

# COUNTY OF SAN JOAQUIN



PROJECT MANUAL  
JAIL CHILLER REPLACEMENT PROJECT  
7000 MICHAEL N. CANLIS BLVD  
FRENCH CAMP, CA

Owner

San Joaquin County Board of Supervisors  
44 N. San Joaquin Street, Suite 627  
Stockton, CA 95202

Project Manager

General Services - Capital Projects  
44 N. San Joaquin, Suite 590  
Stockton, CA 95202

David Castagna, 209-468-9598  
dcastagna@sjgov.org

Engineer

Taylor Systems Engineering  
9801 Fair Oaks Blvd., Suite 100  
Fair Oaks, CA 95626

John Taylor, (916) 961-3410  
John.Taylor@tse-inc.net

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# ***San Joaquin County Jail Chiller Replacement Project***

## ***Notice Inviting Bids***

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### **NOTICE INVITING BIDS**

NOTICE IS HEREBY GIVEN that sealed bids will be received by the Board of Supervisors of the County of San Joaquin, State of California, at the General Services - Capital Projects, Administration Building, 44 N. San Joaquin Street, Suite 590, Stockton, CA 95202, until 10:00 AM, November 28, 2011, for furnishing all labor, material, tax, transportation, equipment, and services necessary for the construction and completion of the San Joaquin County Jail Chiller Replacement Project, all in accordance with the specifications and working details and other contract documents now on file with the Clerk of the Board of Supervisors, Suite 627, Administration Building, located as noted above.

NOTICE IS GIVEN that a mandatory prebid conference for all bidders is tentatively scheduled for Monday, November 14, 2011, at 10:00 AM at the Sheriff's Administration Building, 7000 Michael N. Canlis Boulevard, French Camp, CA. Bids will not be accepted from any contractor not attending this prebid conference.

Bids will be opened and tabulated by or on behalf of said Board at General Services - Capital Projects immediately after 10:00 AM, on said November 28, 2011.

Copies of the contract documents may be viewed and downloaded from the County's Purchasing & Support Services website at <http://www.sjgov.org/supportserv/openbids.aspx>. Copies of the contract documents may be purchased through Stockton Blue (ARC) Planwell @ [www.stocktonblue.com](http://www.stocktonblue.com) or at the Stockton Blue Office, 1421 N. El Dorado Street, Stockton, CA 95202, (209) 464-6012. If you have any questions or problems obtaining the contract documents, please call Capital Projects at (209) 468-9598.

Bids must be from contractors holding a State of California B-General Building Contractor license or C-20 HVAC Contractor license. Bids must be sealed and accompanied by certified check, cashier's check, or bid bond made payable to the County of San Joaquin in the sum of not less than ten percent (10%) of the amount of the bid. The check or bonds shall be given as a guarantee that the successful bidder will enter into a written contract within ten (10) calendar days after being requested to do so and will be considered as the stipulated amount of liquidated damages in the event the bidder is unable to or refuses to execute a contract for the work.

The general prevailing wage rates have been determined by the Director of the California Department of Industrial Relations and it shall be mandatory upon the contractor to whom the contract is awarded, and upon any subcontractor, to pay not less than these specified rates to all laborers, workmen, mechanics and apprentices employed by them in execution of the contract, all in accordance with the provisions of Labor Code Sections 1770 through 1781, inclusive. Copies of the

general prevailing wage rates are on file with and available upon request from the Clerk of the Board of Supervisors.

San Joaquin County has adopted a goal to strongly encourage local hire participation in the construction workforce in accordance with Board of Supervisors policy.

a. Contracts estimated by the County to be less than \$200,000 do not have a local hire goal.

b. Contracts estimated by the County to cost \$200,000 or more require the successful bidder to demonstrate their attempts to employ local hire.

Bids shall be made upon the form provided by the County and shall be properly completed with all items filled out; numbers shall be in writing and figures; the signatures of all persons signing shall be in longhand. No bidder may withdraw his bid for a period of 60 calendar days after the time set for the opening of bids, and the Board will act to accept or reject bids within that period of time.

Upon the contractor's request, the County will make payment of funds withheld from progress payments pursuant to the requirements of Public Contract Code Section 22300 if the contractor deposits in escrow with the County's Treasurer-Tax Collector, or with a bank acceptable to the County, securities eligible for the investment under Government Code Section 16430, bank or savings and loan certificates of deposit, interest-bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the contractor and the County. The escrow agreement between the contractor and the County in this regard shall be substantially similar to the form set forth in Public Contract Code Section 22300(f).

The Board reserves the right to reject any or all bids, and further reserves the right to waive any informalities or irregularities in the bids.

# ***San Joaquin County Jail Chiller Replacement Project***

## ***Instructions to Bidders***

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### **INSTRUCTIONS TO BIDDERS**

Bids: Bids, to receive consideration, shall be made in accordance with the following instructions.

a. Bids shall be made on the bid form provided by the Owner, a copy of which is included in these documents, All items on the form should be filled out; numbers should be stated both in writing and in figures and the signatures of all individuals must be in longhand. The completed form shall be without interlineations, alterations, or erasures.

b. Bids shall not contain any recapitulation of the work to be done, and alternative bids will not be considered unless called for.

c. Should a bidder find discrepancies in or omissions from the drawings or other contract document, or should he be in doubt as to their meaning, he shall at once notify David Castagna, Project Manager, General Services – Capital Projects, 209-468-9598, [dcastagna@sjgov.org](mailto:dcastagna@sjgov.org) (email preferred), who is the Owner's representative. The Owner, General Services - Capital Projects, will send written instructions to all bidders. Neither Owner nor its representative will be responsible for any oral instructions. The cut-off date for the receipt of questions from bidders is 4:00 PM, Thursday, November 17, 2011. The Owner anticipates that any addenda, if required, will be released no later than Monday, November 21, 2011.

d. All addenda issued during the bidding period are to be included in the bid, and they will become a part of the contract for the project.

e. Pursuant to the provisions of Sections 4100 to 4113, inclusive, of the Government Code, every bidder shall in his bid set forth:

(1) The name and location of the place of business of each subcontractor who will perform work or labor or render service to the bidder in or about the work in an amount in excess of one-half of one percent of the total bid.

(2) The portion of the work which will be done by each subcontractor. If the bidder fails to specify a subcontractor for any portion of the work to be performed under the contract in excess of one-half of one percent of the total bid, he agrees to perform that portion himself.

The successful bidder shall not, without the consent of the Owner:

(a) Permit any subcontract to be assigned or transferred or allow it to be performed by anyone other than the original subcontractor listed in the bid.

(b) Other than in the performance of change order, sublet or subcontract any portion of the work in excess of one-half of one percent of the total bid as to which his original bid did not designate a subcontractor.

(c) The Owner may legally consent to a substitution only in the limited cases enumerated in Section 4107 of the Government Code.

f. Bids must be accompanied by a certified or cashier's check, or bidder's bond, for an amount not less than ten percent (10%) of the bid, made payable to the order of the County of San Joaquin. If a bidder's bond accompanies the bid, the bond shall be secured from a surety company satisfactory to the Owner. Said check or bond shall be given as a guarantee that the case of refusal or failure to enter into a contract, it is agreed that the check or bond, as the case may be, shall be retained by the Owner as the measure of stipulated liquidated damages.

g. Bids shall be addressed to the Owner and shall be delivered to the Owner enclosed in an opaque sealed envelope, addressed to San Joaquin County General Services - Capital Projects, 44 N. San Joaquin Street, Suite 590, Stockton, California, 95202. Each envelope shall bear the title of the work and the name of the bidder. No telephonic or telegraphic bids or amendments to bids shall be effective.

Withdrawal of Bids: Bids may be withdrawn by the bidder prior to but not after the time fixed for opening of bids.

Opening of Bids: Bids will be opened and read at or about the time set in the advertised Notice Inviting Bids. Bidders, or their representatives, and other interested persons may be present at the opening of bids.

Award or Rejection of Bids: The contract, if awarded, will be awarded to the lowest responsible bidder based on the lowest total bid received and in compliance with these instructions and the advertised Notice Inviting Bids, provided his bid is reasonable and it is to the interest of the Owner to accept it. If the bid form contains additive and/or deductive alternates, the Owner, for cost considerations, may select additive and/or deductive alternates before determining the lowest bidder. The competency and the responsibility of bidders and of their proposed subcontractors will be considered in making the award of contract. Any bidder before being awarded a contract may be required to furnish evidence satisfactory to the Owner that he and his proposed subcontractors have sufficient means and

# ***San Joaquin County Jail Chiller Replacement Project***

## ***Instructions to Bidders***

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experience in the type of work called for to assure completion of the contract in a satisfactory manner. The Owner reserves the right to reject the bid of any bidders who have previously failed to perform properly or to complete on time contracts with the Owner of a nature similar to this project. The Owner reserves the right to reject any or all bids or alternates and waive any informality or irregularity in the bids or in the bidding.

### Examination of Contract Documents and Site of Work:

Before submitting a bid, bidders should examine the drawings, read the specifications, the "Form of Agreement" and other contract documents. They should visit the site of the proposed work, examine any improvements and any work that may have been done thereon. They should fully inform themselves of all conditions on, in, at, and about the site, the building and the proposed new work that is to be done thereon. There shall be included in the bid a sum sufficient to cover the cost of all items included in the contract.

Form of Contract: The form of contract which the successful bidder will be required to execute, if awarded the work, is the San Joaquin County General Construction Contract, which is set forth herein.

Equals: Pursuant to Section 3400 of the Public Contract Code, any item or requirement calling for a designated material, product, thing, or service by specific brand or trade name shall be construed as being followed by the words "or equal" so that bidders may finish any material, product, thing or service which is in all respects equal to the item specified, including but not limited to size, quality, guarantees, and materials. The proposed "equal" must in all respects be equal to or better than the item for which it is proposed to be substituted.

Copies of the contract documents may be viewed and downloaded from the County's Purchasing & Support Services website at <http://www.sjgov.org/supportserv/openbids.aspx>. Copies of the contract documents may be purchased through Stockton Blue (ARC) Planwell @ [www.stocktonblue.com](http://www.stocktonblue.com) or at the Stockton Blue Office, 1421 N. El Dorado Street, Stockton, CA 95202, (209) 464-6012. If you have any questions or problems obtaining the contract documents, please call Capital Projects at (209) 468-9598.

Insurance – Bonds: The successful bidder will be required to obtain Worker's Compensation Insurance coverage, Bodily Injury and Property Damage Liability Insurance, and Builder's Risk (Fire) Insurance. He will also be required to furnish Faithful Performance and Payment (Labor and Material) surety bonds.

All bonds submitted to the County of San Joaquin must be printed on the letterhead or similar document of the Surety. The bond form must provide an address and a telephone number

where the County may contact the surety for any questions regarding the bonds. In Addition, **both** the signature of the principal and the signature of the surety **must be acknowledged before a notary** and certificates of acknowledgment must accompany the bonds.

Completion Date - Liquidated Damages: Time is of the essence in this contract. Contractor must commence work on the project the first working day following receipt of Notice to Proceed issued by the Owner.

- a. The project must be completed in 105 calendar days.
- b. The contract will provide for liquidated damages in the amount of \$500 per day for each day the work is not completed beyond the time specified in the preceding paragraph and in the Bid Form. The contract will provide a bonus of \$50 per day for each day completed before the time specified in the preceding paragraph.

Worker's Compensation: In accordance with the provisions of Section 3700 of the Labor Code, every contractor will be required to secure the payment of compensation to his employees. Each contractor to whom a public works contract is awarded is required to sign and file with the awarding body 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 on this contract."

Anti-Discrimination: The successful bidder shall not discriminate against any employee or applicant for employment because of race, creed, color, sex or national origin. The contractor shall comply with all provisions of Executive Order No. 10925 of March 6, 1961, as amended, and all rules, regulations and relevant orders of the Presidents Committee on Equal Employment Opportunity created thereby.

