as directed, the Designated Representative will promptly
investigate the charge. If he finds it to be true, he will promptly issue such directions to the other contractor with respect thereto as the situation may require. The Designated Representative shall not, however, be liable for any damages suffered by this contractor by reason of the other contractor's failure to promptly comply with the directions so issued by the Designated Representative or by reason of another contractor's default in performance; it being understood that the Designated Representative does not guarantee the responsibility or continued efficiency of any contractor.

7.3.6 The Contractor shall ensure that all labor employed by him, its agents, or those he assigns for Work on the project shall be in harmony with and be compatible with all other labor being used by the Designated Representative or other Contractors. The Contractor shall observe hours and conditions of labor as directed by Designated Representative and in any event, in compliance with all applicable laws, ordinances and regulations. The Contractor shall coordinate its work with the work of other Contractors, the Owner and the Designated Representative and shall provide adequate information and planning of its work to allow for effective coordination by others with its operations. Whenever the Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of the Work of this contract, the Contractor shall immediately give notice thereof to the Designated Representative. The Contractor shall then confirm the notice, in writing within 24 hours of the giving thereof, and shall include all relevant information with respect thereto. No claims will be accepted for costs incurred as a result of jurisdictional or labor practice disputes.

7.4 OWNER'S RIGHT TO CLEAN UP

7.4.1 If a dispute arises between the separate contractors as to their responsibility for cleaning up as required by Paragraph 5.15, the Owner may clean up and charge the cost thereof to the Contractor responsible therefore as the Owner shall determine to be just.

7.5 DAMAGES TO WORK

7.5.1 Should the Contractor wrongfully cause damage to the Work or property of the Owner or to other Work on the site, the Contractor shall promptly remedy such damage.

7.5.2 Should the Contractor wrongfully cause damage to the Work or property of any other Contractor, the Contractor shall, upon due notice, promptly attempt to settle with the other Contractor by agreement, or otherwise resolve the dispute. If such other Contractor sues the Owner or the Designated Representative or initiates any legal proceeding against the Owner or the Designated Representative on account of any damage alleged to have been caused by the Contractor, the Owner or Designated Representative shall notify the Contractor who shall defend such proceedings at the Contractor's expense and if any judgment or award against the Owner or Designated Representative arises from, the Contractor shall pay or satisfy it and shall reimburse the Owner or Designated Representative for all attorney's fees and court costs which the Owner or Designated Representative has incurred.

7.5.3 Should the Contractor sustain any damage through any act or omission of any other contractor having a contract for the performance of Work upon the site or of Work which may be necessary to be performed hereunder, the Contractor shall have no claim against the Owner, Architect/Engineer, Designated Representative or the Owner's consultants for such damage, but shall have a right to recover such damage from the other contractor as provided herein.

7.5.4 The Contractor shall indemnify and hold the Owner, Architect/Engineer and Designated Representative harmless from any and all claims or judgments for damages and from costs and expenses to which the Owner and Designated Representative may be subjected or which either may suffer or incur by reason of the Contractor's failure to comply with the Designated Representative's directions promptly.

ARTICLE 8: MISCELLANEOUS PROVISIONS

8.1 GOVERNING LAW

8.1.1 This contract shall be governed by the laws of the State of California.

8.2 SUCCESSORS AND ASSIGNS

8.2.1 The Owner and the Contractor each binds himself, its partners, successors, assignees and legal representatives to the other part hereto and to the partners, successors, assignees and legal representatives of such other parties in
respect to all covenants, agreements and obligations contained in the Contract Documents. Neither party to the
Contract shall assign the Contract nor sublet it as a whole without written consent of the other.

8.2.1.1 The Contractor shall not assign any monies due, or to become due, under this Contract without prior written consent
of the Owner obtained through the Designated Representative.

8.3 WRITTEN NOTICE

8.3.1 Written notice shall be deemed to have been duly served if delivered in person to the individual or member of the
firm or entity or to an officer of the corporation for whom it was intended, or if delivered at or sent by the registered
or certified mail to the last business address known to him who gives the notice.

8.4 CLAIMS FOR DAMAGES

8.4.1 Should either party to the Contract suffer injury or damage to person or property because of any act or omission of
the other party or of any of its employees, agents or others for whose acts he is legally liable, claims shall be made
in writing to such other party within a reasonable time after the first observance of such injury or damage.

8.5 PERFORMANCE BOND AND LABOR MATERIAL PAYMENT BOND

8.5.1 The Contractor shall deliver to the Designated Representative, on forms approved by the Designated
Representative and Owner, all executed and Standard Performance Bond and Standard Labor Material Payment
Bond and a one (1) year Maintenance (Warranty) Bond, both with an approved surety acceptable to the Owner or
Designated Representative and each payable in the amount at least equal to one hundred (100%) percent of the
accepted bid as guarantee for the faithful performance of the Contractor and the payment of all persons who have,
and fulfill, contracts which are directly with the successful bidder. The sureties of all bonds shall be of such security
company or companies as are approved by the Designated Representative and the Owner. No Contract shall be
deemed to be in effect until all bonds have been approved.

8.5.2 The insurance and bonding companies providing or underwriting such bonding shall be duly authorized and
registered to do business in the State of California and shall be acceptable to the Owner and the Designated
Representative.

8.5.3 The performance bond required by the Contract Documents shall remain in full force and effect during the warranty
periods required by the Contract so as to give the Designated Representative and Owner recourse on the bond if
the Contractor fails to remedy defects during the warranty period.

8.5.4 The Contractor’s Payment and Performance Bond shall name the Owner as obligee.

8.6 RIGHTS AND REMEDIES

8.6.1 The duties and obligations imposed by the Contract Documents and the rights and remedies available there under
shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or
available by law.

8.6.2 No action or failure to act by the Designated Representative, Architect/Engineer or Contractor shall constitute a
waiver of any right or duty afforded any of them under the Contract Documents nor shall any such action or failure
to act constitute an approval or acquiescence in any breach there under, except as may be specifically agreed in
writing.

8.7 TESTS

8.7.1 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction
require any portion of the Work to be inspected, tested or approved, the Contractor shall give the Designated
Representative timely notice of its readiness so the Architect/Engineer and Designated Representative may observe
such inspection, testing, or approval. The Owner shall bear all costs of such inspections, tests or approvals unless
otherwise provided. The Contractor shall bear all costs of retesting any work failing to pass initial testing.

8.7.2 If the Architect/Engineer or Designated Representative determine that any Work requires special inspection, testing,
or approval which Subparagraph 8.7.1 does not include, he will, through the Designated Representative, instruct
the Contractor to prepare for such special inspection, testing or approval and the Contractor shall give notice as in
Subparagraph 8.7.1. If such special inspection or testing reveals a failure of the Work to comply with the
requirements of the Contract Documents, Contractor shall bear all costs thereof, including compensation for the
Architect/Engineer's and the Designated Representative's additional services made necessary by such failure. If
the Work complies, the Owner shall bear such costs and an appropriate Change Order shall be issued.

8.7.3 Where operating tests are specified, the Contractor shall test its Work as it progresses, on its own account and shall
make satisfactory preliminary tests in all cases before applying to the Designated Representative for official tests.

8.7.4 Official tests shall be made as directed by the Designated Representative, in the manner specified, for the different
branches of the Work or portions thereof. The Contractor shall furnish all materials and apparatus, make
connections and conduct the official test under the observation of the Owner’s independent testing agency where
appropriate. The official test will be conducted in the presence of a representative of the Designated Representative. Should defects appear, they shall be corrected by the Contractor and the official test repeated until the installation is acceptable to the Designated Representative.

8.7.5 Required certificates of inspection, testing or approval shall be secured by the Contractor and promptly delivered by him through the Designated Representative to the Architect/Engineer.

8.7.6 If the Architect/Engineer or Designated Representative is to observe the inspections, tests or approval required by the Contract Documents, he will do so promptly and, where practicable, at the source of supply.

8.7.7 The Contractor shall deliver test samples of any of the materials specified in any of the Sections of the Specifications to the Owner's testing agency. This may apply to materials proposed for use, materials already delivered to the job, or materials already incorporated into the construction.

8.7.8 Neither the observations of the Architect/Engineer or the Designated Representative in their Administration of the Construction Contract, nor inspections, tests or approvals by persons other than the Contractor shall relieve the Contractor from its obligation to perform the Work in accordance with the Contract Documents.

8.7.9 Any materials which fail to meet the requirements of these specifications shall not be used whether or not previously approved by the Architect/Engineer. If they have been delivered to the job, they shall be removed. If they have already been incorporated into the construction, the Designated Representative or Architect/Engineer may order them removed, or, at the discretion of the Owner through the Designated Representative, they may be permitted to remain in place, providing the Contractor agrees to a proper deduction from the contract sum.

8.7.10 The services of a testing and inspection engineer, selected by the Owner, Designated Representative and Architect/Engineer, shall be provided and paid for by the Owner for the tests required in the various sections, unless specifically stated otherwise or due to deficient Work.

8.7.11 No Work of any kind shall be covered or enclosed before it has been tested and approved.
8.8 ORDER OF PRECEDENCE

8.8.1 In the event of any conflict or discrepancy in the provisions of the Contract Documents, the documents shall be interpreted on the basis of the following order or priority:

(a.) Agreement between the Owner and the Contractor
(b.) Addenda, with later date having greater priority
(c.) Special Conditions
(d.) General Requirements and Other Conditions
(e.) Drawings and Specifications

8.8.2 In the case of an inconsistency between Drawings and Specifications or within either Document not clarified by addendum the better quality or greater quantity of Work shall be provided in accordance with the Architect/Engineer's and Designated Representative's interpretation.

ARTICLE 9: TIME

9.1 DEFINITIONS

9.1.1 Unless otherwise provided, the Contract Time is the period of time allotted in the Contract Documents for the Substantial Completion of the Work as defined in Subparagraph 9.1.3 including authorized adjustments thereto.

9.1.2 The date of commencement of the Work is the date established in a Notice to Proceed (NOP) from the Owner.

9.1.3 The Date of Substantial Completion of the Work or designated portion thereof is the date certified by the Architect/Engineer when construction is sufficiently complete in accordance with the Contract Documents, so that the Owner can occupy or utilize the Work or designated portion thereof for the use for which it is intended.

9.1.4 The term Day, as used in the Contract Documents, shall mean calendar day unless otherwise specifically designated.

9.2 PROGRESS AND COMPLETION

9.2.1 All time limits stated in the Contract Documents are of the essence of the Contract.

9.2.2 The Contractor shall begin the Work on the date of commencement as defined in Subparagraph 9.1.2. He shall carry the Work forward expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time. The actual date on which the Contractor starts work will not affect the required time for completion of the work.

9.2.3 The Contractor shall furnish sufficient forces, plant and equipment and shall Work such hours, including night shifts and lawful overtime operations as may be necessary to ensure the execution of the Work in accordance with the Construction Schedule. If, in the opinion of the Designated Representative, the Contractor falls behind the progress schedule, the Contractor shall take such steps as may be necessary to improve its progress and shall submit its plans demonstrating the manner in which the desired rate of progress may be regained. It shall be the responsibility of the Contractor to maintain its schedule so as not to delay the progress of the project. If the Contractor delays the progress of the project, he shall, in order to maintain the overall schedule, take all necessary actions, not limited to an increase in the number of shifts, days of Work and to the extent permitted by law, to institute or increase overtime operations, all without additional cost.

9.2.4 If the Designated Representative determines that the Contractor, without just cause, fails or refuses to employ an adequate working force, or to employ them for a maximum number of hours per day as permitted by law or by shifts of its working forces as would be sufficient, in the opinion of the Designated Representative to complete the Work in accordance with the approved project schedule or within the time to which such completion may be extended, then after formal notice to the Contractor, the Owner shall have the right to complete or to have the Work completed by such means and in such manner, by contract or otherwise, as permitted by law, as the Owner may deem advisable, utilizing for such purpose such of the Contractor's plant, materials, equipment, tools and supplies remaining on the site. Formal notice in this article shall be telegram, or registered letter to the last known business address of the Contractor.