Local Hire: San Joaquin County has adopted a policy goal to strongly encourage local hire and apprenticeship participation in the construction workforce in accordance with Board of Supervisors policy. Bidders attention is directed to the following provisions relating to this policy:

# ***San Joaquin County Jail Chiller Replacement Project***

## ***Instructions to Bidders***

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- a. For purposes of this policy only, the definition of contractor is limited to the total workforce of the prime or principal contractor and all subcontractors who will work in San Joaquin County under the construction contract.
- b. A "local hire" is defined as an employee whose residence is within San Joaquin County at the time of opening of bids for the project.
- c. Bidders are to complete the "Bidder Local Hire Information Form and Checklist."

With respect to application of the local hire policy, bidders attention is directed to the following:

- a. San Joaquin County Board of Supervisors hereby adopts a policy to strongly encourage, within the constraints of federal and state law, the employment of County residents on County funded construction projects.
- b. Bidders on construction projects will be required to complete a Local Hire Information Form to be submitted with construction bids in excess of \$200,000, which indicates the bidder's effort to employ local hire.
- c. In the event that two or more bids are the same and the lowest, the County shall award the contract in accordance with the best intended effort of the bidder to employ local residents as indicated on the bidder Local Hire Information Form.
  - (1) Contracts estimates by the County to be less than \$200,000 do not have a local hire goal.
  - (2) Contracts estimated by the County to cost \$200,000 or more require the successful bidder to demonstrate their attempts to employ local hire.

Apprenticeship Program: Unless such provision would conflict with a state or federal law or regulation applicable to a particular contract for a public works project, County contracts for public works in excess of \$200,000 shall contain provisions pursuant to which each contractor or subcontractor shall make a good faith effort to employ apprentices who are enrolled in and participating in a viable apprenticeship program serving the San Joaquin County and approved by the State Department of Apprenticeship Standards. This apprenticeship requirement shall apply for each apprenticable craft or trade in which the contractor employs workers in performing any of the work under the contract. A contractor may evidence its good faith effort by complying with California Labor Code Section 1777.5 and the implementing regulations and seeking apprentices from apprenticeship programs service the San Joaquin County.

A contractor employing apprentices pursuant to this section shall employ apprentices in a ratio consistent with the provisions of the California Labor Code or federal requirements as applicable for federal aid contracts.

This section shall not be construed to exempt a contractor from any other applicable requirement imposed upon the contractor by federal or state law.

Prebid Conference: A **mandatory** prebid conference for all bidders is tentatively scheduled for Monday, November 14, 2011, at 10:00 AM at the Sheriff's Administration Building, 7000 Michael N. Canlis Boulevard, French Camp, CA. Bids will not be accepted from any contractor not attending this prebid conference.

Unique Requirements: Contractor is advised to review the specifications, specifically the General Conditions for unique requirements. Special attention and protection will be necessary to avoid any detrimental effects to occupied facility caused by dust, vibration, demolition, inclement weather, roof removal, noise, fumes, etc. By submission of bid, contractor acknowledges and accepts the related construction limitations.

Commencement of Work: Work must begin on the working date stipulated in the Notice to Proceed. This may or may not be the same date as the contract. The Notice to Proceed will be issued in a reasonable amount of time. If it is not the same day as the award of contract, then no later than 40 calendar days.

**San Joaquin County Jail Chiller Replacement Project  
Bid Form**

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**Bid Opening Date**

November 28, 2011

**Hour of Bid Opening**

10:00 AM

Honorable Board of Supervisors  
County of San Joaquin  
c/o General Services - Capital Projects  
44 N. San Joaquin Street, Suite 590  
Stockton, CA 95202

Dear Board Members:

Pursuant to the Notice Inviting Bids, and in compliance with the Instructions to Bidders, having reviewed the contract documents and the site(s) of the work, the undersigned hereby proposes to furnish all work, labor, materials, transportation, equipment and services necessary, including State of California and local sales or use taxes, license or permit fees, if any, for the construction and completion of

**San Joaquin County Jail Chiller Replacement Project**

all in accordance with the specifications and drawings and other contract documents, together with Addenda issued at the time of bidding, if any, now on file with General Services - Capital Projects of San Joaquin County, for the sum of:

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\_\_\_\_\_ (\$ \_\_\_\_\_). (Base Bid)

Addenda Received: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

If awarded the contract, work must begin on the date stipulated in the Notice to Proceed.

**FILL IN ALL BLANKS**

Enclosed please find a ( ) cash deposit, ( ) cashier's check ( ) certified check, or ( ) surety bid bond (check as appropriate) of the \_\_\_\_\_





**San Joaquin County Jail Chiller Replacement Project  
Bid Form**

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By submission of a bid, a bidder certifies possession of duly issued and valid contractor's license issued by the State of California, which license authorizes bidder to contract to perform the type of work required by the specifications. Should the bidder fail to provide below the number and classification of bidder's State of California Contractor's License, the Owner may reject this bid therefore.

CONTRACTOR: \_\_\_\_\_

BY (Signature): \_\_\_\_\_

TITLE: \_\_\_\_\_

MAILING ADDRESS: \_\_\_\_\_

TELEPHONE NO: \_\_\_\_\_

STATE OF CALIFORNIA LICENSE NO. \_\_\_\_\_

STATE OF CALIFORNIA LICENSE CLASSIFICATION:

\_\_\_\_\_

DATED: THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_.

***San Joaquin County Jail Chiller Replacement Project  
Noncollusion Affidavit***

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**NONCOLLUSION AFFIDAVIT TO BE EXECUTED**

**BY BIDDER AND SUBMITTED WITH BID**

State of California            )  
  )  
County of San Joaquin        ) ss.

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

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

\_\_\_\_\_  
(Date)

**San Joaquin County Jail Chiller Replacement Project  
Certification of a Drug Free Workplace**

**CERTIFICATION OF A DRUG-FREE WORKPLACE**

**(Must be Submitted With Bid)**

This certification is required by the regulations implementing the Drug-Free Workplace Act of 1990 (Chapter 1170, Statutes of 1990). The regulations as set forth in Chapter 5.5 (commencing with Section 8350) Division I of Title 2 of the Government Code requires every person or organization awarded a contract or a grant for the procurement of any property or services from any State agency to certify to the contracting or granting agency that it will provide a drug-free workplace. The certification set out below is a material representation of fact upon which reliance will be placed when the agency determines to award the grant or contract. The contract or grant may be subject to suspension of payments or termination of the contract or grant, or both, and the contractor or grantee thereunder may be subject to debarment if the agency determines that the contractor or grantee has made a false certification or violates the certification by failing to carry out the requirements as listed below. (Chapter 5.5, Section 8356, Division I of Title 2 of the Government Code.)

By my signature hereunder, as contractor/grantee or contractor/grantee's duly appointed representative, I certify that I or my firm or organization will provide a drug-free workplace by:

- A. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in the person's or organization's workplace and specifying the actions that will be taken against employees for violation of the prohibition.
- B. Establishing a drug-free awareness program to inform employees about all of the following:
  - 1. The dangers of drug abuse in the workplace
  - 2. The person's or organization's policy of maintaining a drug-free workplaces
  - 3. Any available drug counseling, rehabilitation, and employee assistance programs;
  - 4. The penalties that may be imposed upon employees for drug abuse violations
- C. Making it a requirement that each employee engaged in the performance of the contract or grant be given a copy of the statement required by Paragraph A, above, and that, as a condition of employment on the contract or grant, the employee agrees to abide by the terms of the statement.

This certification shall not be construed to require any contractor or grantee to ensure that other businesses with which it subcontracts also provide drug-free workplaces. (Chapter 5.5, Section 8357, Division 1 of Title 2 of the Government Code.)

	_____	Contractor
CONTRACTOR	_____	Address
LICENSE NO. _____	_____	
FEDERAL EMPLOYER	_____	
ID NO. _____	_____	Signature
	_____	Title

**BIDDER LOCAL HIRE  
INFORMATION FORM AND CHECKLIST**

Project Name: San Joaquin County  
Jail Chiller Replacement Project

Bidder's Name: \_\_\_\_\_

Bid Amount \$: \_\_\_\_\_

*Bidders are required to complete  
and submit  
this Form and Checklist with their  
bid*

Address: \_\_\_\_\_

\_\_\_\_\_

Bid Opening Date: November 28, 2011

<b>LOCAL HIRE INFORMATION</b>	<b>YES</b>	<b>NO</b>
<b>Contractor agrees to attempt to employ local hire in their workforce and the workforce of their subcontractors.</b>		
<b>Contractor agrees to purchase at least one display ad in a newspaper of general circulation in San Joaquin County announcing job opportunities on the construction project and encouraging local residents to apply.</b>		

**Contractor intends to secure his workforce from the following sources: (Please Describe)**

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## LOCAL HIRE INFORMATION CHECKLIST

### COUNTY OF SAN JOAQUIN

**Please check all boxes that apply:**

- Placed a valid job order for existing and projected position vacancies with the local office of the State Employment Development Department, for no less than 10 consecutive calendar days.
- Placed a valid job order for existing and projected position vacancies with Worknet of San Joaquin County, for no less than 10 consecutive calendar days.
- Advertised existing and projected position vacancies, job informational meetings, job application workshops, and job interviews by posting notices which identify the position(s) to be filled, the qualifications required, and where to obtain additional information about the application process, in conspicuous local authorized public places, including but not limited to post offices and libraries.
- Conducted a job informational meeting to inform the community of employment opportunities of the contractor (may be combined with other contractors).
- Provided ongoing assistance to residents of San Joaquin County in completing job application forms.
- Conducted a job application workshop to assist the community in applying and interviewing for jobs in the contracting industry (may be combined with other contractors).
- Conducted job interviews within San Joaquin County.
- Advertised valid existing and projected position vacancies through the local media, such as community television network, local newspapers of general circulation, and trade papers or minority focus newspapers.
- Any other means of obtaining employees who reside within San Joaquin County that are reasonably calculated to comply with the goals of this policy. Please describe: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Please provide supporting documentation for all boxes checked. Sign and submit form and checklist with your bid.**

I declare the above information is true and accurate and submitted under penalty of perjury.

By my signature below, I acknowledge that I have met the requirements of the County's Local Hire Policy.

\_\_\_\_\_  
Owner/Authorized Representative (Signature)

\_\_\_\_\_  
Name of firm

\_\_\_\_\_  
Name and Title (Print)

SAN JOAQUIN COUNTY  
GENERAL CONSTRUCTION CONTRACT

DATED:

PARTIES:

OWNER:  
COUNTY OF SAN JOAQUIN  
44 N. San Joaquin Street, Suite 627  
Stockton, Ca 95202

CONTRACTOR:

THE WORK:  
San Joaquin County  
Jail Chiller Replacement Project  
7000 Michael N. Canlis Boulevard  
French Camp, CA 95231

ARCHITECT/ENGINEERS:  
Taylor Systems Engineering  
9801 Fair Oaks Boulevard, Suite 100  
Fair Oaks, CA 95628  
John Taylor, PE  
John.taylor@tse-inc.net

THE OWNER AND THE CONTRACTOR AGREE THAT:

1. The Contract Documents. The complete Contract consists of the following documents:  
Notice Inviting Bids  
Accepted Bid  
General Construction Contract (including Addenda)  
Labor and Material Bond  
Faithful Performance Bond  
Specifications and General & Supplemental Conditions  
Drawings
2. The Work. The Contractor shall perform all the work required by the Contract Documents.
3. Time for Completion. All work under this Contract shall be completed within 105 calendar days, starting on the first working day stipulated in the Notice to Proceed.

4. Contract Price. The Owner shall pay, in full payment for the work, for the base bid sum of \_\_\_\_\_ **and no/100 (\$\_\_\_\_\_)** Dollars, subject to additions and deductions as provided in the Contract Documents.
5. Liquidated Damages. Liquidated damages shall be:
1. **Five Hundred and no/100 (\$500.00) Dollars** for each day the work is not completed beyond the time specified.
  2. If the work is completed and accepted by the Owner before the time required, the Owner will pay a premium to the Contractor at the rate of **Fifty and no/100 (\$50.00) Dollars** for each day (See General Conditions.)
6. Additional Provisions. None

This contract, entered into as of the date first written above.