9.2.5 The expense of such completion shall be charged against and deducted out of such money as would have been payable to the Contractor if he had completed the Work; the balance of such moneys, if any, subject to the other provisions of this contract, to be paid to the Contractor without interest after completion. Should the expense of such completion, so certified by the Designated Representative, exceed the total sum which would have been payable under this contract, if the same had been completed by the Contractor or its surety, the surety shall remit such balance due to the Owner upon its demand.

9.2.6 Whether or not the Contractor's right to proceed is terminated, he and its surety will be liable for any damage to the Owner, other Contractors and the Designated Representative from the Contractor's refusal to complete the Work in accordance with the approved progress schedule or within the time for which such completion may be extended. Formal notice in this article shall be by telegram, or registered letter to last known business address of the Contractor.
9.3.7 The permitting of the Contractor or the surety on the performance bond to proceed to complete all Work or any part of it after the date of Substantial Completion or after the date to which the time for Substantial Completion may have been extended, shall in no way operate as a waiver on the part of the Owner of any of its rights hereunder.

9.3.8 In order to expedite the completion of the Contract's Work, the Designated Representative may direct the Contractor to Work on the basis of two (2) shifts instead of one (1) or to take such other measures as he deems necessary to expedite construction. If the need for such direction is not attributable to delays or other fault on the part of the Contractor, the Owner shall pay the Contractor any additional net cost. If, however, the Contractor is behind schedule due to its own delays or other fault on its part and the Designated Representative directs him to Work additional shifts, expedite deliveries or purchase additional materials or equipment in order to bring its Work up to schedule, all additional costs shall be borne by the Contractor.

9.3.9 With the Designated Representative's approval, the Contractor shall suspend any Work that may be subject to damage by climatic conditions. Under such conditions, the Contractor shall take measures to protect the Work and to minimize the impact on the progress of the Work.

9.3 DELAYS AND EXTENSIONS OF TIME

9.3.1 If the Contractor is delayed at any time in the progress of the Work by any act or neglect of the Owner, Designated Representative or the Architect/Engineer or by any employee of either, or by any separate contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in transportation, adverse weather conditions not reasonably anticipated, unavoidable casualties or any causes beyond the Contractor's control, or by delay authorized by the Owner or Designated Representative pending litigation, or by any other cause which the Designated Representative determines may justify the delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Director of General Services may determine.

9.3.2 Any claim for extension of time shall be made in writing to the Designated Representative not more than ten (10) days after commencement of the delay; otherwise, it shall be waived. Any claim for extension of time shall state the cause of the delay and the number of days of extension requested. If the cause of the delay is continuing, only one claim is necessary, but the Contractor shall report the termination of the cause for the delay within ten (10) days after such termination and shall simultaneously make final claim for said delay, otherwise any claim for extension of time based upon that cause shall be waived.

9.3.3 In the event of a delay attributable in part to the Contractor and in part to causes for which the Contractor is not responsible, then provided the Contractor has given proper and timely notice hereunder, the delay shall be equitably apportioned among the parties causing it and the Contractor shall remain liable for the portion not so excused.

9.3.4 If no agreement is made stating the dates upon which interpretations as set forth in Subparagraph 3.2.2 shall be furnished, then no claim for delay shall be allowed on account of failure to furnish such interpretations until fifteen days after written request is made for them and not then, unless such claim is reasonable.

9.3.5 If the Project is delayed as a result of the Contractor's refusal or failure to begin the Work on the date of commencement, as defined in Subparagraph 9.1.2, or its refusal or failure to carry the Work forward expeditiously with adequate forces, equipment, material or other resources, the Contractor shall be liable to the Owner for damages for every day Contractor's scheduled completion is exceeded, provided, however, that such refusal or failure is not the result of a justifiable delay as defined in Subparagraph 9.3.1.

9.3.6 Neither the Owner, Architect/Engineer, nor Designated Representative shall have liability to the Contractor nor to any other Contractor or subcontractor for delay, hindrance or interference in the performance of the Work, however caused, except for delay or hindrance resulting from active interference of the Owner or its representatives in such Contractor's execution of the Work.

9.3.7 In addition to damages, as defined in Subparagraph 9.3.5, the Contractor shall be liable to the Owner for any damages sustained as the result of the Contractor's refusal or failure to perform the Work, provided however that such refusal or failure is not the result of a justifiable delay as defined in Subparagraph 9.3.1.

9.3.8 Contractor shall not request additional time to complete the project because of delays occurring on Sundays or holidays. Neither shall he request additional time for Saturday delays except and unless he can show proof of normally working on Saturdays in order to complete the Work on time.

9.3.9 Anticipated Normal Weather Days: The time estimated by the Contractor for completion of the entire Work ready for use shall include the number of calendar days, for anticipated delays due to normal weather conditions. No time extensions for delays due to weather will be allowed until and unless such delays exceed the time included for normal weather delays of abnormal inclement weather. In case of claims for extension of time because of normal weather delays, such extension of time shall be granted only because such abnormal inclement weather prevented the execution of major items of Work on normal working days. A weather table reflecting the meteorological data from the Santa Barbara area is given following the General Conditions and will be used to determine any contract time extension due to abnormally inclement weather. For the purpose of this contract, "abnormal inclement weather" will be interpreted as the number of days in excess of the normal on which rainfall exceeds 0.01 inch or snow/snow pellets exceed 1.0 inch. Extension of time to complete the project will be based on actual working days, i.e., Saturdays, Sundays and holidays will be considered in granting extension of time.
9.3.10 Liquidated Damages: The Owner will suffer financial loss if the project is not substantially complete on the date set forth in the Contract Documents. The Contractor and its surety shall be liable for and pay to the Owner, hereinafter stipulated as fixed, agreed and liquidated damages for each consecutive calendar day of delay until the Work is substantially complete, the sum noted in the Notice to Bid. The Owner reserves the right to withhold the liquidated damages, incurred because of failure to complete the project on time, from the final payment to the Contractor. The Owner reserves the right to withhold liquidated damages from any progress payments occurring after the contract completion date.

9.3.11 If a suspension of work is ordered by the Designated Representative, due to the failure on the part of the Contractor to carry out orders given or to perform any provision of the contract, the days on which the suspension order is in effect shall be considered working days if such days are working days as defined.

ARTICLE 10: PAYMENTS AND COMPLETION

10.1 CONTRACT SUM

10.1.1 The Contract Sum is stated in the Agreement between the Owner and the Contractor including adjustments thereto and is the total amount payable to the Contractor for the performance of the Work under the Contract Documents.

10.1.2 Payment for work performed or materials furnished under an assessment proceedings contract will be made as provided in the particular proceedings or legislative act under which such contract was awarded.

10.1.3 Whenever any portion of the work is performed by the Owner at the Contractor's request, the cost thereof shall be charged against the Contractor, and may be deducted from any amount due or becoming due from the Owner.

10.2 SCHEDULE OF VALUES

10.2.1 Within fifteen (15) days after award of the contract and at least fifteen (15) days before the first Application for Payment, the Contractor shall submit to the Designated Representative a schedule of values allocated to the various portions of the Work prepared in such a form and supported by such data to substantiate its accuracy as the Designated Representative may require. This schedule, unless objected to by the Designated Representative, shall be used only as a basis for the Contractor's Application for Payment.

10.2.2 The schedule of values shall equal in total the Contract Sum and shall correctly represent a reasonable apportionment of the Contract Sum.

10.2.3 When a bid item is included in the proposal form and subject to the limitation and conditions in the contract documents, the Contractor shall itemize in the schedule of values the costs of mobilization work in advance of construction operations and not directly attributed to any specific bid item. When no such bid item is provided, payment for mobilization costs will be considered in the other items of work.

10.2.4 With said Schedule of Values contractor shall provide to Owner's Designated Representative copies of hourly wage rates for all workers in all trades associated with the job. If, during the course of construction, wage rates change, the contractor shall provide to Owner's Designated Representative copies of revised hourly wage rates the same day as said change is adopted or agreed-upon.

10.3 APPLICATION FOR PAYMENT

10.3.1 The Designated Representative will, after award of the contract, establish a closure date for the purpose of making monthly progress payments. The Contractor may request in writing that such monthly closure date be changed. The Designated Representative may approve such request when it is compatible with the Owner's payment procedures.

10.3.1.1 Each month, the Contractor will make an approximate measurement of the work performed to the closure date and as a basis for making monthly payments, estimate its value based on the contract unit prices or as provided for in the approved schedule of values.

10.3.1.2 At a fixed date each month as established by the Designated Representative during the progress of the Work, the Contractor shall render to the Designated Representative a notarized Application for Payment for a portion of the Contract Price, broken down into the categories itemized in the Contractor's Schedule of Values. The amounts invoiced shall be directly proportional to the percentage of completion of Work in each of the categories at the end of the closure date for the invoice period less any amounts previously invoiced. The Application for Payment shall be made on A.I.A. Document G702 with continuation sheets A.I.A. Document G703, or on other forms approved by the Designated Representative.

10.3.2 The Contractor shall certify monthly that he has made payment due to its Subcontractors and suppliers from the proceeds of prior payments and that he will make timely payments from the proceeds of the progress payment now due to its Subcontractor and suppliers in accordance with the contractual arrangements with them. The Contractor shall submit written certification that all amounts for equipment, materials, labor, union benefits and other services and all other items provided by the month covered by Contractor's invoice have been paid; and proof that Contractor has acquired title to the equipment and materials invoiced the previous month. Partial Waivers of Lien will be
10.3.3 With respect to material purchased during the preceding month by the Contractor as Owner's special purchasing subagent, the Contractor shall provide the Designated Representative with a statement showing the costs of such materials and any state or local sales and use taxes paid by the Contractor in connection with the purchase or use thereof during the preceding month, which statement shall be supported by copies of invoices, receipts, etc., clearly and separately showing the costs of such materials and taxes. This statement shall be filed with the Designated Representative within one month after the purchase of such items.

10.3.4 Unless otherwise provided in the Contract Documents, payment will be made on account of materials or equipment not incorporated in the Work but delivered and suitably stored at the site. Payments made for materials or equipment stored on the site shall be conditioned upon submission by the Contractor of bills of sale or such other procedures satisfactory to the Designated Representative to establish the Owner's title to such materials or equipment or otherwise protect the Owner's interest. Materials invoiced in pay applications, if not stored on site, must be kept stored in a bonded warehouse approved by the Designated Representative.

10.3.5 The Contractor warrants that title to all Work, materials and equipment covered by an Application for Payment will pass to the Owner by incorporation in the construction and upon the receipt of final payment by the Contractor free and clear of all liens, claims, security interests or encumbrances, hereinafter referred to in this Article 10 as "liens" and that no Work, materials or equipment covered by an Application for Payment will have been acquired by the Contractor by any other person performing its Work at the site or furnishing materials and equipment for its Work, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person. All Subcontractors and Sub-subcontractors agree that title will so pass upon their receipt of payment from the Contractor.

10.4 PROGRESS PAYMENTS

10.4.1 If the Contractor has made Application for Payment in accordance with the General Requirements, the Designated Representative will, with reasonable promptness, review and process such Application for Payment in accordance with the Contract. From each progress estimate, five (5%) percent will be deducted and retained by the Owner, and the remainder less the amount of all previous payments will be paid to the Contractor.

10.4.2 No approval of an application for a progress payment, nor any progress payment, nor any partial or entire use or occupancy of the project by the Owner, shall constitute an acceptance of any Work not in accordance with the Contract Documents. Nor shall the same relieve the Contractor or its surety from any obligation under the Contract or the Standard Performance Bond and the Standard Labor and Material Payment Bond.

10.4.3 Except in case of bona fide disputes, or where the Contractor has some other justifiable reason for delay, the Contractor shall pay for all transportation and utility services not later than the end of the calendar month following that in which the contractor has received the Work and/or the materials, together with the materials or equipment to be used therefor. The Contractor shall pay to each of its Subcontractors, not later than the end of the calendar month in which each payment is made to the Contractor, the representative amount allowed the Contractor on account of the Work performed by its Subcontractors, to the extent of each Subcontractor’s interest herein. The Contractor shall, by an appropriate agreement with each Subcontractor, also require each Subcontractor to make payments to its suppliers and sub-subcontractors in a similar manner.

10.4.4 Payment shall not relieve the Contractor from its obligations under the contract; nor shall such payment be construed to be acceptance of any of the work. Payment shall not be construed as the transfer of ownership of any equipment or materials to the Owner. Responsibility of ownership shall remain with the Contractor who shall be obligated to store, protect, repair, replace, rebuild or otherwise restore any fully or partially completed work or structure for which payment has been made; or replace any materials of equipment required to be provided under the contract which may be damaged, lost, stolen or otherwise degraded in any way prior to acceptance of the work under the contract, except as provided in Paragraph 10.7.2.

10.4.4.1 Guarantee periods shall not be affected by any payment but shall commence on the date equipment or material is placed into service at the direction of the Owner. In the event such items are not placed into service prior to partial or final acceptance of the project, the guarantee period will commence on the date of such acceptance.

10.4.4.2 If, within the time fixed by law, a properly executed notice to stop payment is filed with the Owner, due to the Contractor's failure to pay for labor or materials used in the work, all money due for such labor or materials will be withheld from payment to the Contractor in accordance with applicable laws.

10.4.5 Per the California Public Contract Code, upon the Contractor's request, the County will make payment of funds withheld to ensure performance of the Contract if the Contractor deposits in escrow with the Santa Barbara County Treasurer, or with a bank acceptable to the COUNTY/DISTRICT, securities eligible for investment under Government Code Section 16430 or bank or savings and loan certificates of deposit, upon the following conditions:

(a.) The Contractor shall bear the expense of the COUNTY/DISTRICT and the escrow agent, either the County Treasurer or the bank.
Treasure or the bank, in connection with escrow deposit made.

(b.) Securities or certificates of deposit to be placed in escrow shall be of a value at least equivalent to the amount of retention to be paid to the Contractor pursuant to this section.

(c.) The Contractor shall enter into an escrow agreement satisfactory to the COUNTY/DISTRICT which agreement shall include provisions governing inter alia:

(1) the amount of securities to be deposited.
(2) the providing of power of attorney or other documents necessary for the transfer of the securities to be deposited.
(3) conversion to cash to provide funds to meet defaults by the Contractor including, but not limited to, termination of the Contractor's control over the work, stop notices filed pursuant to law, assessment of liquidated damages or other amounts to be kept or retained under the provisions of the contract.
(4) decrease in value of securities on deposit.
(5) the termination of the escrow upon completion of the Contract.

(d.) The Contractor shall obtain the written consent of the surety of such agreement.

10.5 PAYMENTS WITHHELD

10.5.1 The Designated Representative, Architect/Engineer or the Owner may decline approval of an Application for Payment if, in its opinion, the Application is not adequately supported. If the Contractor and the Designated Representative or Owner cannot agree on a revised amount, the Designated Representative shall process the application for the amount he deems appropriate. An amount equaling one hundred fifty (150%) percent of the value of the Work related to any Stop Notice shall be withheld from payments applied for by the Contractor until the Stop Notice is expunged. The Designated Representative may also decline to approve any Applications for Payment or, because of subsequently discovered evidence or subsequent inspections, he may nullify in whole or in part any approval previously made to such extent as may be necessary in its opinion because of:

(a.) Defective Work not remedied.
(b.) Third party claims filed or reasonable evidence indicating probably filing of such claims.
(c.) Failure of the Contractor to make payments properly to Subcontractor or for labor, materials or equipment.
(d.) Reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum.
(e.) Damage to the Designated Representative, the Owner or another contractor working at the Project.
(f.) Reasonable evidence that the Work will not be completed within the Contract Time.
(g.) Persistent failure to carry out the Work in accordance with the Contract Documents.
(h.) The filing of a lien against the Project when lien is caused by the act or inaction of the Contractor or its subcontractor.
(i.) Refusal to follow the Project Safety Program issued as a Contract Document.
(j.) Failure to maintain records as specified.
(k.) Failure to maintain record drawings as specified.
(l.) Failure to secure required building inspections.

10.5.2 When the above grounds in Subparagraph 10.5.1 are removed, payment shall be made for the amounts withheld because of them, but in no case shall interest be paid on amounts withheld by the Owner to the Contractor.

10.6 FAILURE OF PAYMENT

10.6.1 If the Contractor is not paid within sixty (60) days after the Application for Payment is approved for payment by the Designated Representative and has become due and payable, then the Contractor may, upon thirty (30) additional days written notice to the Owner and the Designated Representative, stop the Work until payment of the amount owing has been received. The Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start up, which shall be effected by the appropriate Change Order in accordance with Paragraph 13.3., but in no case shall interest be paid by the Owner to the Contractor.

10.7 SUBSTANTIAL COMPLETION

10.7.1 When the Contractor considers that the Work, or a designated portion thereof which is acceptable to the Owner, is substantially complete as defined in Subparagraph 9.1.3, the Contractor shall prepare for submission to the Designated Representative a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. When the Designated Representative and Architect/Engineer, on the basis of inspection, determine that the Work or designated portion thereof is substantially complete, the Architect/Engineer will then prepare a Certificate of Substantial Completion which shall establish the Date of Substantial Completion, shall state the responsibilities of the Owner, the Designated Representative and the Contractor for security, maintenance, heat, utilities, damage to the Work, insurance and shall fix the time within which the Contractor shall complete the items listed therein. Warranties required by the Contract Documents shall commence on the Date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner, the Designated Representative and the Contractor for their written acceptance of the responsibilities assigned to them in such Certificate. The Owner may retain a sum equal to an amount not to exceed one hundred twenty-five percent (125%) of the estimated cost of completing any unfinished items, separately listed and estimated at the time of substantial
10.7.2 The Owner shall have the right to take possession of and use for any purpose any partially completed portion of the Work. The Designated Representative will give notice to the Contractor of the Owner's intention to take said possession and use. Such possession or use shall not be deemed to be the Designated Representative's acknowledgement of completion and acceptance of said portion of Work.

10.7.2.1 The Owner's taking over and utilizing all or part of any completed facility or appurtenance will relieve the Contractor of responsibility for injury or damage to said completed portions of the improvement resulting from use by the public or from the action of the elements or from any other cause, except injury or damage resulting from the Contractor's operations or negligence. The Contractor will not be required to reclean such portions of the improvements before final acceptance, except for clean up made necessary by its operations. Nothing in this section shall be construed as relieving the Contractor from full responsibility for correcting defective work or materials.

10.7.2.2 In the event the Owner exercises its right to place into service and utilize all or part of any completed facility or appurtenance, the Owner shall assume the responsibility and liability for injury to persons or property arising out of or resulting from the utilization of the facility or appurtenance so placed into service, except for any such injury to persons or property caused by any willful or negligent act or omission of the Contractor, subcontractor, their officers, employees or agents.

10.8 FINAL COMPLETION AND FINAL PAYMENT

10.8.1 Following the Architect/Engineer's issuance of the Certificate of Substantial Completion of the Work or designated portion thereof and the Contractor's completion of the Work, the Contractor shall notify the Designated Representative in writing that the Work will be ready for final inspection and test on a definite date. Notice shall be given at least fifteen (15) days in advance of said date. Designated Representative shall forward the notice to the Architect/Engineer who will attach its endorsement as to whether or not he concurs with the Contractor's statement that the Work will be ready for final inspection or test on the date given, but such endorsement shall not relieve the Contractor of its responsibility in the matter. If the Architect/Engineer concurs that the Work will be ready for final inspection or test on the date given, the Architect/Engineer and the Designated Representative will make such inspection. The Contractor is required to furnish access for the final inspection as provided in Subparagraph 3.2.1. If the Work is found acceptable under the Contract Documents and the Contract fully performed the Designated Representative, upon receipt of a correct final Application for Payment, shall recommend to the Owner that such payment be made.

10.8.2 Neither the final payment nor the remaining retained percentage shall become due until the Contractor submits to the Designated Representative all (1) inspection sign-offs, (2) final certificate of occupancy, (3) an affidavit that all payrolls, bills for materials and equipment and other indebtedness connected with the Work for which the Owner or its property might in any way be responsible, have been paid or otherwise, (4) consent of surety, if any, to final payment and executed "General Release and Lien Waiver and General Guarantee, on forms to be provided by the Designated Representative, (5) if required by the Owner, other data establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of liens arising out of the contract, to the extent and in such form as may be designated by the Owner or Designated Representative. If any Subcontractor refuses to furnish a release or waiver required by the Owner or Designated Representative, the Contractor may furnish a bond satisfactory to the Owner and Designated Representative to indemnify them against any such lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner or Designated Representative all monies that the latter may be compelled to pay in discharging such lien, including all costs and reasonable attorney's fees. Contractor is required to submit all "Record Documents" and operating manuals as required by the Contract Documents prior to the processing of the final payment.

10.8.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by the issuance of Change Orders affecting the final completion, and the Designated Representative so confirms, the Owner shall upon certification by the Designated Representative and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance of Work not fully completed or corrected is less than the retention stipulated in the Contract Documents and if the bonds have been furnished as provided in Paragraph 8.5, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Designated Representative prior to such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

10.8.4 Upon successful completion of the final inspection and Work required by the Contract, acceptance of the same by the Owner and the filing of all affidavits, consents of surety and other data required in Subparagraph 10.8.2 and the submission of all bonds, written warranties and guarantees and of all data documents required for project closeout by the Contract Documents, the Architect/Engineer shall file a written certification of completion with the Owner and with the Designated Representative as to the entire amount of Work performed and compensation earned, including extra Work and compensation therefore. At the expiration of thirty-five (35) days after the Owner's confirmation of such Certificate of Completion or as prescribed by law, the Owner shall pay the Contractor the amount stated therein, less all prior payments and advances, whatsoever, to or for the account of the Contractor except such amounts as are required to be withheld by properly executed and filed notices to stop payment or as may be authorized by the contract to be further retained. All prior estimates and payments including those relating to extra Work shall be subject to correction by this payment, which is throughout the Contract called "Final Payment."
ARTICLE 10: MEASUREMENT OF QUANTITIES FOR UNIT PRICE WORK

10.9

MEASUREMENT OF QUANTITIES FOR UNIT PRICE WORK

10.9.1 General: Unless otherwise specified, quantities of work shall be determined from measurements or dimensions in horizontal planes. However, linear quantities of pipe, piling, fencing, and timber shall be considered as being the true length measured along the longitudinal axis. Unless otherwise provided in the Contract Documents, volumetric quantities shall be the product of the mean area of vertical or horizontal sections and the intervening horizontal or vertical dimension. The planimeter shall be considered an instrument of precision adapted to the measurement of all areas.

10.9.2 Methods of Measurement: Materials and items of work which are to be paid for on the basis of measurement shall be measured in accordance with the methods stipulated in the particular section involved.

10.9.3 Certified Weights: When payment is to be made on the basis of weight, the weighing shall be done on certified platform scales or, when approved by the Designated Representative, on a completely automated weighing and recording system. The Contractor shall furnish the Designated Representative with duplicate licensed weighmaster's certificates showing the actual net weights. The Designated Representative will accept the certificate as evidence of the weights delivered.

10.9.4 Units of Measurement: Measurements shall be in accordance with U. S. Standard Measures. A pound is an avoirdupois pound. A ton is 2,000 pounds avoirdupois. The unit of liquid measure is the U. S. gallon.

10.9.5 Lump Sum Items: Items for which quantities are indicated as "Lump Sum", "L.S.", "Job", or words of like import shall be paid for at the price named. Such payment shall be full compensation for the work named and all work appurtenant thereto required by the contract which is not specifically provided for by other pay items.

10.9.6 Actual Quantities: The quantities listed in the bid schedule will not govern final payment. Payment to the Contractor will be made only for the actual quantities of contract items constructed in accordance with the plans and specifications. Upon completion of the construction, if the actual quantities show either an increase or decrease from the quantities given in the bid schedule, the contract unit prices will prevail subject to the provisions of Article 13.