ATTEST: LOIS M. SAHYOUN  
 Clerk of the Board of Supervisors of the  
 County of San Joaquin, State of California

COUNTY OF SAN JOAQUIN, a political  
 Subdivision of the State of California

By \_\_\_\_\_  
 Deputy Clerk  
 (SEAL)

By \_\_\_\_\_  
 FRANK L. RUHSTALLER, Chairman  
 Board of Supervisors  
 "OWNER"

APPROVED AS TO FORM:  
 County Counsel

By \_\_\_\_\_  
 Jason R. Morrish  
 Deputy County Counsel

By \_\_\_\_\_  
 Title \_\_\_\_\_

BY OWNER

State of California

County of San Joaquin

On this \_\_\_ day of \_\_\_\_\_ 2011, before me KENNETH W. BLAKEMORE, County Assessor/Recorder/Clerk of the County of San Joaquin, State of California, personally appeared FRANK L. RUHSTALLER known to be (or proved to me on the basis of satisfactory evidence) to be the person who executed this instrument as Chairman of the Board of Supervisors of the County of San Joaquin, State of California, and acknowledged to me that the political subdivision executed it.

GARY W. FREEMAN, County Assessor/Clerk/Recorder

BY \_\_\_\_\_

Deputy Clerk

**CALIFORNIA ALL-PURPOSE ACKNOWLEDGEMENT**

State of California

County of \_\_\_\_\_

On \_\_\_\_\_ before me \_\_\_\_\_  
Date Name, Title of Officer – E.G., "Jane Doe., Notary Public"

Personally appeared \_\_\_\_\_  
Name(s) of Signers(s)

Personally known to me – **OR**  proved to me on the basis of satisfactory Evidence to be the person(s) whose name(s) Is/are subscribed to the within instrument and Acknowledged to me that he/she/they executed The same in his/her/their authorized capacity(ies), And that by his/her/their signature(s) on the Instrument the person(s), or the entity upon Behalf of which the person(s) acted, executed the Instrument.

WITNESS my hand and official seal.  
\_\_\_\_\_  
SIGNATURE OF NOTARY

SEAL

**OPTIONAL SECTION  
CAPACITY CLAIMED BY SIGNER**

Though statute does not require the Notary to fill in the date below, doing so may prove invaluable to persons relying on the document

- INDIVIDUAL
- CORPORATE OFFICER(S)  
Title(s) \_\_\_\_\_
- PARTNERS  LIMITED  
 GENERAL
- ATTORNEY-IN-FACT
- TRUSTEE(S)
- GUARDIAN/CONSERVATOR
- OTHER: \_\_\_\_\_

**SIGNER IS REPRESENTING:**  
NAME OF PERSON(S) OR ENTITY(IES)  
\_\_\_\_\_

**OPTIONAL SECTION**

**THIS CERTIFICATE MUST BE ATTACHED TO  
THE DOCUMENT DESCRIBED AT RIGHT:**

Though the data requested here is not required by law, it could prevent Fraudulent reattachment of this form.

**TITLE OR TYPE OF DOCUMENT** \_\_\_\_\_  
**NUMBER OF PAGES** \_\_\_\_\_ **DATE OF DOCUMENT** \_\_\_\_\_  
**SIGNER(S) OTHER THAN NAMED ABOVE** \_\_\_\_\_



**San Joaquin County Jail Chiller Replacement Project**

**Performance Bond**

---

**KNOW ALL MEN BY THESE PRESENTS:**

THAT WHEREAS, the Board of Supervisors of the County of San Joaquin, a political subdivision of the State of California, has entered into a contract with \_\_\_\_\_

(hereinafter designated as the "Principal"), which said contract, dated \_\_\_\_\_, referred to and made a part hereof, is for the work described below:

AND WHEREAS, said Principal is required under the terms of the contract to furnish a bond for the faithful performance of said contract;

NOW, THEREFORE, we the Principal and \_\_\_\_\_

(hereinafter designated "Surety") are held and firmly bound unto the County of San Joaquin (hereinafter designated as "Obligee"), its successors and assigns, in the penal sum of \_\_\_\_\_ dollars

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

The condition of this obligation is such that if the above bounded principal, his or its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and provisions in the said contract and any alteration thereof made as therein provided, on his or their part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the Obligee, 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 and effect.

As part of the obligation secured hereby and in addition to the face amount specified therefor, there shall be included costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by Obligee in successfully enforcing such obligation, all to be taxed as costs and included in any judgment rendered.

The Surety hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of 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 work or to the specifications.

In witness whereof, this instrument has been duly executed by the Principal and Surety above named, on \_\_\_\_\_, 20\_\_\_\_.

**(ATTACH CERTIFICATES OF ACKNOWLEDGEMENT HERE)**

\_\_\_\_\_  
(Typed Name) (Title)  
Principal

\_\_\_\_\_  
(Name of Surety)

\_\_\_\_\_  
(Typed Name) Attorney-in-Fact

*San Joaquin County Jail Chiller Replacement Project*

*Payment Bond*

---

**KNOW ALL MEN BY THESE PRESENTS:**

THAT WHEREAS, the Board of Supervisors of the County of San Joaquin, a political subdivision of the State of California, has entered into a contract with \_\_\_\_\_

(hereinafter designated as the "Principal"), which said contract, dated \_\_\_\_\_, referred to and made a part hereof, is for the work described below:

AND WHEREAS, said Principal is required by the provisions of Chapter 7, Title 15, Part 4, Division 3, Section 3247 et seq., of the Civil Code of the State of California, to furnish a bond in connection with said contract, as hereinafter set forth.

NOW, THEREFORE, said Principal and \_\_\_\_\_

\_\_\_\_\_ as corporate Surety, are held firmly bound unto the County of San Joaquin and all contractors, subcontractors, laborers, materialmen and other persons employed in the performance of the aforesaid contract and referred to in the aforesaid Civil Code in the sum of \_\_\_\_\_

\_\_\_\_\_ (\$ \_\_\_\_\_), for materials furnished or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to such work or labor, that said Surety will pay the same in an amount not exceeding the amount herein above set forth, and also in case suit is brought upon this bond, will pay, in addition to the face amount thereof, costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by County in successfully enforcing such obligation, to be awarded and fixed by the court, and to be taxed as costs and to be included in the judgment therein rendered.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies and corporations entitled to file claims under Title 15 (commencing with Section 3082) of Part 4 of Division 3 of the Civil Code of the State of California, so as to give a right of action to them or their assigns in any suit brought upon this bond.

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

The Surety hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of contract or the specifications accompanying the same shall in 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 witness whereof, this instrument has been duly executed by the Principal and Surety above named, on \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
(Typed Name)

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

Principal

**(ATTACH CERTIFICATES OF  
ACKNOWLEDGEMENT HERE)**

\_\_\_\_\_  
(Name of Surety)

\_\_\_\_\_  
(Typed Name)

\_\_\_\_\_  
Attorney-in-Fact

***San Joaquin County Jail Chiller Replacement Project***  
***General Conditions***

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# *San Joaquin County Jail Chiller Replacement Project*

## *General Conditions*

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### A. GENERAL

#### Clause 1 - Definitions

Whenever the following terms, pronouns in place of them, or initials of organizations appear in the contract documents, they shall have the following meaning:

Acceptance - "Acceptance" is when the Owner determines all of the contract requirements have been completed (based on the closeout procedures set forth herein). A copy of Board acceptance will be sent to the Contractor. Upon receipt of the acceptance, the Contractor will be relieved of the duty of maintaining and protecting the work. After acceptance of the work, the Owner will initiate final settlement and payment in accordance with state statutes.

Act of God - "Act of God" means an earthquake of magnitude 3.5 or greater on the Richter scale, flood, tornado, or other cataclysmic phenomenon of nature or rain, snowstorm windstorm, high water, or other natural phenomenon in excess of the norm as established by NOAA weather data.

Addendum - A document issued by the Owner during the bidding period which modifies, supersedes, or supplements the original contract documents.

AED - Association Equipment Distributors. Organization providing a listing of equipment rental charges.

Agreement - The written document of agreement, executed by the Owner and the Contractor.

Architect/Engineer - Shall mean the architect, engineer, individual, partnership, corporation, association, joint venture or any combination thereof, employed by the Owner as designated on the title sheet of these specifications. When the Owner is designated as the Engineer, Engineer shall mean the County Administrator, or its authorized representative.

Beneficial Occupancy - The right of the Owner to occupy all or any portion of the project prior to final completion of the work. Such occupancy does not constitute acceptance or substantial completion by the Owner of the work or any portion thereof, nor will it relieve the Contractor of the responsibility for

correcting the defective work or materials found at any time before acceptance of the work.

Bid - The offer of the bidder to perform the work when made out and submitted on the prescribed bid form, properly executed and guaranteed.

Bid Form - The approved form upon which the Owner requires a formal bid be prepared and submitted for the work.

Bidder - Any individual, partnership, corporation, association, joint venture, or any combination thereof, which has submitted a proposal for the work, acting directly, or through a duly authorized representative.

Board or Board of Supervisors - Shall mean the duly elected or appointed officials who constitute such a Board, who have the ultimate legal authority in all matters pertaining to the contract.

Bulletin - A "bulletin" is a document consisting of supplemental details, instruction or information, issued by the Architect/Engineer through the Owner after the Award of Contract which clarifies or corrects the contract documents in connection with the performance of the contract which may supplement the Request for Information documents.

Change or Change Order - Is a document issued by the Owner which authorizes any change or equitable adjustment to the Contract Documents.

Construction Manager - "Construction manager" or owner representative as used under this contract, shall be as selected by the Owner. The construction manager will be the Owner's duly authorized representative and agent to the Contractor with respect to this project during construction and until the final completion.

Contract - The "contract" or "contract documents" shall mean the written agreement covering the performance of the work and the furnishing of labor, materials, tools, and equipment in the construction of the work. The contract shall include the Notice to Contractors, supplemental conditions, proposal, drawings, specifications, special provisions, instructions to bidders, addenda, General conditions, and contract bonds; also, any and all supplemental agreements are written agreements covering alterations, amendments or extensions to the contract and include contract change orders.

# *San Joaquin County Jail Chiller Replacement Project*

## *General Conditions*

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Contract Drawings - "Contract drawings" or "drawings" means and includes (a) all drawings which have been prepared on behalf of the Owner and are included in the contract documents and all modifying drawings issued by addenda thereto; (b) all drawings submitted pursuant to the terms of the contract by the Contractor with his/ her proposal to the Owner during the progress of the work which are accepted by the Owner; and (c) all drawings submitted by the Owner to the Contractor during the progress of the work.

Contractor - "Contractor" means the prime or principal Contractor, including all joint ventures, subcontractors, equipment, or material supplier, and their employees. References to subcontractor or others are only for convenience and all such references shall be considered to refer to the Contractor. The prime or principal Contractor shall be responsible for all subcontractors, and all subcontractors shall require their subcontractors to comply with the relevant provisions of the prime or principal contract.

County or Owner - Shall mean the County of San Joaquin, a political subdivision of the State of California and party of the first part, or its duly authorized agent, acting within the scope of their authority.

Critical Path Method (CPM) - "Critical path method" is a schematic technique.

Day - "Day" or "working day" means calendar day and shall include every day including Saturdays, Sundays, and legal holidays.

Directed - "Directed," "designated," "permitted," "required," "accepted," and works of like import, wherever and in whatever manner used, with or without reference to the Owner, means as directed, designated, permitted, required, and accepted by the Owner.

Field Instruction - Is an instruction given during the course of the work.

Final Completion - "Final completion" is that point in the contract as determined by the Owner through a final inspection that the Contractor has completed all physical work and is ready to prepare for final closeout and acceptance as prescribed herein. All work is complete, accessible, operable, and usable by the Owner; all parts, systems and site work are 100% complete and cleaned for the Owners use. The Owner will issue a certificate of final completion.

General Notes - The written instructions, provisions, conditions, or other requirements appearing on the drawings, and so identified thereon, which pertain to the performance of the work.