10.9.7 Waste: Payment will not be made for materials wasted or disposed of in a manner not called for under the Contract. This includes rejected materials not unloaded from vehicles, material rejected after it has been placed and material placed outside of the plan lines. No compensation will be allowed for disposing of rejected or excess material.

ARTICLE 11: PROTECTION OF PERSONS AND PROPERTY

11.1

SAFETY PRECAUTIONS AND PROGRAMS

11.1.1 The Contractor expressly undertakes, both directly and through its Subcontractor, to take every precaution at all times for the protection of persons, including employees and property. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work.
11.1.2 The Contractor shall comply with the provisions of the "Construction Safety Act" and the "Occupational Safety and Health Act of 1970" and the Designated Representative's safety program, as well as all other applicable, Federal, State and local requirements. The Contractor shall submit its safety program to the Designated Representative prior to mobilizing the job and shall be responsible for the safety, efficiency and adequacy of its plant, appliances and methods and for any damage which might result from failure or improper construction, maintenance or operation. The Contractor shall provide a safety report to the Designated Representative on a weekly basis. During the conduct of the Work, the Contractor shall take immediate corrective action, as required upon notification of any deficiencies in safety provisions by the Designated Representative or identification of any deficiencies by Subcontractor personnel.

11.1.3 If the Contractor fails to maintain the safety precautions required by law or directed by the Designated Representative, the Designated Representative may take such steps as necessary and charge the Contractor therefore.

11.1.4 The failure of the Owner to take any such action shall not relieve the Contractor of its obligations in Subparagraph 11.1.1.

11.1.5 The Contractor shall immediately notify the Designated Representative of all accidents and submit a written report describing in detail the circumstances of all accidents within twenty-four (24) hours.

11.1.6 The Contractor alone shall be responsible for the safety, efficiency and adequacy of its plant, appliances and methods and for any damage which may result from their failure or their improper construction, maintenance or operation.

11.2 SAFETY OF PERSONS AND PROPERTY

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

(a.) All employees on the Project and all other persons who may be affected thereby;

(b.) All the Work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of its Subcontractors or Sub-subcontractors; and

(c.) Other property at the site or adjacent thereto, including trees, shrubs, lawns walks, pavements, roadways, structures and utilities not designed for removal, relocation or replacement in the course of construction.

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

11.2.3 The Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards promulgating safety regulations and notifying the Owners and users of adjacent utilities. He shall protect the Owner's property from injury or loss arising in connection with this Contract. He shall adequately protect adjacent property as provided by law and the Contract Documents. He shall provide and maintain all passageways, guard fences, light and other facilities for protection required by public authority, local conditions or any of the Contract Documents. If the Contractor fails to so comply, he shall, at the direction of the Designated Representative, remove all forces from the Project without cost or loss to the Owner or Designated Representative, until he is in compliance.

11.2.4 When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

11.2.5 The Contractor shall notify the Designated Representative of any flammable, combustible and toxic materials intended for use on the project and shall furnish the Designated Representative literature pertinent to the use and control of such materials.

11.2.6 Every employee will be dressed for the Work he performs. Minimum dress will consist of long pants, tee shirt and work shoes. Shorts, cut-offs, "tank-top" shirts or soft-soled shoes will not be permitted.

11.2.7 The Contractor shall promptly remedy all damage or loss (other than damage or loss insured under Paragraph 12.2) to any property, referred to under Articles 11.2.1.2 and 11.2.1.3, caused in whole or in part by the Contractor, its Subcontractors or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable and for which the Contractor is responsible under the Articles 11.2.1.2 and 11.2.1.3, except damage or loss attributable to the acts or omissions of the Owner or Architect/Engineer or anyone directly or indirectly employed by either of them or by anyone for whose acts either of them may be liable and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to its obligations under Paragraph 5.18. The Contractor shall be responsible to the Owner and the Designated Representative for the acts and omissions of all its employees and all Subcontractors, their agents and employees and all other persons performing any of the Work under a contract with the Contractor.
11.2.8 The Contractor and each Subcontractor shall designate a responsible member of its organization at the site to act as its Safety Representative whose duty shall be the prevention of accidents and who shall be responsible to maintain all Safety requirements of the Contractor and shall attend all Project Safety Meetings scheduled by the Contractor. This person shall be the Contractor's or Subcontractor's Superintendent unless otherwise designated by the Contractor in writing to the Designated Representative.

11.2.9 The Contractor shall not load or permit any part of the Work to be loaded so as to endanger safety.

11.2.10 When necessary for the proper protection of the Work, temporary heating of a type approved by the Designated Representative and Architect/Engineer shall be provided by the Contractor unless otherwise specified.

11.3 EMERGENCIES

11.3.1 In an emergency affecting the safety or life of individuals, of the Work, or of adjoining property, the Contractor without special instruction or authorization from the Owner or Designated Representative or Architect/Engineer shall act, at its discretion, to prevent such threatened loss or injury. Also, should he, to prevent threatened loss or injury, be instructed or authorized to act by the Owner or Designated Representative or Architect/Engineer, he shall so act, without appeal. Any additional compensation or extension of time claimed by the Contractor on account of any emergency Work shall be determined as provided by Article 13 - Changes in the Work.

11.3.2 Whenever immediate action is required to prevent impending injury, death, or property damage, and precautions which are the Contractor's responsibility have not been taken and are not reasonably expected to be taken, the Owner or Designated Representative may, after reasonable attempt to notify the Contractor, cause such precaution to be taken and shall charge the cost thereof against the Contractor, or may deduct such cost from any amount due or becoming due from the Owner. The Owner's or Designated Representative's action or inaction under such circumstances shall not be construed as relieving the Contractor or its surety from liability.

ARTICLE 12: UTILITIES

12.1 LOCATION

12.1.1 The Owner will search known substructure records and furnish the Contractor, when requested by the Contractor, with copies of documents which describe the location of utility substructures, or will indicate on the plans for the project those substructures, except for service connections, which may affect the work. Information regarding removal, relocation, abandonment, or installation of new utilities will be furnished to prospective bidders.

12.1.2 Where underground main distribution conduits such as water, gas, sewer, electric power, telephone or cable television are shown on the plans, the Contractor, for the purpose of preparing its bid, shall assume that every property parcel will be served by a service connection for each type of utility.

12.1.3 At least two (2) working days before entering on the work, the Contractor shall request the utility owners whose utilities will be affected by the Contractor's work to mark or otherwise indicate the approximate location of their subsurface facilities including, but not limited to, structures, main conduits and service connections. This requirement will not apply to sewer and storm drain installations where their location and depth are shown on the plans for the project.

12.1.4 It shall be the Contractor's responsibility to determine the location and depth of all utilities, including service connections, which have been marked by the respective utility owners and which he believes may affect or be affected by its operations. If no pay item is provided in the contract for this work, full compensation for such work shall be considered as included in the prices bid for other items of work.

12.2 PROTECTION

12.2.1 The Contractor shall not interrupt the service function or disturb the supporting base of any utility without authority from the utility owner or order from the Designated Representative.

12.2.2 Where protection is required to insure support of utilities located as shown on the plans or in accordance with Paragraph 12.1, the Contractor shall, unless otherwise provided, furnish and place the necessary protection at its expense.

12.2.3 Upon learning of the existence and location of any utility omitted from or shown incorrectly on the plans, or not properly marked, the Contractor shall immediately notify the Designated Representative in the form of a written request for information. When authorized by the Owner, support or protection of the utility will be paid for as provided in Article 13.

12.2.4 The Contractor shall immediately notify the Designated Representative and the utility owner if any utility is disturbed. The Contractor shall bear the costs of repair or replacement of any utility damaged.

12.2.5 When placing concrete around or contiguous to any non-metallic utility installation, the Contractor at its own expense, shall (1) furnish and install a two-inch cushion of expansion joint material or other similar resilient material; or (2) provide a sleeve or other opening which will result in a two-inch minimum clear annular space between the
12.3 **EXCAVATIONS**

12.3.1 For any displacement or excavation of the ground that may be required by any performance under this Contract, the Contractor shall obtain an inquiry identification number by calling Underground Service Alert (USA) 1 (800) 422-4133 or by such other means as may be required; shall conform to all requirements of Government Code Sections 4215 through 4217 regarding any such displacement or excavation, including the payment of any fees required; and shall facilitate performance by the Owner of any obligation required of the County under said sections.

12.3.2 There shall be no performance under this Contract by either party unless and until the provisions of such Sections are complied with and the Designated Representative is notified regarding the compliance.

12.4 **REMOVAL**

12.4.1 Unless otherwise specified, the Contractor shall remove all interfering portions of utilities shown on the plans or indicated in the bid documents as "abandoned" or "to be abandoned in place".

12.4.2 Before starting removal operations, the Contractor shall ascertain from the Designated Representative whether the utility abandonment is complete, and the costs involved in the removal and disposal shall be absorbed in the bid for the items of work necessitating such removals.

12.5 **RELOCATION**

12.5.1 When feasible, the utility owners responsible for utilities within the area affected by the work will complete their necessary installations, relocations, repairs or replacements before commencement of work by the Contractor. When the Contract Documents or plans indicate that a utility installation is to be relocated, altered or constructed by others, the Owner will conduct all negotiations with the utility owners and the work will be done at no cost to the Contractor.

12.5.2 Utilities which are relocated in order to avoid interference with the proposed permanent work shall be protected in their relocated position and the cost of such protection shall be absorbed in the various items of the contract.

12.5.3 After award of the contract, portions of utilities which are found to interfere with the work will be relocated, altered or reconstructed by the utility owners, or the Owner may order changes in the work to avoid interference. Such changes will be paid for in accordance with Article 13.

12.5.4 When the plans or specifications provide for the Contractor to alter, relocate, or reconstruct a utility, all costs for such work shall be included in the bid for the items of work necessitating such work. Temporary or permanent relocation or alteration of utilities requested by the Contractor for its own convenience shall be its responsibility, and he shall make all arrangements and bear all costs.

12.5.5 The utility owner will relocate service connections as necessary within the limits of the work or within temporary construction or slope easements unless otherwise specified. When directed by the Designated Representative, the Contractor shall arrange for the relocation of service connections as necessary between the meter and property line, or between a meter and the limits of temporary construction or slope easements. The relocation of such service connections when not detailed on the plans or in the specifications will be paid for in accordance with provisions of Article 13. Payment will include the restoration of all existing improvements which may be affected thereby. The Contractor may, for its own convenience or to expedite the work, agree with any utility owner to disconnect and reconnect interfering service connections. The Owner will not be involved in any such agreement.

12.6 **DELAYS**

12.6.1 The Contractor shall notify the Designated Representative of its construction schedule insofar as it affects the protection, removal or relocation of utilities. Said notification shall be in writing and shall be included as a part of the construction schedule required in Paragraph 5.10. He shall notify the Designated Representative in writing of any subsequent changes in its construction schedule which will affect the time available for protection, removal or relocation of utilities.

12.6.2 The Contractor will not be entitled to damages or additional payment for delays attributable to utility relocations or alterations if correctly located, noted and completed in accordance with Paragraph 12.1. The Contractor may be given an extension of time for unforeseen delays attributable to utility relocations or alterations not shown or incorrectly shown on the plans, or for unreasonably protracted interference by utilities in performing work correctly shown on the plans. If the Contractor sustains loss due to delays attributable to interferences, relocations or alterations not covered by Paragraph 12.1, which could not have been avoided by the judicious handling of forces, equipment or plant, there shall be paid to the Contractor such amount as the Owner may find to be fair and reasonable compensation for such part of the Contractor's actual loss as was unavoidable.
12.7  COOPERATION

12.7.1  When necessary, the Contractor shall so conduct its operations as to permit access to the work site and provide time for utility work to be accomplished during the progress of the contract work.