Herein - "Herein," "hereinafter," and words of similar import shall refer to the contract documents.

Inspect - "Inspectors" are the agents for the Owner who are responsible for quality control on the project.

Install - "Install," wherever and in whatever manner used, shall mean the installation complete in place of any item or equipment or material.

Liquidated Damages - The amount prescribed in the Contract to be paid to the Owner or to be deducted from any payments due or to become due the Contractor for each day's delay in completing the whole or any specified portion of the work beyond the time allowed in the Contract plus approved time extensions.

Material or Materials - "Materials(s)" shall be construed to include machinery, equipment, manufactured articles, materials, or construction such as form work, fasteners, etc., and any other classes of material to be furnished in connection with the Contract, except where a more limited meaning is indicated by the context.

May - "May," wherever and in whatever manner used, is permissive.

Modification to the Contract - See change orders above.

NOAA - National Oceanic and Atmospheric Administration (U.S. Government).

Notice Inviting Bidders - The public advertisement inviting sealed bids for the work.

Notice to Proceed - The "Notice to Proceed" is the written notification giving the Contractor notice that he shall commence with the prosecution of his work as defined in the Contract Documents. The day following receipt of the Notice to Proceed will constitute the first calendar day of the specified duration to bring the work to Substantial Completion as determined by the Owner (unless specified otherwise).

Owner - County of San Joaquin



# *San Joaquin County Jail Chiller Replacement Project*

## *General Conditions*

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Plans - The official drawings including plans, elevations, sections, detail drawings, diagrams, general notes, information and schedules thereon, or exact reproductions thereof, adopted and approved by the Owner showing the location, character, dimension, and details of the work.

Provide - "Provide," wherever and in whatever manner used, shall be understood to mean provide complete in place, that is, furnish and install.

Request for Change - Shall mean any detailed request for a monetary change or equitable adjustment.

Request for Information - The form and procedure established for communication between the Contractor and Owner/ Architect/Engineer to clarify or interpret the contract documents or discover conflicts, omissions, or errors in these document. In addition, the Request for Information may be a precursor to Potential Change Orders and the document to transmit bulletins as prepared by the architect to the Contractor.

Shall or Will - "Shall" or "will," whenever used to stipulate anything is mandatory, means shall or will be done or be performed by either the Contractor or the Owner and means that the Contractor or the Owner has thereby entered into a covenant with the other party to do or perform the same.

Shown - "Shown," "indicated," "detailed," and words of like import, wherever and in whatever manner used, with or without reference to the drawings, means shown, indicated, or detailed on the drawings.

Singular - "Singular" words include the plural and vice versa.

Specifications - "Specifications" means and includes:

- a. All specifications which have been prepared on behalf of the Owner and are included in the Contract Documents and all modifications issued by addenda thereto;
- b. All specifications or descriptive literature submitted pursuant to the terms of the Contract by the Contractor with his/her proposal of the work which are accepted by the Owner and;
- c. All specifications submitted by the Owner to the Contractor during the progress of the work.

Specified - "Specified," "described," or "noted," wherever and in whatever manner used, means as specified, described, shown or noted in the contract documents.

Subcontract - An individual, partnership, corporation, association, joint venture, or any combination thereof, who contracts at any tier with the Contractor (or subcontractor) to perform work or labor or render service in or about the work. The term subcontractors shall not include those who supply materials only.

Submittals - The term "submittals" shall include shop drawings, calculations, samples, schedules, procedures, manufacturers brochures, pamphlets catalog cuts, color charts, or other descriptive data, clearly defining the article, material, equipment, or device proposed for use in the work. The shop drawings are the drawings and diagrams showing details of fabrication and erection which the Contractor is required to submit to the Architect/Engineer through the Owner's authorized representative.

Submitted - "Submitted," wherever and in whatever manner used, means submitted to the Owner for review or acceptance.

Substantial Completion - "Substantial completion" is when the Owner determines the contract work can be used for its intended purpose as prescribed by the closeout procedures contained herein. The Contractor will be so notified when the work is substantially complete and it is the point at which guarantees or warranties begin and liquidated damages are stopped. Substantial completion does not constitute acceptance or final completion of the work. Remaining on omissions and defects must be completed prior to final completion and acceptance.

Sufficient - "Sufficient," "necessary," "proper," "acceptable," "satisfactory," "desirable," and words of like import wherever and in whatever manner used, with or without reference to the Owner, means sufficient, necessary, proper, acceptable, satisfactory, and desirable in the judgment of the Owner.

Superintendent - The representative of the Contractor as approved by the Owner who shall be present at the work site at all times during performance of the work. Such Superintendent shall at all times be fully authorized to receive and act upon instructions from the Architect/Engineer or the Owner's authorized agents and to execute and direct the work on behalf of the Contractor.

***San Joaquin County Jail Chiller Replacement Project  
General Conditions***

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Supplier - "Supplier" shall mean an individual, partnership, firm, or corporation, or legally constituted Joint Venture entering into an agreement with the Owner, Contractor or subcontractor for furnishing a portion of the work which requires no labor at the job site, other than common carriers.

Work - The furnishing and installing of all labor materials, articles, supplies, and equipment as specified, designated, or required by the contract.

**Clause 2 - Specialist**

The term "Specialist" as used in the contract specification shall mean an individual or firm of established reputation (or, if newly organized, whose personnel have previously established a reputation in the same field), which is regularly engaged in, and which maintains a regular work force of workmen skilled in either (as applicable) manufacturing or fabricating items required by the contract, installing items required by the contract, or otherwise performing work required by the contract. Where the contract specification requires installation by a specialist, that term shall also be deemed to mean either the manufacturer of the item, an individual or firm licensed by the manufacturer, or an individual or firm who will perform the work under the manufacturer's direct supervision.

**Clause 3 - Authorities and Limitations**

The Owner has designated the Facilities Management's Capital Projects Division as its representative during the work. All work shall be performed under the general direction of the Facilities Management Capital Projects Division. The Board of Supervisors alone shall have the power to bind the Owner and to exercise the rights, responsibilities, authorities, and functions vested therein by the contract documents, except that it shall have the right to designate authorized representatives to act for them. Wherever any provision in this contract specifies an individual (such as, but not limited to, Construction Manager, Resident Engineer, Inspector, Custodian or other agent) or organization, whether governmental or private, to perform any act on behalf of or in the interests of the Owner, that individual or organization shall be deemed to be the Facilities Management Capital Projects Division's authorized representative under this contract but only to the extent so specified. The Owner may, at any

time during the performance of this contract, vest in any such authorized representatives additional power and authority to act for him or designate additional representatives, specifying the extent of their authority to act for him; a copy of each document vesting additional authority in an authorized representative or designating an additional authorized representative shall be furnished to the Contractor.

The Contractor shall perform the contract in accordance with any order (including, but not limited to, instruction, direction, interpretation, or determination) issued by an authorized representative in accordance with his authority to act for the Owner but the Contractor assumes all the risk and consequences of performing the contract in accordance with any order (including but not limited to instruction, direction, interpretation, or determination) of anyone not authorized to issue such order.

**Clause 4 - Legal Requirements**

- a. Contractor shall keep informed of, and comply with, all federal, state and county laws, ordinances, rules, and regulations applicable to the work or to those engaged or employed in the work of this contract, especially (but not limited to) those laws relating to hours of employment, minimum wages, payment of wages, sanitary and safety conditions for workers, worker's compensation insurance, type and kind of materials that can be used, and nondiscrimination in employment. Contractor shall indemnify and save harmless the Owner, its officers, agents and employees from all claims, suits, or actions arising from or based on the violation of any such law, rule, or regulation, whether violation is committed by Contractor, or his/her subcontractors, suppliers, agents, or employees. Certain of those provisions are set forth herein or in the General Construction Contract. The existence of these provisions does not excuse the Contractor from complying with other statutory requirements or provisions which are not set forth in these contract documents.

If conflict arises between provisions of the plans and specifications and any such laws, rules, or regulations, Contractor shall notify Owner at once in writing. If, before receiving clarification, Contractor performs

# ***San Joaquin County Jail Chiller Replacement Project***

## ***General Conditions***

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any portion of the work affected by such apparent conflict, such performance shall be at Contractor's own risk; and it shall not be entitled to any additional compensation or time by reason of the conflict or its later correction.

Contractor shall be responsible for liability imposed by law on Contractor for damage to any persons or property resulting from defects of obstructions or from any cause whatsoever during progress of the work or at any time before acceptance or thereafter.

- b. All work and materials shall be in full accordance with the latest codes, rules, and regulations including, but not limited to, the following:
- Uniform Building, Electrical & Plumbing Ordinances of San Joaquin County
  - Uniform Fire Code
  - State Fire Marshal
  - State Codes and Ordinances
  - State Industrial Accident Commission's Safety Orders
  - Rules of Local Utilities
  - Local City and/or County Ordinances

Nothing in the specifications is to be construed to permit work not conforming to the above, and expense in compliance with the above work shall be borne by the Contractor. Whenever the specifications and working details require higher standards than those required by the ordinances, codes and statutes, the specifications and working details shall take priority over the ordinances, codes and statutes. The Contractor will keep copies of codes on the job site at all times during construction.

- c. Royalties and Patents. 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 Agents harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular process or the product of a particular manufacturer or manufacturers is specified, but if the Contractor has information that the process or articles specified is an infringement of a patent he shall be responsible for such loss unless he promptly gives such information to the Representative.

### **Clause 5 - Standard References**

All documents and publications (such as, but not limited to, manuals, handbooks, codes, standards, and specifications) which are cited in this contract for the purpose of establishing requirements applicable to equipment, materials, or workmanship under this contract, shall be deemed to be incorporated herein as fully as if printed and bound with the specifications of this contract, in accordance with the following:

Wherever reference is made to any such document, the Contractor shall comply with the requirements set out in the edition specified in this contract or, if not specified, the latest edition or revision thereof, as well as the latest amendment or supplement thereto, in effect on the date of the solicitation on this project, except as modified by, as otherwise provided in, or as limited to type, class, or grade, by the specifications of this contract.

### **Clause 6 - Permits, Licenses & Fees**

The Contractor shall, at his expense, obtain all necessary permits and licenses, easements, etc., for the construction of the project, give all necessary notices, pay all fees required by law, and comply with all laws, ordinances, rules, and regulations relating to the work and to the preservation of the public health and safety. The exception to the aforementioned is as specifically noted in the contract documents.

### **Clause 7 - Separate Contracts**

The Owner reserves the right to let other contracts in connection with the work. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs.

To insure the proper execution of his subsequent work, the Contractor shall measure work already in place and shall at once report in writing to the Representative and to the Architect/Engineer any discrepancy between the executed work and the drawings.

***San Joaquin County Jail Chiller Replacement Project  
General Conditions***

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**Clause 8 - Representative & Architect/Engineer**

- a. The Owner has designated the Facilities Management Capital Projects Division as its representative during the work and as inspector of all construction, who may be known as "Resident Inspector," "Inspector," "Project Manager" or "Construction Manager." He shall have the right to be at the job site during construction and shall supervise any additional job inspectors appointed by the Owner.

The Representative will have the right to observe the installation of all materials and equipment to be incorporated into the work and the placing of such material and equipment to determine in general if the work is proceeding in accordance with the contract documents. On the basis of his observations, he will keep the Owner informed as to the progress of the work. The Representative shall not be responsible for means, methods, techniques, sequences, or procedures of construction nor for safety precautions and programs in connection with the work, nor will he be responsible for the Contractor's failure to carry out the work in accordance with the contract documents.

- b. Architect/Engineer: The Owner has retained an Architect/Engineer for this project. The Architect/Engineer will advise and consult with the Owner, and the Owner will issue instructions to the Contractor as directed. The Architect/Engineer will be requested to interpret the requirements of the contract documents and judge the performance thereunder. As requested by the Owner, the Architect/Engineer will, within reasonable time, render such interpretations as he may deem necessary for the proper execution of the work (see clarifications clause).