ARTICLE 13: CHANGES IN THE WORK

13.1  CHANGE ORDERS

13.1.1  A Change Order is a written order to the Contractor signed by the Owner issued after the execution of the Contract authorizing a change in the Work or an adjustment in the Contract Sum or the Contract Time. The Contract Sum and the Contract Time may be changed only by a Change Order. The County Director of General Services is authorized to execute Change Orders for the Owner in accordance with Article 2.3. A Change Order signed by the Contractor indicates its agreement therewith, including the adjustment in the Contract Sum or the Contract Time, and Contractor agrees that the change in the contract sum and contract time set forth in the Change Order shall constitute the complete compensation and time extension for the change in the work including, but not limited to, Contractor's field and home office overhead, profit, and supervision costs. The Contractor shall not proceed with any change in the Work unless directed in writing by the Designated Representative.

13.1.2  The Owner or Designated Representative, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Time being adjusted accordingly. All such changes in the Work shall be authorized by a Change Order and shall be performed under the applicable conditions of the Contract Documents. Provisions of the Contract shall apply to all changes, modifications and additions with the same effect as if changes were embodied in the base Contract Documents.

13.1.3  A change in the Work may be initiated in one of three ways:

13.1.3.1  A "Request for Quotation" form from the Designated Representative to the Contractor describing the revision to the Work desired. Usually, it is accompanied by revised drawings, sketches or other data.

13.1.3.2  Formal notification from the Contractor documenting a "concealed condition" requesting investigation by the Designated Representative and Architect/Engineer which causes changes in the Contract Documents (and a subsequent Request for Quotation on the revised documents).

13.1.3.3  In response to a Contractor's "Request for Information", the Architect/Engineers' response may include instructions which the Contractor interprets as involving "extra work." In such cases, the Contractor must submit written notice to the Designated Representative requesting review and issuance of an appropriate Request for Quotation. Any other "instruction" given to the Contractor by the Owner, Designated Representative or Architect/Engineer shall require these procedures and as indicated in 13.4.1 below.

13.1.4  The cost or credit to the Owner resulting from changes in the Work, as outlined above, shall be made on the basis of one of the following methods:

(a.) By such applicable unit prices as set forth in the Contract Documents or subsequently agreed upon by both parties to the Contract.

(b.) By a lump sum mutually agreed upon by the Owner and the Contractor.

(c.) The Owner may direct the Contractor through the Designated Representative to proceed with Work on a time and material (T & M) basis, with a not to exceed cost and the Contractor shall keep and present, in such a form as the Designated Representative may direct, a correct account of all costs of the changes together with all vouchers. The costs shall include overhead and profit as subsequently set forth below. These costs then shall be finalized by a Change Order.

(d.) If the parties cannot agree upon a Lump Sum, Unit Pricing or T & M with a not to exceed cost, the Owner may, as recommended by the Designated Representative, issue a written directive Contract Amendment to proceed and the Contractor shall be compensated for the net cost of additional Work. The Contractor shall keep and present in such a form as the Designated Representative may direct a correct account of all costs of the changes together with all vouchers. The costs shall include overhead and profit as subsequently set forth below.

13.1.5  Lump sum prices and compensation for actual net cost plus overhead and profit shall be established as follows:

13.1.5.1  The net cost of Changes in the Work may include all items of labor or material, power tools and equipment actually used, prorate charges for foreman and payroll charges such as Public Liability and Workmen Compensation Insurance. No percentage for overhead, profit and commission shall be allowed on items of premium costs for overtime, social security, old age and unemployment insurance, fringe benefits, and payroll taxes. If deductions are ordered, the credit shall be the net cost. Items considered as overhead shall include insurance, other than that mentioned above, bond or bonds, superintendent, timekeeper, clerks, watchmen, use of small tools, incidental job burdens, transportation, and general offices expense. The percentages for overhead and profit shall be negotiated and may vary according to the nature, extent and complexity of the changed Work (other than those covered by unit prices set forth on the Contract Documents), but in no case shall exceed the following:
(a.) Allowable Mark-ups on Change Orders

Definitions:

Prime Contractor = General Contractor
First Tier Subcontractor = Contractor to the Prime Contractor
Second Tier Subcontractor = Contractor to the First Tier Subcontractor

Case A: For work within the scope of the Change Order performed by forces of the Prime Contractor:
- Overhead: 10% to Prime Contractor only.
- Profit: 5% to Prime Contractor only.
- Commission: No commission to any party.

Case B: For work within the scope of the Change Order performed by forces of the First Tier Subcontractor(s):
- Overhead: 10% to First Tier Subcontractor(s) only.
- Profit: 5% to First Tier Subcontractor(s) only.
- Commission: 5% to Prime Contractor only.

Case C: For work within the scope of the Change Order performed by forces of the Second Tier Subcontractor(s):
- Overhead: 10% to the Second Tier Subcontractor(s) only.
- Profit: 5% to the Second Tier Subcontractor(s) only.
- Commission: 5% to the Prime Contractor.
- 5% to the First Tier Subcontractor(s).
- No commission to Second Tier Subcontractor(s).

(b.) Not more than four (4) mark-ups (Case C), not to exceed the maximum percentages shown above, shall be allowed.

(c.) All Cost Proposals for work shall be submitted to the Designated Representative on the attached document: "County of Santa Barbara General Services/Capital Projects Division Cost Proposal".

13.1.5.2 On proposals covering both increases and decreases in the amount of the contract, overhead, profit and commission shall be allowed on the net increase only as determined above. When the net difference is a deletion, no percentage for overhead profit and commission shall be allowed.

13.1.5.3 Contractor's cost for preparation of change order proposals shall be deemed to be included in amount of change order proposal.

13.1.6 The Contractor shall respond to the Designated Representative's request for a proposal within seven calendar days. In this proposal, the Contractor shall furnish to the Designated Representative an itemized breakdown of the quantities and prices used in computing the value of changes that might be ordered. The Contractor shall submit with its proposal, its request for time extension (if any). If time for completion of the Contractor's Work is not affected by the change, the Contractor shall so state.

13.1.7 In figuring changes, instructions for measurements of quantities set forth in the specifications shall be followed.

13.1.8 After receipt of a proposal with a detailed breakdown, the Designated Representative shall act promptly thereon. However, when the necessity to proceed with a change does not allow sufficient time to properly check a proposal, the Owner through the Designated Representative may order the Contractor to proceed on the basis to be determined at the earliest practicable date. In this event, the value of the change, with the corresponding equitable adjustment to the contract, shall not be more than the increase or less than the decrease proposed.

13.1.9 The Designated Representative will inform the Contractor and the Contractor will inform the Designated Representative when either party recognizes that a proposed Request for Quotations (RFQ) may affect the progress of the Work schedule.

13.1.10 Designated Representative's Audit: Designated Representative's duly authorized auditors shall have access at all reasonable times, to all Contractor's and Subcontractors' personnel, books, records, correspondence, instructions, plans, drawings, receipts, vouchers and memoranda of every description pertaining to Change Orders for the purpose of auditing and verifying Contractor's net cost of Change Order or for any other reasonable purpose. Designated Representative's auditors shall have the right to reproduce any of the aforesaid documents. Contractor shall preserve and shall cause its Subcontractors to preserve all the aforesaid documents for a period of two (2) years after the completion and acceptance or termination of the Work.

13.1.11 If unit prices are stated in the Contract Documents or subsequently agreed upon and if the quantities originally contemplated are so changed in a proposed Change Order, that application of the agreed unit prices to the quantities of Work proposed will cause substantial inequity to the Owner, the Contractor or the Subcontractor, the applicable unit prices shall be equitably adjusted.
13.3.1    If the Contractor claims that any instructions given to him by the Owner or Designated Representative or by the Architect/Engineer, by drawings or otherwise, involve extra Work not covered by the Contract, he shall give the Designated Representative written notice thereof within ten (10) days after the receipt of such instructions and before proceeding to execute the Work, except in emergencies endangering life or property, in which case the Contractor shall proceed in accordance with Paragraph 11.3. Should it not be clear to the Contractor that a change will involve extra Work, written notice given within ten (10) days that the change may involve extra work will be considered sufficient notice. If it is later determined that the Work involved in such instruction shall be recognized as an extra, the amounts of additional compensation to be paid therefore, should be determined in accordance with Paragraph 13.1. Except as otherwise specifically provided, no claim for additional cost shall be allowed unless the notice specified by this Subparagraph is given by the Contractor or unless such Work is performed as provided in Subparagraph 13.1.4. Any change in the contract sum resulting from such claim shall be authorized by agreement amendment.

13.3.2 If the Contractor claims that additional cost is involved because of, but not limited to, (1) written interpretation issued pursuant to Subparagraph 3.2.2, (2) any order by the Owner or Designated Representative to stop the Work pursuant to Paragraph 4.3 where the Contractor was not at fault, or (3) any written order for a minor change in the Work issued pursuant to Paragraph 13.4, the Contractor shall make such claims as provided in Subparagraph 13.3.1.

13.3.2.1 Any claim for damages of any character, delays for which the Owner is liable under the Contract Documents, extra work or extra compensation of any other nature, shall be waived unless notice thereof is given to the Owner, in writing, within ten (10) days after the initial occurrence of the first event, which is relied upon to justify the claim or within such time as the event should have reasonably been discovered by the Contractor and in any event, before extra cost is incurred.

13.3.2.2 Any claim for a delay for which the Owner is liable will not be allowed where there is a concurrent delay that is the responsibility of the Contractor.

13.3.2.3 No claim for damages of any character due to delays caused by adverse weather, acts of God, strikes, fire or unavoidable casualties will be allowed. The Contractor shall bear the expenses related to additional time granted for "force majeure" events.

13.3.2.4 The written notice of potential claim shall set forth the reasons for which the Contractor believes additional compensation will or may be due, the nature of the costs involved, and, insofar as possible, the amount of the potential claim. The said notice as above required must have been given to the Designated Representative prior to the time that the Contractor shall have performed the work giving rise to the potential claim for additional compensation, if based on an act or failure to act by the Designated Representative, or in all other cases within ten (10) days after the happening of the event, thing or occurrence giving rise to the potential claim. It is the intention of this paragraph that differences between the parties arising under and by virtue of the contract be brought to the attention of the Designated Representative at the earliest possible time in order that such matters may be settled, if possible, or other appropriate action promptly taken. The Contractor hereby agrees that he shall have no right to additional compensation for any claim that may be based on any such act, failure to act, event, thing or occurrence for which no written notice of potential claim as herein required was filed.

13.4 MINOR CHANGES IN THE WORK

13.4.1 The Architect/Engineer will have the authority to order, through the Designated Representative, minor changes in the Work not involving an adjustment in the Contract Sum or an extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order and such changes shall be binding on the Owner, the Designated Representative and the Contractor. The Contractor shall carry out such written orders promptly.
ARTICLE 14: UNCOVERING AND CORRECTION OF WORK

14.1 UNCOVERING OF WORK

14.1.1 If any portion of the Work should be covered contrary to the request of the Owner through the Designated Representative or Architect/Engineer, or to requirements specifically expressed in the Contract Documents, it shall, if required in writing by the Designated Representative, be uncovered for their observation and replaced, at the Contractor's expense.

14.1.2 If any other portion of the Work has been covered which neither the Designated Representative nor the Architect/Engineer has specifically requested to observe prior to being covered, the Architect/Engineer or Designated Representative, with written approval of the Owner, may request to see such work and it shall be uncovered by the Contractor. If such work is found in accordance with the Contract, the cost of uncovering and replacement shall, by an appropriate Change Order, be charged to the Owner, as the case may be. If such Work is found not in accordance with the Contract Documents, the Contractor shall pay such costs unless it is found that this condition was caused by a separate contractor employed as provided in Article 7 and in that event, the separate contractor shall be responsible for payment of such costs.

14.2 CORRECTION OF WORK

14.2.1 The Contractor shall promptly correct all Work rejected by the Architect/Engineer or the Designated Representative as defective or as failing to conform to the Contract Documents whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear all costs of correcting such rejected Work, including compensation for the Architect/Engineer’s and Designated Representative’s additional services made necessary thereby.

14.2.2 Notwithstanding acceptance of the Work by the Owner, if any of the Work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Designated Representative to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. This obligation shall survive the termination of the Contract. The Designated Representative shall give such notice promptly after discovery of the condition.