As requested by the Owner, Architect/Engineer will make periodic visits to the job site to familiarize itself generally with the progress and quality of the work and to determine in general whether such work is proceeding in accordance with the contract documents. Based on such observations he may be requested to recommend applications for progress payments made by Contractor.

**B. BONDS & INSURANCE**

**Clause 9 - Bid Bond (Guarantee)**

- a. Failure to furnish a bid guarantee, in the proper form and amount, by the time set for opening of bids, may be cause for rejection of the bid.
- b. The offeror (bidder) shall furnish a bid guarantee in the form of a firm commitment, such as a bid bond, certified check, cashier's check, or irrevocable letter of credit of not less than ten percent (10%) of the amount of the bid payable to the County of San Joaquin. "The amount of the bid" is defined to include all additive alternates and no deductive alternates. The check, bond or letter of credit shall be given as a guarantee that the successful bidder will enter into a written contract within ten (10) days after award and will be considered as the stipulated amount of liquidated damages in the event the bidder is unable to or refuses to execute a contract for the work. The Owner will return bid guarantees, other than bid bonds, to (1) unsuccessful bidders as soon as practicable after the opening of bids and (2) the successful bidder upon execution of contractual documents and bonds (including any necessary coinsurance or reinsurance agreements), as required by the bid as accepted.
- c. If the successful bidder, upon acceptance of its bid by the Owner within the period specified for acceptance, fails to execute all contractual documents or provide the performance and/or payment bond(s) as required by the solicitation within the time specified, the Owner may terminate the contract for default.
- d. Unless otherwise specified in the bid, the bidder will allow sixty (60) days for acceptance of its bid.
- c. In the event the Contractor is terminated for default, the bidder is liable for any cost of bidding the work that exceeds the amount of its bid, and the bid guarantee is available to offset the difference.

**Clause 10 - Performance and Payment Bonds**

- a. The Contractor shall furnish the Owner, within ten (10) days (or as otherwise specified) of the

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execution of a contract for the work called for in the specifications and prior to beginning of work, with the following separate surety bonds:

(1.) Faithful Performance Bond. Said bond shall be in an amount equal to one hundred percent (100%) of the contract price, shall be for the faithful performance of the contract, shall be approved by the Owner, and shall be secured from a surety or sureties satisfactory to said Owner.

(2.) Payment Bond for Public Works. The Contractor shall furnish a separate surety bond in an amount at least equal to one hundred percent (100%) of the contract price as security for the payment of all persons for furnishing materials, provisions, provender, or other supplies, or items, used in, upon, for, or about the performance of the work contracted to be done, or for performing any work or labor thereon of any kind, and for the payment of amounts due under the Unemployment Insurance Code with respect to such work or labor in connection with this Contract, and for the payment of a reasonable attorney's fee to be fixed by the court in case suit is brought upon the bond.

Each of said bonds shall be substantially in the form attached to and located at the end of these General Conditions or AIA forms, Document A311.

b. The Contractor shall promptly furnish additional security required to protect the Owner and persons supplying labor or material under this contract if:

(1). Any surety upon any bond furnished with this contract becomes unacceptable to the Owner;

(2). Any surety fails to furnish reports on its financial condition as required by the Owner; or

(3). The contract price is increased so that the penal sum of any bond becomes inadequate in the opinion of the Owner.

### **Clause 11 - Insurance**

The Contractor shall not commence work under this contract until he has obtained all insurance required under this paragraph and such insurance has been

approved by the Owner, nor shall the Contractor allow any subcontractor to commence work on his subcontract until all similar insurance required of the subcontractor has been so obtained and approved. Contractor shall furnish the Owner with satisfactory proof of the carriage of insurance required within, and there shall be a specific contractual liability endorsement extending the Contractor's coverage to include the contractual liability assumed by the Contractor pursuant to this Contract and particularly the hold harmless requirements. Any policy of insurance required of the Contractor under this contract shall also contain an endorsement providing that thirty (30) days' notice must be given in writing to the Owner of any pending change in the limits of liability or of any cancellation or modification of the policy. Three (3) copies of insurance certificates evidencing the required coverage shall be furnished Owner. Certificates of insurance must indicate that the coverage cannot be reduced or cancelled until THIRTY (30) days written notice has been furnished Owner.

a. Compensation Insurance and Employer's Liability Insurance. The Contractor shall take out and maintain during the life of this Contract Workmen's Compensation Insurance and Employer's Liability Insurance for all of his employees employed at the site of the project and, in case any work is sublet, the Contractor shall require the subcontractor similarly to provide Workmen's Compensation Insurance and Employer's Liability Insurance for all of the latter's employees unless employees are covered by the protection afforded by the Contractor.

In signing this Contract, the Contractor makes the following certification, required by Section 1861 of the Labor Law:

I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workmen'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."

b. Liability Insurance The Contractor shall take out and maintain during the life of this contract such Bodily Injury Liability and Property Damage Liability Insurance as shall protect him and any subcontractor performing work covered by this contract from claims for damages for bodily

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injury, including accidental death as well as from claims for property damage, including third-party property damage, to include coverage on property in the care, custody and control of the Contractor, and also excluding what are commonly known as the "X, C and U" exclusions (having to do with blasting, collapse, and underground property damage), which may arise from Contractor's operations under this contract, whether such operations be by himself or by a subcontractor or by anyone directly or indirectly employed by either of them and the amounts of such insurance shall be as follows:

Comprehensive Liability Insurance covering personal injury, bodily injury, and property damage liability with a combined single limit in an amount not less than \$1,000,000. SUCH INSURANCE SHALL NAME OWNER, ITS OFFICERS, AGENTS, AND EMPLOYEES AS ADDITIONAL INSURED. CONTRACTOR'S LIABILITY INSURANCE POLICY SHALL BE ENDORSED AS PRIMARY INSURANCE.

- c. Fire Insurance. The Contractor will at his expense maintain Builder's Risk Fire Insurance, including Extended Coverage and Vandalism and Malicious Mischief endorsements, jointly in the names of the Owner and Contractor, payable as their respective Interest may appear, such insurance at all times to be of sufficient amount to cover fully all loss or damage to the work under this agreement, resulting from fire and the perils covered by Extended Coverage and Vandalism and Malicious Mischief endorsements not less than 100% of contract price.
- d. Indemnification. Contractor will indemnify and defend Owner and its agents such as construction manager or architect from all claims, demands, or liability arising out of or encountered in connection with this contract or the prosecution of work under it, whether such claims, demands, or liability are caused by Contractor, Contractor's agents or employees, or subcontractors employed on the project, their agents or employees, or products installed on the project by Contractor or subcontractors, excepting only such injury or harm as may be caused solely and exclusively by Owner's fault or active negligence. Such indemnification shall extend to claims, demands, or liability for injuries occurring after completion of the project as well as during the work's progress.
- e. Hold Harmless. The Contractor will save, keep, and bear harmless the Owner and all officers, employees, and agents such as construction manager and architect thereof from all damages, costs, or expenses, in law or in equity, that may at any time arise or be set up because of personal injury or damage to property sustained by any person or persons by reason of, or in the course of the performance of said work, or by reason of any infringement or alleged infringement of the patent rights of any person or persons, firm or corporation in consequence of the use in, on or about said work, of any article or material supplied or installed under this contract. Notwithstanding the above the Contractor shall wherever it is necessary keep and maintain at his sole cost and expense during the course of his operations under this contract such warnings, signs, and barriers as may be required to protect the public. The provisions of the preceding sentence shall not impose any liability upon the Owner and are for the express benefit of the general public.
- f. The Contractor shall insert the substance of this clause, number 11 including this paragraph f, in subcontracts under this contract that require work on a Owner installation and shall require subcontractors to provide and maintain the insurance required in this clause or elsewhere in the contract. At least five (5) days before entry of each subcontractor's personnel on the Owner installation, the Contractor shall furnish (or ensure that there has been furnished) to the Owner a current certificate of insurance, meeting the requirements of paragraph b. above, for each such subcontractor.

**C. SITE CONDITIONS**

**Clause 12 - Differing Site Conditions**

- a. The Contractor shall promptly (no more than one day), and before the conditions are disturbed, give a written notice to the Owner as to (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or (2) unknown physical conditions at the site of an unusual nature, which differ materially from those normally encountered and generally recognized

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as inherent in the work of the character provided for in the contract.

- b. The Owner shall investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, a change order shall be made under this clause and the contract modified in writing in accordance with the changes clause and the contract modified in writing accordingly.
- c. No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed unless the Contractor has given the written notice required.
- d. No request by the Contractor for a change to the contract for differing site conditions shall be allowed if made after final payment under this contract.

### **Clause 13 - Site Investigation and Conditions Affecting the Work**

- a. The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to: (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather, water table, river stages, tides, or similar physical conditions at the site; (4) the conformation and condition of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertained from an inspection of the site, including all exploratory work done by the Owner, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from

responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Owner.

- b. The Owner assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the Owner. Nor does the Owner assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in these contract documents.

### **Clause 14 - Dimensions and Measurements**

All dimensions shown of existing work and all dimensions required for work that is to connect with work now in place, shall be verified and calculated by the Contractor by actual measurement of the existing work. Any discrepancies between the contract requirements and the existing conditions shall be referred to the authorized representative of the Owner before any work affected thereby has been performed. Failure to notify the Owner before starting work will be considered acceptance by the Contractor. Where doubts as to dimensions exist, Owner shall determine the correct dimensions.

### **Clause 15 - Notice of Conflicting Conditions**

Where the Contractor's work is associated with that of another Owner Contractor, the Contractor shall examine the preceding or adjacent work and report in writing to the Owner's authorized representative any visible defect or condition preventing the proper execution of his contract. If he proceeds without giving notice, the Contractor shall be held to have accepted the work or material, and the existing conditions, and shall be responsible for any defects in his own work consequent thereon, and shall be relieved of any obligation or any guarantee because of any such condition or imperfection. This provision shall be included in any and all other contracts or subcontracts for work to be performed where such a conflict could exist.

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**D. SPECIFICATIONS AND DRAWINGS**

**Clause 16 - Specifications and Drawings, General**

- a. Subdivision: For convenience, these specifications are arranged into several sections, but such separation shall not be considered as the limits of the work required of any separate trade. The terms and conditions of such limitations are wholly between the Contractor and his subcontractors.
- b. As-Built Drawings: The Contractor shall keep on the work site a current copy of the drawings and specifications and shall at all times give the Owner access thereto.

The Contractor will be given one extra set of drawings and specifications which shall be kept at the site of the work at all times and updated weekly. Payment may be withheld if drawings are not kept current. Exact locations of all pipes and conduits and all changes in construction and details shall be indicated and dimensions provided upon these drawings, and all changes in materials and equipment installed shall be indicated in these specifications. Upon completion of the work, the "as-built" drawings and specifications shall be returned to the Owner prior to the final payment.

In general, the working details will indicate dimensions, position, and kind of construction, and the specifications, qualities, and methods. Any work indicated on the working details and not mentioned in the specifications, or vice versa, shall be furnished as though fully set forth in both. Work not particularly detailed, marked, or specified shall be the same as similar parts that are detailed, marked, or specified.

In case of discrepancy in the documents, the matter shall be promptly submitted to the Owner's authorized representative, who shall make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Owner shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

- c. Similar Drawings: Where the word "similar" occurs on the drawings, it shall have a general meaning and not be interpreted as being identical, and all details shall be worked out in relation to their location and their connection with other parts of the work.
- d. Standard Details: Standard Details or specification drawings are applicable when listed, bound with specifications, noted on the drawings or referenced elsewhere in the specifications. Where the notes on the drawings indicate modifications, such modifications shall govern.