14.2.2.1 If, within one (1) year after the Date of Substantial Completion of the Work or the designated portion thereof, or within one (1) year after acceptance by the Owner of designated equipment or within such longer period of time as may be prescribed by law or by the terms of any applicable special warranty required by the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner or Designated Representative to do so unless the Owner or the Designated Representative has previously given the Contractor written acceptance of such condition. This obligation shall survive the termination of the Contract. The Owner or Designated Representative shall give such notice promptly after discovery of the condition.

14.2.3 The Contractor shall remove from the site all portions of the Work which are defective or nonconforming and which have not been corrected under Subparagraph 5.5.1, 14.2.1 and 14.2.2 unless removal has been waived by the Owner.

14.2.4 If the Contractor fails to correct the defective or nonconforming Work as provided in Subparagraph 5.5.1, 14.2.1 and 14.2.2, the Owner may correct it in accordance with Subparagraph 4.3.2.

14.2.5 If the Contractor does not proceed with the correction of such defective or nonconforming Work within a reasonable time fixed by written notice from the Designated Representative, the Owner may remove it and may store the materials or equipment at the expense of the Contractor. If the Contractor does not pay the cost of such removal and storage within ten (10) days thereafter, the Owner may, upon ten (10) additional days written notice, sell such Work at auction or at private sale and shall account for the net proceeds thereof, after deducting all costs that should have been borne by the Contractor, including compensation for the Designated Representative’s additional services made necessary thereby. If such proceeds of sale do not cover all costs, which the Contractor should have borne, the difference shall be charged to the Contractor and the appropriate Change Order shall be issued. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

14.2.6 The Contractor shall bear the cost of making good all Work of the Owner or other contractors destroyed or damaged by such removal or correction.

14.2.7 Nothing contained in this Paragraph 14.2 shall be construed to establish a period of limitation with respect to any other obligation which the Contractor might have under the Contract Documents, including Paragraph 5.5 hereof. The establishment of the time period of one (1) year after the Date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any warranty required by the Contract Documents, relates only to the specific obligation of the Contractor to correct the Work and has no relationship to the time within which its obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor’s liability with respect to its obligations other than specifically to correct the Work.

14.3 ACCEPTANCE OF DEFECTIVE OR NONCONFORMING WORK
14.3.1 If the Owner prefers to accept defective or nonconforming Work, he may do so instead of requiring its removal and correction, in which case a Change Order will be issued to reflect reduction in the Contract Sum where appropriate and equitable. Such adjustment shall be affected whether or not Final Payment has been made.

ARTICLE 15: TERMINATION OF THE CONTRACT

15.1 TERMINATION BY THE CONTRACTOR

15.1.1 If the Work is stopped under an order of any court or other public authority having jurisdiction for a period of three (3) months, through no fault of the Contractor or a Subcontractor or their agents or employees or any other person performing any of the Work under a contract with the Contractor, or if the Designated Representative should arbitrarily fail to issue any certificate for payment within a reasonable time after it is due, or if the Owner should fail to pay within sixty (60) days, any sum certified by the Designated Representative to the Contractor, he may, upon thirty (30) additional days written notice by the Contractor, stop Work or terminate the Contract and recover from the Owner payment for all Work executed and for any proven loss sustained upon any materials, equipment, tools, construction equipment and machinery.

15.2 TERMINATION BY THE OWNER

15.2.1 If the Contractor is adjudged bankrupt or if he makes a general assignment for the benefit of its creditors or if a receiver is appointed on account of its insolvency, or if he persistently or repeatedly refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he fails to make prompt payment to Subcontractors or for materials or labor, or persistently disregards laws, ordinances, rules regulations, orders of any public authority having jurisdiction, or otherwise is guilty of a substantial violation of a provision of the Contract Documents, then the Owner may, without prejudice to any right or remedy and after giving the Contractor and its surety, ten (10) days written notice, terminate the employment of the Contractor and take possession of the site and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor and may finish the Work by whatever method he may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the Work is finished.

15.2.1.1 If the unpaid balance of the Contract Sum exceeds the costs of finishing the Work, including compensation for the Designated Representative’s additional services made necessary thereby, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner.

15.2.2 The expenses incurred by the Owner or Designated Representative and the damage incurred through the Contractor’s default shall be certified by the Architect/Engineer.

15.2.3 The Owner may terminate the contract at its own discretion or when conditions encountered during the work make it impossible or impracticable to proceed, or when the Owner is prevented from proceeding with the contract by act of God, by law, or by official action of a public authority.

ARTICLE 16: PROJECT REQUIREMENTS

16.1 PROJECT REPORTS

16.1.1 Contractor Reports: Immediately after the contract is awarded, a meeting will be scheduled at the project site to review project procedures, designation of name and title of the authorized person or persons, representing the Contractor and responsible for the project management and field operation, designation of Emergency Contact, designation of representative for progress meetings, the requirements for daily, weekly and monthly reports and other submittals required to perform and administer the project. Without limiting the reports required, several reports are indicated below with their requirements:

16.1.2 Daily Force and Activity Reports: The Contractor shall prepare and submit to the Designated Representative, including similar data for each of its Subcontractors, a Daily Force and Activity Report. This report shall be on a form approved by the Designated Representative and shall indicate all Supervisors, Journeymen, Laborers or Helpers and, by crew, the activities, related to the Contractor’s schedule, that are being performed. The Daily Force and Activity Report shall include information on material deliveries, tests, weather conditions and other significant events. Each Daily Force and Activity Report shall be delivered to the Designated Representative at the job site by 9:00 a.m. on the next succeeding business day.

16.1.3 Daily Change Documentation: The Contractor shall submit to the Designated Representative for review and verification, separate daily documentation of any “Change in the Work” being performed on any basis, other than agreed upon lump sum, as described in Article 13 of the General Conditions. This report shall be on a form approved by the Designated Representative. The Contractor shall certify the accuracy of this report.

16.1.4 Safety Reports: The Contractor shall submit to the Designated Representative copies of all accident reports and weekly minutes/reports of Safety Program “Tool Box” meeting and other safety information.
16.1.5 Material Status Reports: The Contractor shall prepare a Materials Status Report not later than fifteen (15) calendar days after the Notice to Proceed. The report shall include a complete list of suppliers, items to be purchased from them, the fabricator and manufacturer, the time required and the promised delivery dates for each item. This report shall be updated and submitted with the payment requisition monthly as an integral part thereof and more frequently as requested by the Designated Representative.

16.1.6 Purchase Orders: A copy of each purchase order as issued by the Contractor shall be furnished to the Designated Representative, except that prices may be omitted.

16.1.7 Job Cost Breakdown: The Contractor shall submit job cost breakdown reports for record and tax purposes to the Designated Representative. The first report shall be submitted within thirty (30) calendar days after date of each Notice to Proceed on any portion of the Work and shall be consistent in format with the schedule of values. Another report shall be submitted at the completion of the job and shall include all additions and deletions. Interim reports on various elements of the Work shall be submitted as required by the Owner for investment, tax credit, pollution control, financing and other purposes.

16.1.8 Monthly Progress Payment Applications: The Contractor shall submit Monthly Progress Payment Applications in the form and at the time as approved by the Designated Representative.

16.1.9 Monthly Reports: The Contractor shall submit to the Designated Representative copies of all monthly reports, such as MBE Participation, etc., required by governing bodies.

16.1.10 Monthly Certification: The Contractor shall submit to the Designated Representative periodic evidence and a monthly certification that "Record Documents", Test Reports and other Project Record Documents are being maintained for ultimate submittal to the Designated Representative and Owner at the completion of the Work.

16.1.11 Weekly Request for Information Status: The Contractor shall submit, each week on a day agreed to between the Contractor and the Designated Representative, a Request for Information Status Report indicating the Contractor's perception of the status of all submitted Requests for Information. The Request for Information Status Report will include a brief description of the request, date the request was submitted to the Designated Representative, date a response is needed from the Architect/Engineer, date a response is actually made by the Architect/Engineer, and any pertinent remarks. The Request for Information Status Report shall be in a format approved by the Designated Representative.

16.2 DRAWINGS, PRODUCT DATA AND SAMPLES

16.2.1 Shop Drawings: Shop drawings are drawings, diagrams, schedules and other data especially prepared for the Work by the Contractor, Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work. Shop drawings shall be signed by a registered professional engineer where required by law.

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

16.2.3 Samples: Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

16.2.4 Submittals: Submittals forwarded by the Contractor to the Designated Representative shall be in conformance with the requirements of the Contract Documents. The Contractor shall notify the Architect/Engineer and Designated Representative in writing of any deviations in the submittals from the requirements of the Contract Documents at the time of submission. Before submission of each Shop Drawing, Product Data or Sample, the Contractor shall have determined and verified all quantities, dimensions, specified design and performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and review or coordinated each Shop Drawing, Product Data or Sample with other Shop Drawings, Product Data and Samples and with the requirements of the Work and the Contract Documents. The term "submittal" as used herein includes Shop Drawings, Product Data and/or Samples as required by the Contract Documents. All submittals shall be submitted thirty (30) days prior to commencement of work affected.

16.2.5 Notice of Variation: At the time of each submission, the Contractor shall give the Architect/Engineer specific written notice of each Contractor perceived variation that the submittal may have from the requirements of the Contract Documents and, in addition, the Contractor shall cause a specific notation to be made on each Shop Drawing, Product Data and/or Sample submitted to the Architect/Engineer for review and "approval" demonstrating each such perceived variation.

16.2.6 Architect/Engineer Submittal Review: The Architect/Engineer will review and "approve" with reasonable promptness the required submittals. The Architect/Engineer's review and approval of the Contractor's submittal does not constitute a complete check, but indicates only that design, general method of construction and detailing is satisfactory. The Architect/Engineer's review and approval does not permit any deviation from the Contract Requirements and does not relieve the Contractor of the responsibility for errors in dimensions, details, sizes of member, etc., or the coordinating of installation and construction with actual conditions of the Work. The Architect/Engineer's review and "approval" will be only for conformance with the design concept of the Project and
for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences or procedures of construction (except where a specific means, the methods, technique sequence or procedure of construction is indicated in or required by the Contract Documents) or to safety precautions or safety programs incident thereto. The individual review and “approval” of a component item as such will not indicate “approval” of the integrated final assembly into which the item is placed and in which the item must function. The Contractor shall make any corrections required by the Architect/Engineer, without any additional cost to the Owner. The Contractor shall return the required number of corrected copies of submittals to the Architect/Engineer who will promptly, as required, review the re-submittals for conformance with the design concept.

16.2.7 Resubmission Notice: The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data or Samples, to all revisions other than those requested by the Architect/Engineer or Designated Representative on previous submittals.

16.2.8 Contractor Responsibility: Review and “approval” of submittals by the Architect/Engineer shall not relieve the Contractor from responsibility for any variation from the requirements of the Contract Documents unless the Contractor has in writing called the Architect/Engineer’s attention to each such variation at the time of submission as required and the Architect/Engineer has given written approval of each such variation by a specific written notation thereof incorporated in or accompanying the submittal “approval”; nor will any “approval” by the Architect/Engineer relieve the Contractor from the responsibility for the Contractor’s own errors or omissions in the submittal or from the Contractor’s responsibility for compliance with all Contract Document provisions.

16.2.9 No Work Prior to Submittal Approval: The Contractor shall resubmit submittals as required until the Architect/Engineer’s approval is obtained. No work requiring submittals shall be executed until the Architect/Engineer’s approval is given. Where a submittal is required by the Specifications, any related work performed prior to the Architect/Engineer’s review and “approval” of the pertinent submission will be at the sole risk, expense and responsibility of the Contractor.