**Clause 17 - Summary of the Order of Precedence**

In case of conflicts between the contract documents the order of precedence shall be as follows:

- a. Modifications or changes last in time are first in precedence.
- b. Addenda.
- c. Owner-Contractor agreement.
- d. General Conditions except for specific modifications thereto stated in the Supplementary Conditions or Division One Specification.
- e. Supplementary Conditions.
- f. Specifications.
- g. Note: Should there be conflict among the General Conditions, Supplementary Conditions and Division One specification the more restrictive will apply.
- h. Drawings; as between figures given on drawings and the scaled measurements, the figures shall govern; as between large-scale drawings and small-scale drawings, the larger scale shall govern. Structural drawings will take precedence over architectural drawings.
- i. As between detailed drawings and standard plates bound within the specifications, the detailed drawings govern.
- j. In the event where provisions of codes, safety orders, contract documents, referenced manufacturer's specifications or industry



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- standards are in conflict, the more restrictive and higher quality shall govern.
- k. Schedules on the drawings take precedence over conflicting information given on other drawings.
  - l. Architectural/structural drawings.
  - m. Mechanical/electrical drawings.

### **Clause 18 – Clarifications, Request for Information and Additional Instructions**

- a. Notification by Contractor: Should Contractor discover conflicts, omissions, or errors in the contract documents or have any question concerning interpretation or clarification of the contract documents, or if it appears to Contractor that the work to be done or any matters relative thereto are not sufficiently detailed or explained in the contract documents, then, before proceeding with work affected, Contractor shall immediately notify Owner's authorized representative in writing, and request interpretation, clarification, or additional detailed information concerning the work. Owner, whose decision shall be final and conclusive, shall resolve such questions and issue instructions to Contractor within a reasonable amount of time but in no less than 14 calendar days. Should Contractor proceed with work affected before receipt of instructions from Owner, Contractor shall remove and replace or adjust work which is not in accordance therewith and it shall be responsible for resultant damage, defect or added cost. In event of failure to agree as to scope of contract requirements, Contractor shall follow procedure set forth in the disputes clause. The Contractor shall ask for any clarification or request for information (clarification) immediately upon discovery based on the latest updated version of the Official Contract Schedule. The Contractor shall submit all requests for clarification and/or additional information to the Owner's authorized representative.
- b. Additional Detailed Instructions: The Owner may furnish additional detailed written instructions to further explain the work, and such instructions shall be a part of the contract

requirements. Should additional detailed instructions, in the opinion of Contractor, constitute work in excess of scope of the contract, it must submit written notice thereof immediately to the county but not more than seven (7) calendar days following receipt of such instruction, and in any event prior to commencement of work thereon. Owner will then consider such notice and, if in its judgment it is justified, the Owner's instructions will be revised or the extra work authorized. Contractor shall have no claim for additional compensation because of such additional instructions unless Contractor gives the Owner written notice thereof within the seven days specified above. For procedure concerning protests in case of dispute as to contract requirements, attention is directed to the disputes clause.

### **E. SHOP DRAWINGS AND SUBMITTALS**

#### **Clause 19 – Shop Drawings, Product Data, Coordination Drawings and Schedules**

- a. Shop drawings means drawings, submitted to the Owner by the Contractor, subcontractor, or any lower tier subcontractor manufacturer, supplier or distributor pursuant to a construction contract, showing in detail (1) the proposed fabrication and assembly of structural elements and (2) the installation (i.e., form, fit, and attachment details) of materials or equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, fabrication, erection and setting drawings, manufacturers' scale drawings, wiring and control diagrams, cuts or entire catalogs, pamphlets, and performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract. The Owner may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.
- b. If this contract requires shop drawings, the Contractor shall coordinate all such drawings and review them for accuracy, completeness, and compliance with contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop

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- drawings submitted to the Owner without evidence of the Contractor's approval may be returned for rescissions. The Architect/Engineer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the reasons therefor. Any work done before such approval shall be at the Contractor's risk. Approval or disapproval by the Architect/Engineer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with paragraph c. below.
- c. If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Architect/Engineer approves any such variation, no change in time or price will be allowed for Contractor changes. Should the Architect/Engineer make changes on the shop drawings, affecting time and/or cost, the Contractor will immediately notify the Owner with a request for information. If the Owner approves the change, it shall issue an appropriate contract modification, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.
- d. Clause 19 shall be included in all subcontracts at any tier.
- e. The Contractor shall submit shop drawings, coordination drawings, and schedules for approval as required by the specifications or requested by the Owner as follows. The Contractor will provide a submittal schedule listing all shop drawings and submittals, the submission dates by the Contractor and return dates from the architect, this schedule will be provided two weeks after Notice to Proceed.
- f. Shop drawings and schedules, other than catalogs, pamphlets, and similar printed material, shall be submitted with one reproducible plus six copies. The reproducible will be returned to the Contractor who shall submit as many additional copies as the Contractor may desire or need for his use or use by subcontractors.
- g. Before submitting shop drawings on the mechanical and electrical work, the Contractor shall submit and obtain the Owner's approval of such lists of mechanical and electrical equipment and materials as may be required by the specifications, and shall submit a submittal schedule.
- h. Each shop drawing or coordination drawing shall have a blank area 5 by 5 inches located adjacent to the title block. The title block shall display the following:
- Number and title of drawing
  - Date of drawing or revision
  - Name of project building or facility
  - Name of Contractor and (if appropriate) name of subcontractor submitting drawings
  - Clear identity of contents and location on the work
  - Project title and contract number
  - Submittal number
- i. Unless otherwise provided in this contract, or otherwise directed by Owner, shop drawings, coordination drawings, and schedules shall be submitted to the Architect/Engineer with a letter in triplicate, sufficiently in advance of construction requirements to permit no less than fifteen (15) working days for checking and appropriate action. More complex submittals will take in excess of 15 working days for architect action.
- j. Approval of drawings and schedules will be general and shall not be construed as permitting any departure from the contract requirements, or as approving departures from full-size details furnished by the Owner.

**Clause 20 - Samples**

- a. After the award of the contract, the Contractor shall furnish for the approval of the Owner samples required by the specifications or by the Owner. Samples are physical examples which illustrate materials, equipment or workmanship

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- and establish standards by which the work will be judged. Samples shall be delivered to the Owner or to the Architect/Engineer as specified or as directed. The Contractor shall prepay all shipping charges on samples. Materials or equipment for which samples are required shall not be used in the work until approved in writing by the Owner.
- b. Each sample shall have a label indicating:
- (1.) Name of project building or facility, project title, and contract number.
  - (2.) Name of Contractor and, if appropriate, name of subcontractor.
  - (3.) Identification of material or equipment with specification requirement.
  - (4.) Place of origin.
  - (5.) Name of producer and brand (if any),
- Samples of finished materials shall have additional markings that will identify them under the finish schedules.
- c. The Contractor shall mail under separate cover a letter in triplicate submitting each shipment of samples and containing the information required in paragraph b. above. He shall enclose a copy of this letter with the shipment and send a copy to the Owner representative on the project. Approval of a sample shall be only for the characteristics or use named in such approval and shall not be construed to change or modify any contract requirement. Substitutions will not be permitted unless they are approved in writing by the Owner.
- d. Approved samples not destroyed in testing will be sent to the Owner representative. Approved samples of hardware in good condition will be marked for identification and may be used in the work. Materials and equipment incorporated in the work shall match the approved samples. Other samples not destroyed in testing or not approved will be returned to the Contractor at his expense if so requested at time of submission.
- e. Failure of any material to pass the specified tests will be sufficient cause for refusal to consider, under this contract, any further samples of the same brand or make of that material or equipment which previously has proven unsatisfactory in service.
- f. Samples of various materials or equipment delivered on the site or in place may be taken by the Owner representative for testing. Samples failing to meet contract requirements will automatically void previous approvals of the items tested. The Contractor shall replace such materials or equipment found not to have met contract requirements, or there shall be a proper adjustment of the contract price as determined by the Owner.
- g. Unless otherwise specified, when tests at required only one test of each sample proposed for use will be made at the expense of the Owner. Samples, which do not meet specification requirements will be rejected. Testing of additional samples will be made by the Owner at the expense of the Contractor.

### **Clause 21 - Substitutions**

- a. For convenience in designation on the plans or in the specifications, certain materials, articles, or equipment may be designated by a brand or trade names or the names of the manufacturers together with catalog designations or other identifying information, hereinafter referred to generically as "designated by brand names." An alternative material, article, or equipment which is of equal or superior quality and of the required characteristics for the purpose intended may be proposed for use provided the Contractor complies with the following requirements:
- b. The Contractor shall submit all his proposals for a substitution in writing within forty-five (45) days after Notice to Proceed. No substitution will be considered after the 45-day period except as allowed by the Owner.
- c. No such proposal will be considered unless accompanied by complete information and descriptive data necessary to determine the

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equality of the offered materials, articles, or equipment. Samples shall be provided when requested by the Owner.

- d. The Contractor shall note that the burden of proof as to the comparative quality or suitability of the offered materials, articles, or equipment shall be upon the Contractor. The Owner or its agents shall be the sole judge as to such matters. In the event that the Owner rejects the use of such alternative materials, articles, or equipment, then one of the particular products designated by brand name shall be furnished.
- e. The Owner will examine, with reasonable promptness, such submittals, and return of submittals to the Contractor shall not relieve the Contractor from responsibility for deviations and alternatives from the contract plans and specifications, nor shall it relieve him from responsibility for errors in the submittals. A failure by the Contractor to identify, in his letter of transmittal, material deviations from the plans and specifications shall void the submittal and any action taken thereon by the Owner. When specifically requested by the Owner, the Contractor shall resubmit such shop drawings, descriptive data, and samples as may be required.
- f. If any mechanical, electrical, structural, or other changes are required for the proper installation and fit of alternative materials, articles, or equipment, or because of deviations from the contract plans and specifications, such changes shall not be made without the consent of the Owner and shall be made without additional cost to the Owner.
- g. Contractor will be liable for cost of the architect and/or engineer to provide technical review and approval of any substitutions.
- h. The Contractor is directed to Public Contract Code Section 3400 for substitution requirements for items that list only one brand or trade name. The contractor shall have five (5) days after the bid date to provide documentation for review of these proposed substitutions. No award shall be made during this period.

**F. SCHEDULES**

**Clause 22 - Construction Schedule**

- a. The Contractor shall, within fourteen (14) calendar days after the Notice to Proceed or another period of time determined by the Owner, prepare and submit to the Owner for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring materials and equipment). The schedule shall be in the form of a progress chart or CPM (critical path method) schedule (as selected and approved by the Owner) of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period (CPM activities will not exceed 14 days). If the Contractor fails to submit a schedule within the time prescribed, the Owner may withhold approval of progress payments until the Contractor submits the required schedule.
- b. The Contractor shall enter the actual progress on the chart/schedule at least monthly with the payment request or as directed by the Owner, and upon doing so shall immediately deliver three copies of the annotated schedule to the Owner's authorized representative. If, in the opinion of the Owner, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Owner, without additional cost to the Owner. In this circumstance, the Owner may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in CPM or chart form as the Owner deems necessary to demonstrate how the approved rate of progress will be regained.
- c. Failure of the Contractor to comply with the requirements of the Owner under this clause shall be grounds for a determination by the Owner that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the

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contract. Upon making this determination, the Owner may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the termination clause of this contract.

### **G. TIME AND LIQUIDATED DAMAGES**

#### **Clause 23 - Time of Work, Liquidated Damages, and Extensions**

##### a. Time of Work

The Contractor shall commence work on this project the day following receipt of the written Notice to Proceed. Upon receipt of such notice the Contractor shall begin work and shall prosecute the work diligently to completion within the number of calendar days specified in the contract. No work shall be commenced before the contract is fully executed.

##### b. Liquidated Damages

If the work is not completed within the time required, damage will be sustained by the Owner. It is and will be impracticable and extremely difficult to ascertain and determine actual damage which Owner will sustain by reason of such delay; and it is therefore agreed that Contractor will pay to Owner the sum of money stipulated per day in the Contract for each and every day's delay in finishing the work beyond the time prescribed. If the Contractor fails to pay such liquidated damage, the Owner may deduct the amount thereof from any money due or that may become due the Contractor under the contract.

##### c. Unavoidable Delays

###### (1.) Time Extension

- (a.) The Contractor will be granted an extension of time for completion of the work beyond that named in the Contract Documents, for delays which may result through causes beyond the control of the Contractor and which he could not have avoided by the exercise of care, prudence, foresight and diligence.

(b.) Contractor shall be allowed extensions of time in which to complete the work equal to the sum of all unavoidable delays, plus any adjustments of contract time due to contract change orders. During such extension of time liquidated damages shall not be charged to the Contractor.

(c.) Unavoidable delays within the meaning of this section shall be those caused by acts or neglect of the Owner, its employees, or those under it by contract or otherwise; by Acts of God (including weather) or of the public enemy, fire, epidemics, or strikes. Material shortages and delays in utility company connections may be classified as an unavoidable delay if the Contractor can produce satisfactory evidence that he acted in a timely manner. There will be no damages for delays caused by Acts of God, public enemy, fire, epidemics, strikes, material shortages, and utility companies. There will be no damage for delays as described under this paragraph (c).

(d.) Delays in the prosecution of parts of the work which may in themselves be unavoidable, but do not necessarily prevent or delay the prosecution of other parts of the work nor the completion of the work within the time specified, which do not necessarily prevent the completion of the whole work within the time herein specified, will not be considered as unavoidable delays within the meaning of the contract.

##### (2.) Weather

The Contractor will not be allowed a day for day weather delay when the contract is bid to be constructed during a period that will normally include inclement weather. The Contractor will only be allowed a time extension for unusually severe weather if it results in precipitation or other conditions which in the amount frequency, or duration is in excess of the norm at the location and time of the year in question as established by NOAA weather data. A day for day extension

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will only be allowed for those days in excess of the norm.

The Contractor is expected to work seven (7) days per week (if necessary, irrespective of inclement weather), to maintain access, and weather protect the work under construction. During wet periods, the Contractor shall provide site/soil stabilization to allow access for his construction equipment. Stabilization of the site shall be achieved by lime stabilization, placement of aggregate base and fabric on roadways and work/staging areas or other suitable means as approved by the Owner. The Contractor shall seal all excavated areas each night to promote drainage and to decrease saturation.

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

### (3.) Notice

Whenever the Contractor foresees any delay in the prosecution of the controlling (critical path) work activity, and in any event immediately upon the occurrence of any delay which he regards as an unavoidable delay, the Contractor shall notify the Owner in writing of such delay and its cause, in order that the Owner may take immediate steps to prevent, if possible, the occurrence or continuance of the delay, and may determine whether the delay is to be considered avoidable or unavoidable, how long it continues, and to what extent the prosecution and completion of the work are to be delayed thereby.

After the completion of any part or the whole of the work, the Owner, in calculating the amount due the Contractor, will assume that

any and all delays which have occurred have been avoidable delays, except such delays as shall have been called to the attention of the Owner at the time of their occurrence and found by the Owner to have been unavoidable as substantiated by a change order. The Contractor will make no claims that any delay not called to the attention of the Owner at the time of its occurrence has been an unavoidable delay.

### d. Request for Time Extension

In the event the Contractor requests an extension of contract time for unavoidable delay (or for changes see Change Order Process Clause), such justification shall be submitted no later than seven days after the initial occurrence of any such delay. When requesting time for change orders they must be submitted with the change with full justification. If the Contractor fails to submit justification with the change they will waive their right to a time extension at a later date. Such justification must be based on the official contract schedule as updated at the time of occurrence of delay or execution of work related to any changes to the scope of work. The justification must include, but is not limited to, the following information:

- (1.) The duration to perform the activity relating to the changes in the work and the resources (manpower, equipment, material, etc.) required to perform these activities within the stated duration.
- (2.) Logical ties to the official contract schedule for the proposed changes and/or delay showing the activity/activities in the schedule whose start or completion dates are affected by the change and/or delay.

The Owner, after receipt of such justification and supporting evidence, shall make its finding of fact. The Owner's decision shall be final and conclusive and the Owner will advise the Contractor in writing of such decision. If the Owner finds that the Contractor is entitled to any extension of contract time, the Owner's determination as to the total number of days of extension shall be based upon the latest updated version of the official contract schedule. Such

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data will be included in the next monthly updating of the schedule.

### **H. PERFORMANCE**

#### **Clause 24 - Supervision & Construction Procedures**

The Contractor shall supervise and direct the work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures, and shall coordinate all portions of the work under the contract, including the relations of the various trades to the progress of the work, in accordance with the provisions of the contract documents.

The Contractor shall be responsible to the Owner for the acts and omissions of the Contractor's employees, subcontractors, and their agents and employees, and any other persons performing any of the work under a contract with the Contractor.

The Contractor is an independent agent and nothing in the Contract Documents shall be interpreted to make the Contractor an agent of the Owner.

#### **Clause 25 - Supervision**

- a. Within seven (7) days after Notice to Proceed, the Contractor shall provide to the Owner his/her organization chart outlining key job personnel. The Contractor will also provide a Letter of Authority for those personnel who are authorized to sign contract documents on his/her behalf, i.e., payment requests, change orders, inspection reports, etc.
- b. The Contractor shall employ, during the progress of the work, a competent Project Manager and Superintendent as approved by the Owner, and any necessary assistants. The Superintendent shall not be changed except with the consent of the Representative, unless the Superintendent proves to be unsatisfactory to the Contractor or ceases to be in his employ. The Representative shall be notified immediately of any new Superintendent

appointed to the work and the Contractor shall submit qualifications for approval. The Superintendent shall represent the Contractor and all directions given to him shall be as binding as if given to the Contractor. Important directions shall be confirmed in writing by the Contractor. Other directions shall be so confirmed on written request in each case.

The Contractor shall give efficient supervision to the work, using his best skill and attention. He shall carefully study and compare all drawings, specifications, and other instructions and shall at once report to the Representative any error, inconsistency, or omission which he may discover but he shall not be held responsible for their existence or discovery.

- c. The Superintendent shall be present at the site of the work at all times, both while work is actually in progress on the Contract and during periods when work is suspended. The Superintendent shall not be employed on any other project during the course of this work unless approved by the Owner.
- d. The Owner shall be supplied at all times with the names and telephone numbers of at least two (2) persons in charge of or responsible for the work, who can be reached for emergency work twenty-four (24) hours a day, seven (7) days a week.
- e. The Superintendent will be provided a copy of all contract documents by the Contractor.
- f. The Superintendent (and others as requested) shall attend all meetings called by the Owner.

#### **Clause 26 - Conduct of Work**

- a. The Owner reserves the right to do other work in connection with the project by contract or otherwise, and the Contractor shall at all times conduct his work so as to impose no hardship on the Owner or others engaged in the work. He shall adjust correct, and coordinate his work with the work of others so that no discrepancies shall result in the whole work.
- b. In engaging one kind of work with another, marring, or damaging same will not be

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permitted and, in the event such occurs, shall be corrected by the Contractor at his cost prior to acceptance by the Owner. Should improper work of any trade be covered by another which results in damage or defects, the whole work affected shall be made good by the Contractor without expense to Owner.

**Clause 27 - Protection of Work & Property**

- a. The Contractor shall continuously maintain adequate protection of all his work from damage and shall protect the Owner's property from injury, or loss arising in connection with this contract. He shall make good any such damage, injury, or loss, except such as may be directly due to errors in the contract documents or caused by agents or employees of the Owner. He shall adequately protect adjacent property as provided by law and the contract documents.
- b. The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during contract performance, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with tree-pruning compound as directed by the Owner.
- c. The Contractor shall protect from damage all existing improvements and utilities (1) at or near the work site and (2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Owner may have the necessary work performed and charge the cost to the Contractor.

**Clause 28 - Overloading:**

- a. If the Contractor shall cause, permit, or allow any part of the building or buildings to be overloaded by storing, piling, or setting thereon any material or equipment, or by performing thereon any of his work, he shall do so at his sole risk, and he shall be solely responsible for any and all loss, damage, and/or injury arising or resulting therefrom.
- b. All materials brought onto the site shall be stacked up in an orderly manner in a designated area not in conflict with the area where work is being performed.
- c. Contractor shall provide and maintain all scaffolding for use of subcontractors unless otherwise specified.

**Clause 29 - Contractor's Responsibility For Work**

Until formal acceptance of the work by the Owner, Contractor shall have the charge and care thereof and shall bear risk of injury of damage to any part of the work by action of the elements, or from any other cause except for such damages as are directly and proximately occasioned by acts of the Federal or State Government and the public enemy.

Contractor, at its cost, shall rebuild, repair, restore and make good all such damages to any portion of the work occasioned by such causes before its acceptance.

No advertising of any description will be permitted in or about the work, except by order of the Owner.

Contractor shall not create or permit the continued existence of any nuisance in or about the work.

**Clause 30 - Utilities**

- a. Furnish Utilities. Unless otherwise provided for under separate sections hereinafter described, Contractor will arrange for and provide continuously until acceptance of the work, all water, gas, and electricity required. Contractor shall pay for such services unless specifically otherwise noted.



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b. Interruption of Utilities. Utilities shall not be interrupted except with the approval of the Owner. Forty-eight (48) hour written notice is required prior to all interruptions. Interruptions shall be scheduled so as to minimize duration and disruption to existing operation.

(2.) See substitution clause concerning "or equal" requirements and procedure for submitting alternative material, articles, or equipment.

c. Public Utilities

(1.) The Contractor shall send proper notices, make all necessary arrangements, and perform all other services required in the care and maintenance of all public utilities. The Contractor shall assume all responsibility concerning same for which the Owner may be liable.

(3.) All materials shall be delivered so as to insure a speedy and uninterrupted progress of the work. Same shall be stored so as to cause no obstruction and so as to prevent overloading of any portion of the structure on work site, and the Contractor shall be entirely responsible for damage or loss by weather, theft, vandalism or other cause.

(2.) To the satisfaction of the Owner, enclosing or boxing in, for protection of any public utility equipment, shall be done by the Contractor. Upon completion of the work, the Contractor shall remove all enclosures, fill in all openings in masonry, grouting the same watertight, and leave in a finished condition.

(4.) Materials shall be stored to assure the preservation of their quality and fitness for the work. Stored materials shall be reasonably accessible for inspection. When considered necessary by the Owner, stored materials shall be placed on wooden plat-forms or on other hard, clean surfaces and not directly on the ground, and shall be placed under cover when so directed.

(3.) All connections to public utilities shall be made and maintained in such manner as not to interfere with the continuing use of same by the Owner during the entire progress of the work.

(5.) No materials manufactured or produced in a penal or correctional institution shall be incorporated in the project under this contract, except as permitted by California law.

### **Clause 31 - Working Hours**

It is contemplated that all work will be performed on a calendar day basis during the customary working hours of the trades involved unless otherwise specified in this contract. Work performed by the Contractor of his own volition outside such customary working hours shall be at no additional expense to the Owner and with Owner approval.

### **Clause 33 - Layout of Work**

The Contractor shall lay out its work from Owner-established base lines and bench marks indicated on the drawings, and shall be responsible for all measurements in connection with the layout. The Contractor shall furnish, at its own expense, all stakes, templates, platforms, equipment, tools, material, and labor required to layout any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the Owner. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the Owner until authorized to remove them. If such marks are destroyed by the Contractor or through its negligence before their removal is authorized, the Owner may replace them and deduct the expense of the replacement from any amounts due or to become due to the Contractor.

### **Clause 32 - Material & Workmanship**

a. Materials & Equipment:

(1.) Materials, equipment, and articles incorporated into the work shall be new and of quality equal or superior to that specified. When not particularly specified, materials shall be the best of their class or kind. The Contractor shall, if required, submit satisfactory evidence as to the kind and quality of material.

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**Clause 34 - Use of Premises**

- a. If the premises are occupied, the Contractor, his subcontractors, and their employees shall comply with the regulations governing access to, operation of, and conduct while in or on the premises and shall perform the work required under this contract in such a manner as not to unreasonably interrupt or interfere with the conduct of Owner business.
- b. Any request received by the Contractor from occupants of existing buildings to change the sequence of work shall be referred to the Owner or authorized representative for determination.
- c. If the premises are occupied, the Contractor, his subcontractors and their employees shall not have access to or be admitted into any building outside the scope of this contract except with official permission of authorized representative.