16.2.10 Transmittal Requirements: After checking and verifying all field measurements and complying with applicable procedures specified in the Contract Documents, the Contractor shall transmit all submittals to the Architect/Engineer with one (1) copy to the Designated Representative and shall include:

(a.) Date and revision dates.
(b.) Project title and number.
(c.) The names of:
   (1.) Architect/Engineer
   (2.) Designated Representative
   (3.) Contractor
   (4.) Contract Number
   (5.) Subcontractor or Supplier
   (6.) Manufacturer
   (7.) Separate Detailer when pertinent

(d.) Number of Shop Drawings, Product Data and Sample submitted. (System to be established by Designated Representative.)
(e.) Identification of product or material.
(f.) Relation to adjacent structure or materials.
(g.) Field dimensions, clearly identified as such.
(h.) Specification section number and paragraph.
(i.) Applicable standards such as ASTM number or Federal Specification.
(j.) A blank space, minimum of 2 1/2 by 3 1/2 inches for the Architect/Engineer stamp.
(k.) Identification of deviations from Contract Documents.
(l.) Other pertinent data.

16.2.11 Approval Delays: The Contractor shall be responsible for any delays caused by the rejection of the submittal for inadequate or incorrect shop drawings, manufacturer’s data or other information.

16.2.12 Working Drawings: The Contractor is responsible for seeing that only “Approved” copies of shop drawings bearing the stamp of the Architect/Engineer are allowed on the job.

16.2.13 Approved Equals: The Contractor’s attention is directed to Article 5.4 LABOR AND MATERIALS. Where two or more products are specified for an item of Work, either one thereof is acceptable and the choice is left to the Contractor. Where only one product is specified and where the term “or approved equal” or similar wording is used in connection with specified products, the Contractor may, if he so desires, offer for consideration a substitute product which he judges to be equal in every respect to the required product. When a specific process is specified as well as a guarantee of the results, the Contractor shall, if in its judgement the process may not produce the required result, submit for approval, an alternative process which he would guarantee. All such submittals shall be made, within forty (40) calendar days after award of the Contract, in writing to the Designated Representative, who in turn will forward them to the Architect/Engineer. Review of any substitute product will (1) be contingent upon submission of substantiating serviceability to specified product; (2) use of the item will not entail changes in details and construction of related Work; (3) item conforms to required design and artistic effect. The Contractor shall furnish with the first submittal, a sufficient number of drawings, specifications, samples, performance data and other information necessary to assist the Architect/Engineer in determining whether the proposed substitution is

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Acceptable. The burden of proof shall be upon the Contractor. No consideration will be given to incomplete
submittals. Substitutions shall be approved in writing before they may be used.

16.2.14 Conflicting Instructions: When product manufacturer's instructions are in conflict with the Contract Documents, the
Contractor shall notify the Designated Representative for clarification before proceeding. The Contractor shall keep
a copy of the various product manufacturer's instructions applicable to the Work at the project site.

16.2.15 Submittal Log: Each week on a day agreed to between the Contractor and the Designated Representative, the
Contractor shall submit an updated submittal log to the Designated Representative indicating the Contractor's
perception of the status of all required submittals and reviews. Similar information to that outlined below shall be
provided for any required re-submittals. The submittal log will include such information as:
(a.) The schedule date to receive information from a subcontractor or supplier.
(b.) The actual date information was received from a subcontractor or supplier.
(c.) The scheduled date to submit information to the Architect/Engineer.
(d.) The date information was submitted to Architect/Engineer.
(e.) Anticipated date of return of information from Architect/Engineer.
(f.) Actual date information was received from Architect/Engineer.
(g.) Status or actions required.

16.2.16 Sample Submission: The Contractor shall submit all required samples for review and "approval" by the
Architect/Engineer, with such promptness as to cause no delay in the Work. All samples shall be checked by the
Contractor and accompanied by a specific written indication that the Contractor has satisfied Contractor's
responsibilities under the Contract Documents with respect to the Contractor's review of the submission. The
samples shall be identified clearly as to equipment, material, supplies and include pertinent data such as
demonstrating compliance with a certain Specification Section, catalog number, etc., and the use for which the
material is intended. An approved sample of each material shall be provided to the Designated Representative
prior to delivery of any materials for which submission of samples is required.

16.2.17 Sample Review: The Contractor shall submit four (4) samples of materials to the Architect/Engineer for approval
as indicated in the Specifications. All samples shall be properly labeled to indicate type of material submitted,
intended use, manufacturer's name, trade name, project name, Designated Representative's name, Contractor's,
Subcontractor's and Supplier's names; and shall be transmitted as required by paragraph 16.2.10. Samples will be
inspected and tested as required and if acceptable an approved notice will be sent to the Contractor along with one
(1) approved sample. Rejected samples will be returned along with a statement of reasons for rejection. Accepted
samples will be retained by the Architect/Engineer, one of which will be provided to the Designated Representative
and shall become the property of the Owner.

16.2.18 Submittals Affecting the Contract Sum: The Architect/Engineer's approval of submittals which deviate from the
Contract Documents does not authorize changes to the Contract Sum. The Contractor shall notify the
Architect/Engineer and the Designated Representative in writing at the time of transmittal of any changes to the
Contract Sum affected by such approval of a submittal; otherwise, claim for extras will not be considered.

16.2.19 Ductwork Layout Drawings: As soon as practical and in no case starting later than thirty (30) days after the award
of contract, the Mechanical Subcontractor shall prepare layout drawings of all duct work and piping at not less than
3/8" scale. The ductwork layout drawings shall show registers, grilles, diffusers and similar features as well as
locations of all valves, dampers and other items requiring access for service and maintenance. The ductwork layout
drawings shall also show beams, ceiling heights, walls, floor to floor dimensions, columns, doors and other major
architectural and structural features as shown on the architectural and structural drawings.

16.2.20 Coordination with Subcontractors: The Contractor shall, within sixty (60) days after award, send a reproducible and
two (2) prints of the ductwork layout drawings to the plumbing, materials handling, fire protection and electrical
subcontractors who shall then make on the reproducible their own routings as well as other major items such as
valves, access panels, switch panels, etc., as required to determine interrelationship and possible interferences with
the mechanical ductwork and architectural or structural features. The marked-up reproducible shall then be returned
to the Mechanical Subcontractor through the Contractor with copies to the Designated Representative no less than
thirty (30) days after receipt by the other Subcontractors.

16.2.21 Composite Drawings: The Mechanical Subcontractor shall prepare preliminary composite drawings of such layout
drawings, incorporating all the information and routings provided by the other Subcontractors. (At its option, a group
of transparent overlays may be substituted, provided that they clearly show the relationship of all proposed
installations.) The preliminary composite drawings, or the overlays, shall be reviewed during a series of meetings,
called by the Contractor and attended by the Architect/Engineer and the Designated Representative, at which all
Subcontractors and trades shall be represented, in order to review and resolve any real or apparent interferences or
conflicts.

16.2.22 Agreement by Subcontractors: After all conflicts or interferences are resolved the Mechanical Subcontractor shall
develop a final set of composite drawings showing the agreed upon routing, layout and juxtaposition of all ductwork,
conveyers, piping, major conduit, valves, panels, lighting fixtures and all other major mechanical and electrical
installations. In areas where no mechanical ductwork occurs, but where other mechanical and electrical installations
are installed, each Subcontractor shall be responsible for its own Work and shall cooperate in preparing similar
composite drawings, shall perform its own drafting Work and pay its own costs in connection therewith. In
preparation of all the final composite drawings, large scale details as well as cross and longitudinal sections shall be as required to fully delineate all conditions. Particular attention shall be given to the locations, size and clearance dimensions of equipment items, shafts and similar features. These final composite drawings shall then be signed-off by each of the Subcontractors, including the Mechanical Subcontractor, and the Contractor indicating their awareness of and agreement with the indicated routings and layouts and their interrelationship with the adjoining or contiguous Work. Thereafter, no unauthorized deviations will be permitted and if made without knowledge or agreement of the Architect/Engineer and Designated Representative, this unauthorized Work will be subject to removal and correction at no additional cost to Owner.

16.2.23 Minor Changes: In preparing the composite drawings, minor changes in duct, pipe or conduit routings that do not affect the intended function may be made as required to avoid space conflicts, when mutually agreed, but items may not be resized or exposed items relocated without the Architect/Engineers and Designated Representative's written approval. No changes shall be made in any wall or chase locations, ceiling heights, door swings or locations, window or other openings or other features affecting the function or aesthetic effect of the building. If conflicts or interferences cannot be satisfactorily resolved, the Architect/Engineer and the Designated Representative shall be notified and their decision obtained.

16.2.24 Distribution of Composite Drawings: After the final composite drawings have been agreed upon and signed by all Subcontractors, the Contractor shall provide and distribute four (4) prints to each of the Subcontractors, to the Architect/Engineer and to the Designated Representative for reference and record purposes. The Contractor shall make similar distribution of all supplementary composite drawings, initiated by other Subcontractors as indicated herein before. All Subcontractors desiring additional prints of such drawings, beyond the basic distribution indicated above, shall arrange for and pay the cost of the same.

16.2.25 Record Composite Drawings: The record copies of the final composite drawings shall be retained by the Designated Representative and each Contractor as a working reference. All shop drawings, prior to their submittal to the Architect/Engineer, shall be compared with the composite drawings and developed accordingly by the Contractor and the responsible Subcontractor. Any revision to the composite drawings which may become necessary during the progress of the Work shall be noted by the Contractor and all Subcontractors and shall be neatly and accurately recorded on the record copies. The Contractor and each Subcontractor shall be responsible for the up-to-date maintenance of its record copies of the composite drawings and to keep two (2) copies available at the site. The composite drawings and any subsequent changes thereto, shall be utilized by the Contractor and each Subcontractor in the development of its "Record Document" drawings.

16.2.26 Timely Submissions: The composite drawings need not be submitted as a whole, but they shall be submitted in all cases in ample time to avoid construction delay. The coordination drawings may lack complete data in certain instances pending receipt of shop drawings, but sufficient space shall be allotted for the items affected. When final information is received, such data shall be promptly inserted on the composite drawings.

16.2.27 Improperly Coordinated Work: No extra compensation will be paid for relocating any duct, pipe, conduit, or other material that has been installed without proper coordination between the Contractor and all Subcontractors involved. If any improperly coordinated Work or Work installed that is not in accordance with the approved composite drawings, necessitates additional Work by the Contractor or other Subcontractors, the costs of all such additional Work shall be borne solely by the Contractor or the Subcontractor responsible for the nonconforming Work.

16.2.28 Incorporation of Changes: All changes in the scope of Work due to revisions formally issued and approved shall be shown on the composite drawings.

16.2.29 Quality Draftsmanship: All Work on shop drawings, ductwork layout drawings, coordination drawings, and composite drawings shall be performed by competent draftsmen and shall be clear and fully legible. The Architect/Engineer shall be the sole judge of the acceptability of the drawings.

16.2.30 Structural Cutting: The Contractor shall obtain specific positive written instructions from the Architect/Engineer through the Designated Representative before cutting beams or other structural members, arches or lintels, and the Contractor shall be guided by such instructions.

16.3 TEMPORARY SERVICES, SYSTEMS AND FACILITIES

16.3.1 Temporary Lighting, Power and Water: At its own expense, the Contractor shall furnish, install, maintain, and remove all temporary lighting, electric power, and potable water, including piping, wiring, lamps, and other equipment necessary for the execution and security of the Work; and shall be responsible for the cost of power and water usage. The Contractor shall not draw water from any fire hydrant, except to extinguish a fire, without first obtaining permission from the water agency concerned. The Contractor shall provide for distribution of drinking water to all work forces under this Contract.

16.3.2 Sanitation: The Contractor shall provide and maintain portable enclosed toilets for the use of all work forces under this Contract. These accommodations shall be maintained in a neat and sanitary condition. They shall also comply with all applicable laws, ordinances and regulations pertaining to the public health and sanitation of dwellings and camps. The Contractor shall not interrupt the flow of existing sanitary sewers. Should the Work involve the disruption of existing sewer facilities, the Contractor shall convey the sewage in closed containers and shall dispose of it in a sanitary sewer system as approved by local health authorities and the Designated Representative. Sewage shall not be permitted to flow in trenches or be covered by backfill.
16.3.3 Vermin Control: The Contractor shall maintain the job site free of rodents, insects, vermin and pests throughout all phases of construction, including suspensions of work, and until final acceptance of the Work. Necessary extermination work shall be arranged and paid for by the Contractor as part of the contract work and contract time and shall be performed by a licensed agency in accordance with requirements of governing authorities. The Contractor shall be liable for injury to persons or property and responsible for the elimination of offensive odors resulting from extermination operations.

16.3.4 Water Pollution Control: The Contractor shall exercise every reasonable precaution to protect channels, storm drains, and bodies of water from pollution and shall conduct and schedule its operations so as to minimize or avoid muddying and silting of said channels, drains, and waters. Water pollution control work shall consist of constructing those facilities which may be required to provide prevention, control, and abatement of water pollution.

16.3.5 Air Pollution Control: The Contractor shall not discharge smoke, dust, or any other air contaminants into the atmosphere in such quantity as will violate the regulations of any legally constituted authority.

16.3.6 Project Site Maintenance: Throughout all phases of construction, including suspensions of work, and until final acceptance of the Work, the Contractor shall keep the job site, including the interior of all structures, clean and free from rubbish and debris. The Contractor shall provide and maintain rubbish containers and periodic rubbish removal services as required by the pace of the Work and health regulations, and as acceptable to the Designated Representative.

16.3.6.1 The Contractor shall abate dust nuisance by cleaning, sweeping, and sprinkling with water, or other means as necessary. The use of water resulting in mud on public streets will not be permitted as a substitute for sweeping or other methods.

16.3.6.2 Materials and equipment shall be removed from the site as soon as they are no longer necessary; and upon completion of the Work and before final inspection the entire work site shall be cleared of equipment, unused materials, and rubbish so as to present a satisfactory clean and neat appearance. All cleanup costs shall be absorbed in the Contractor's bid.

16.3.6.3 The Contractor shall take care to avoid spillage on haul routes. Any such spillage shall be removed immediately and the area cleaned by the Contractor.

16.3.6.4 Burning or burying of rubbish and waste materials on the project site is prohibited. Disposal of volatile fluid wastes in storm and sanitary sewer systems is prohibited.

16.3.6.5 Waste materials shall not be dropped or thrown from heights. Cleaning operations shall be scheduled so that dust and other contaminants resulting from the cleaning process will not fall on wet or newly painted surfaces. Dusty debris shall be sprinkled lightly with water as required to control dust.

16.3.6.6 The Contractor shall vacuum clean the interior of buildings prior to the start of finish painting. The Contractor shall continue vacuum cleaning thereafter on an as needed basis until the building is ready for acceptance.

16.3.6.7 Failure of the Contractor to comply with the Designated Representative's cleanup orders may result in an order to suspend the Work until the condition is corrected. No additional compensation will be allowed as a result of such suspension.

16.3.7 Final Cleaning: At the completion of the Work, the Contractor at its sole expense shall remove all waste materials and rubbish from and about the project, as well as all tools, construction equipment, temporary facilities, machinery, and surplus materials.

16.3.7.1 At completion of construction and just prior to final inspection, the Contractor shall thoroughly clean the interior and exterior of the buildings, including hardware, floors, roofs, sills, ledges, glass, or other surfaces where debris, plaster, paint, spots, and dirt or dust may have collected. All glass shall be washed clean and polished. All grease, stains, labels, fingerprints, and other foreign materials shall be removed from interior and exterior surfaces. The Contractor shall repair, patch, and touch up marred surfaces to match adjacent finishes.

16.3.7.2 The Contractor shall use only experienced workmen or professional cleaners for final cleaning. Use only cleaning materials recommended by the manufacturer of the surface to be cleaned, and use cleaning materials only on surfaces recommended by the cleaning material manufacturer.

16.3.7.3 The Contractor shall broom clean all paved surfaces and rake clean other surfaces of grounds.

16.3.7.4 The Contractor shall replace air conditioning filters, if units were operated during construction. The Contractor shall clean all ducts, blowers, and coils if air conditioning units were operated at any time without filters during construction.

16.3.7.5 The Contractor shall maintain the building in a clean condition until it is accepted by the Owner.

16.3.8 Fire Protection: The Contractor at its sole expense shall provide temporary fire safety equipment for general use. The Contractor shall provide fire extinguishers for its trailers, for use as required when cutting and burning is
16.3.9 Communication Systems: The Contractor shall provide telephone services at its own expense. The Contractor at its sole expense shall maintain in service a facsimile teletype machine whenever telephone service is available at the job site. The use of portable radios shall be in accordance with Federal Regulations and shall not interfere with other local radio operations.

16.3.10 Office Facilities: The Contractor at its sole expense shall provide, maintain and remove temporary field office facilities, including all furniture, equipment, copiers, heating, cooling, lighting, power, telephones, drinking water, plumbing and toilet fixtures as necessary for its performance of the Work; and shall make these spaces, telephones, and services available for the use of the Owner, the Designated Representative and the Architect/Engineer. A designated work area shall be provided for the use of the Owner, the Designated Representative and the Architect/Engineer.

16.3.11 Weather Protection: The Contractor at its sole expense shall be responsible for providing protection for its own Work against inclement weather, in order to maintain all Work, materials, apparatus, and equipment. All Work subject to damage by adverse weather conditions shall be covered or otherwise protected as required. Weather protection shall be adequate to permit the Contractor to Work on a continuous basis without shutdown due to temperature or weather conditions as far as possible.

16.3.12 Dewatering: The Contractor at its sole expense shall provide all temporary drainage and dewatering measures including all pumping, drainage, erosion control or other work required to protect the Work while in progress.

16.3.12.1 Inundation of partially completed work due to lack of control during non-working periods will not be permitted, and may be cause for requiring removal of work already completed with replacement at the Contractor's expense.

16.3.12.2 The Contractor shall be responsible for obtaining the use of any property, in addition to that provided for in the plans and specifications, which may be required for the diversion and protective works so as not to create a hazard to persons or property or to interfere with the water rights of others.

16.3.12.3 It shall be understood and agreed that the Contractor shall hold the Owner and the Designated Representative harmless from legal action taken by any third party with respect to construction and operation of the diversion and protective works.

16.3.12.4 All works installed by the Contractor in connection with dewatering, control, and diversion of water but not specified to become a permanent part of the project, shall be removed and the site restored, insofar as practical, to its original condition prior to completion of construction or when directed by the Designated Representative.

16.3.13 Material Handling: The Contractor at its sole expense shall be responsible for handling and transporting, including lifting, its material and equipment to the location of need in a timely manner.

16.3.14 Cranes, Hoists and Scaffolds: The Contractor at its sole expense shall furnish, erect, maintain and remove all cranes, temporary hoists and scaffolding as may be required by the Contractor for the performance of the Work.

16.3.15 Storage: The Contractor at its sole expense shall provide and remove whatever temporary storage facilities, sheds, buildings, enclosures, partitions, etc., he deems necessary for the protection of its materials, tools and equipment after receiving approval from the Designated Representative on specific details of the method proposed. Any damage caused to Work in place by these temporary measures will be repaired / replaced at the Contractor's expense.

16.3.16 Security Fences: The Contractor at its sole expense shall provide temporary site enclosures (fences), barriers, and pedestrian walkways as indicated by the Contract Documents or as required to control access to the job site.

16.3.17 Security Services: The Contractor at its sole expense shall be responsible for job site security during various phases of the Work, including non-working hours and at other times, and as may be required for the protection of the Owner and the Designated Representative's interests. All costs for same will be paid by the Contractor.

16.3.18 Openings, Sleeves and Supports: The Contractor at its sole expense shall provide all necessary openings, channels, chases, flues, sleeves, inserts, hangers, etc, if any, and such cutting, patching, finishing, etc., if any, required by the Contract Documents to complete the Work.

16.3.19 Protection and Restoration of Existing Improvements: The Contractor at its sole expense shall be responsible for the protection of public and private property adjacent to the Work and shall exercise due caution to avoid damage to such property. All costs to the Contractor for protecting, removing, and restoring existing improvements shall be paid by the Contractor.

16.3.19.1 The Contractor at its sole expense shall repair or replace all existing improvements which are damaged or removed as a result of its operations and which are not designated for removal (e.g. curbs, sidewalks, driveways, fences, walls, ceilings, floor coverings, signs, utility installations, pavements, structures, trees, shrubbery, grass etc.).

16.3.19.2 Repairs and replacements shall be at least equal to existing improvements and shall match them in finish and dimensions in such a manner that the repaired work will not be readily noticeable.
Excavation Protection: The Contractor at its sole expense shall provide and maintain fencing, shoring and bracing and dewatering of all excavation.

Temporary Safety Measures: The Contractor at its sole expense shall provide, maintain and remove when no longer required all temporary safety measures, including all construction supplies, barricades, pedestrian walkways and equipment as may be required by the Contract Documents for its Work.

Advertising: The names of the Contractor, Subcontractors, the Architect/Engineer, including their consultants, with their addresses and the designation of their particular specialties, may be displayed on removable signs. The size, format and location of such signs shall be subject to the Designated Representative's approval. Commercial advertising matter shall not be attached or painted on the surfaces of buildings, fences, canopies, or barricades. All signs shall be removed when directed by the Designated Representative but not later than final acceptance of the Work.

SAFETY

OSHA and California Codes and Regulations: The Contractor at its sole expense shall provide, erect, maintain, dismantle and remove any and all barricades, railings, covers, warning lights, safety netting, and similar safety devices required to complete its Work and protect the public in accordance with OSHA, California Administrative Code, Title 8 Industrial Relations, Chapter 4 Division of Industrial Safety, Section 4 Construction and Safety Orders, Article 8 Explosives, and all other applicable code requirements.

Traffic Control: The Contractor shall conduct its Work so as to interfere as little as possible with pedestrian and vehicular traffic and he shall, at its sole expense, provide and maintain proper warnings and detour signs at all pedestrian and vehicular closures, intersections and along detours, directing traffic around closed portions of roadways. He shall, at his own expense, wherever necessary or required, provide and maintain fences, temporary roadways, temporary crossing signs, watchmen, warning lights and take such other precautions as may be necessary to protect life and property and shall be responsible for all damages occasioned in any way by its act or neglect. All barricades and obstructions shall be illuminated at night and all lights shall be kept on from one-half hour before sunset until one-half hour after sunrise.

Fall Protection: When performing any cutting, removal, creating openings or holes, etc., the Contractor at its sole expense, by use of barricades, flagmen or other means, shall provide protective measures to assure that other workmen or the public are not exposed to potential injury by the operation being conducted.

Welding Protection: The Contractor at its sole expense shall provide, maintain and remove all shielding or similar precautions required to be taken adjacent to welding operations.

Personal Equipment: The Contractor at its sole expense shall provide and supervise the use of all proper safety and protective devices by its employees during any potentially dangerous phases of its Work.

Safety Orders: The Contractor shall have at the work site, copies or suitable extracts of: Construction Safety Orders, Electrical Safety Orders, and General Industrial Safety Orders issued by the State Division of Industrial Safety. The Contractor shall comply and shall require the compliance by all Subcontractors with provisions of these Safety Orders and all other applicable laws, ordinances, and regulations.

Trench Excavations: As required by Section 6705 of the California Labor Code and in addition thereto, whenever work under the Contract involves the excavation of any trench or trenches five (5) feet or more in depth, the Contractor shall submit for acceptance by the Owner, a detailed plan showing protection of the worker from the hazard of caving ground.

Use of Explosives: Explosives may be used only when authorized in writing by the Owner, or as otherwise stated in the Contract Documents. Explosives shall be handled, used, and stored in accordance with all applicable regulations. The Owner's approval of the use of explosives shall not relieve the Contractor from its liability for claims caused by its blasting operations.

Hazardous Materials: The Contractor shall immediately stop work if unforeseen suspected hazardous material conditions are encountered. The Contractor shall immediately report the unforeseen conditions in the written form of a request for information submitted to the Designated Representative. Work shall be resumed after the Owner has fully resolved the questions related to the unforeseen conditions and has remediated any hazardous materials determined to be present.

END OF GENERAL CONDITIONS