**Clause 35 - Operations & Storage**

- a. The Contractor shall confine all operations (including storage of materials) on Owner premises to areas authorized or approved by the Owner. The Contractor shall hold and save the Owner, and its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.
- b. Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Contractor only with the approval of the Owner and shall be built with labor and materials furnished by the Contractor without expense to the Owner. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Owner, the buildings and utilities may be abandoned and need not be removed.
- c. The Contractor shall, under regulations prescribed by the Owner, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Owner. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity

recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or Owner regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

**Clause 36 - Heat**

Unless otherwise specified or unless already provided by the Owner, the Contractor shall:

- a. Provide heat, as necessary to protect all work, materials, and equipment against injury from dampness and cold;
- b. Protect, cover and/or heat as may be necessary, to produce and maintain a temperature of not less than 50 degrees Fahrenheit (1) for the concrete during the placing, setting, and curing, and (2) for the plaster during the application, setting, and curing of plaster; and
- c. Provide heat as necessary in the area where work is to be done to provide the minimum temperature recommended by the supplier or manufacturer of the material, but in no case less than 50 degrees Fahrenheit, for a period beginning 10 days before placing of interior finishes and finish materials and continuing until substantial completion or beneficial occupancy of the area, whichever is earlier.

**Clause 37 - Cleaning Up**

The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. Before completing the work, the Contractor shall remove from the work and premises any weeds rubbish, tools, scaffolding, equipment, and materials that are not the property of the Owner. Upon completing the work, the Contractor shall leave the work area in a clean, neat, and orderly condition satisfactory to the Owner.

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### **I. SAFETY & HEALTH**

#### **Clause 38 - Accident Prevention**

- a. In performing this contract, the Contractor shall provide for protecting the lives and health of employees and other persons; preventing damage to property, materials, supplies, and equipment; and avoiding work interruptions. For these purposes, the Contractor shall:
  - (1.) Provide a copy of its safety program;
  - (2.) Provide appropriate safety barricades, signs, and signal lights;
  - (3.) Comply with standards issued by the U.S. Government, State, County and City; and
  - (4.) Ensure that any additional measures be reasonably necessary for this purpose are taken.
- b. The Contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this contract resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment. The Contractor shall report this data in the manner prescribed by the Owner.
- c. Where conditions of the work present unreasonable risk of injury or death to persons, or property damage, in the judgement of the Owner it may direct Contractor at the Contractor's so expense, to take corrective action.
- d. Before beginning excavation for a trench 5 feet or more in depth, Contractor shall submit to and shall receive acceptance from the Architect/Engineer through the authorized representative for detailed plans showing design of shoring, bracing, sloping, or other provisions to be made for worker protection from hazard of caving ground. Such plans shall be submitted at least 14 days before Contractor intends to begin trench work. If such plans vary from

shoring system standards established by the State of California Construction Safety Orders, the plans shall be prepared by a registered civil or structural engineer.

Nothing herein shall be deemed to allow use of shoring, sloping, or protective systems less effective than those required by the Construction Safety Orders of the California Division of Industrial Safety.

#### **Clause 39 – Sanitary Facilities:**

Contractor shall supply and maintain at its expense such toilets and other sanitary facilities as are necessary for use by workers employed at the job site. Such facilities shall be approved by the Owner.

#### **Clause 40 - Responsibility for Compliance With (OSHA):**

All work, materials, work safety procedures and equipment shall be in full accordance with the latest OSHA rules and regulations.

Contractor warrants that he and each of his subcontractors shall, in performance of this contract, comply with each and every compliance order issued pursuant to OSHA. The Contractor assumes full and total responsibility for compliance with OSHA standards by his subcontractors as well as himself. The cost of complying with any compliance order and/or payment of any penalty assessed pursuant to OSHA shall be borne by the Contractor. Contractor shall save, keep, and hold harmless the Owner, and all officers, employees, and agents thereof, from all liabilities, costs, or expenses, in law or in equity, that may at any time arise or be set up because of Contractor's or a subcontractor's noncompliance or alleged noncompliance with OSHA requirements. Nothing contained therein shall be deemed to prevent the Contractor and his subcontractors from otherwise allocating between themselves responsibility for compliance with OSHA requirements; provided, however, that the Contractor shall not thereby be, in any manner whatsoever, relieved of his responsibility to the Owner as hereinabove set forth.

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**Clause 41 - Toxic and Hazardous Materials and Waste**

- a. **Asbestos.** Operations which may cause release of asbestos fibers into the atmosphere shall meet the requirements of CCR Title 8, General Industrial Safety Orders, Section 5208. Some operations which may cause such concentrations include sanding, grinding, abrasive blasting, sawing, drilling, shoveling, or otherwise handling materials containing asbestos so that dust will be raised.

Such materials can include resilient flooring, existing gypsum wallboard, asbestos-cement board, spray-on fiber-proofing for steel, cement plaster, asbestos pipe insulation and acoustical sprays, tiles, and boards.

In accordance with paragraph e., below, asbestos in building materials is prohibited. This section only applies to existing materials on the site that may be discovered during construction.

- b. **Toxic Materials.** Operations which release toxic materials into the atmosphere shall meet the requirements of CCR Title 8, General Industrial Safety Orders. Some operations which may release such materials include use of adhesives, sealants, paint, and other coatings.
- c. **Lead-Based Paint.** Lead-based paint is prohibited. Lead-based paint is defined as:
- (1.) Any paint containing more than five-tenths of one percent lead by weight (calculated as lead metal in the total non-volatile content of the paint) or the equivalent measure of lead in the dried film of paint applied or both; or
- (2.) For paint manufactured after June 22, 1977, any paint containing more than six one-hundredths of one percent lead by weight (calculated as lead metal) in the total content of the paint or the equivalent measure of lead in the dried film or paint already applied.
- d. **Hauling and Disposal.** Meet requirements of CAC Title 22, Division 4, Chapter 30, "Minimum Standards for Management of Hazardous and Extremely Hazardous Wastes.

- e. **Asbestos Prohibited.** No products or materials containing asbestos shall be incorporated into the work without the prior written approval of the Owner.

**J. COUNTY FURNISHED PROPERTY**

**Clause 42 - Owner-Furnished Property**

- a. The Owner will furnish to the Contractor the property identified in the specification to be incorporated or installed into the work or used in performing the contract. The listed property will be furnished f.o.b. railroad cars at the place specified in the contract or f.o.b. truck at the project site. The Contractor is required to accept delivery, pay any demurrage or detention charges, and unload and transport the property to the job site at its own expense. When the property is delivered, the Contractor shall verify its quantity and condition and acknowledge receipt in writing to the Owner. The Contractor shall also report in writing to the Owner within twenty-four (24) hours of delivery any damage to or shortage of the property as received. All such property shall be installed or incorporated into the work at the expense of the Contractor, unless otherwise indicated in this contract.
- b. Each item of property to be furnished under this clause shall be identified by the Contractor in a schedule by quantity, item, and description.
- c. The Contractor shall be held responsible for all material delivered to him and deductions will be made from any moneys due him to make good any shortages and deficiencies, from any clause whatsoever, which may occur after such delivery.
- d. The Contractor shall set up accounting records and establish an inspection procedure as approved by the Owner.

**K. BENEFICIAL OCCUPANCY**

**Clause 43 - Beneficial Occupancy**

**a. Use and Possession**

- (1.) The Owner shall have the right to take possession of or use any completed or partially

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completed part of the work. Before taking possession of or using any work, the Owner shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the Owner intends to take possession of or use. However, failure of the Owner to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The Owner's possession or use shall not be deemed substantial completion nor an acceptance of any work under the contract. The Contractor will continue to pay for any portion of the utilities which it is using.

(2.) While the Owner has such possession or use, the Contractor shall be relieved of the responsibility for the loss of or damage to the work resulting from the Owner's possession or use. If prior possession or use by the Owner delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

### b. Use of Equipment

(1.) The Owner may take over and operate, with Owner employees, such equipment as is necessary for heating or cooling such areas of the building as require the service, as soon as the installation is sufficiently complete.

(2.) The Owner will advise the Contractor by letter, prior to the use of equipment, which items of equipment will be operated, and the date and time such operation will begin.

(3.) Owner operation of equipment will not relieve the Contractor of the guarantee on materials and workmanship elsewhere provided for in this contract.

(4.) The guarantee period, elsewhere provided for in this contract, for each piece of equipment shall be in accordance with the "Guarantees" clause of this contract.

## **L. INSPECTION AND TESTING**

### **Clause 44 - Inspection and Testing**

- a. The Contractor shall maintain an adequate inspection system and perform such inspections

as will ensure that the work called for by this contract conforms to contract requirements. The Contractor shall maintain complete inspection records and make them available to the Owner. All work shall be subject to Owner inspection and tests at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.

b. Owner inspections and tests are for the sole benefit of the Owner and do not:

(1.) Relieve the Contractor of responsibility for providing adequate quality control measures;

(2.) Relieve the Contractor of responsibility for damage to or loss of the material before acceptance;

(3.) Constitute or imply acceptance; or

(4.) Affect the continuing rights of the Owner after acceptance of the completed work latent defects, gross mistakes, fraud or the Owner's rights under any warranty or guarantee.

c. The presence or absence of a Owner inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specification without the Owner's written authorization.

d. The Contractor shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Owner. The Owner may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes re-inspection or retest necessary. Special, full size, and performance tests shall be performed as described in the contract.

e. The Contractor shall, without charge, replace or correct work found by the Owner not to conform to contract requirements, unless in the public interest the Owner consents to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

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- f. If the Contractor does not promptly replace or correct rejected work, the Owner may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor or (2) terminate for default the Contractor's right to proceed.
  - g. If, before acceptance of the entire work, the Owner decides to examine already completed work by removing it or tearing it out, the Contractor, on request, shall promptly furnish all necessary facilities, labor, and material. If the work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray the expenses of the examination and of satisfactory reconstruction. However, if the work is found to meet contract requirements, the Owner shall issue a Change Order,
- h. The Contractor shall at all times maintain proper facilities and provide safe access for inspection by the Owner to all parts of the work, and to the shops wherein the work is in preparation. Where the specifications require work to be specially tested or approved, it shall not be tested or covered up without timely notice to the Owner of its readiness for inspection and without the approval thereof or consent thereto by the latter. Should any such work be covered up without such notice, approval, or consent, it must, if required by Owner, be uncovered for examination at the Contractor's expense.
- i. The Contractor shall notify the Owner at least twenty-four (24) hours in advance of the time required for the inspection. Should the Contractor fail to notify the Owner and proceed with work requiring inspection, all such work is rejected, and no further work shall be done on the Project until the rejected work is accepted by the Owner. Should the Contractor request acceptance of such rejected work the Owner shall, at the Contractor's expense, secure the services of private material testing laboratories, consulting engineers or licensed land surveyors, who shall certify that said work does in fact conform to the requirements of the Plans and these specifications. The work previously rejected shall be accepted by the Owner after receipt of such certification if the Owner approves of such certification.
- j. Whenever the Contractor intends to perform work on Saturday, Sunday, a legal holiday, or after normal working hours, he shall give notice to the Owner representative of such intention at least two (2) working days prior to performing such work, or such other period as may be specified, so that the Owner may make necessary arrangement.
- k. Construction review of the Contractor's performance by the Owner is not intended to include the review of the adequacy of the Contractor's safety measures, in, on, or near the construction site.
- l. The Owner will pay for initial testing services specified to be performed by the Owner. When initial tests indicate noncompliance with the contract documents, subsequent retesting occasioned by the noncompliance shall be performed by the same testing agency, and costs thereof will be deducted by the Owner from the contract sum.

**Clause 45 - Condemned Materials and Labor**

- a. The Contractor shall promptly remove from the premises all work condemned by the Owner representative as failing to conform to the contract, whether incorporated or not, and the Contractor shall promptly replace and re-execute his own in accordance with the contract and without expense to the Owner and shall bear the expense of making good all work of other Contractors destroyed or damaged by such removal or replacement.
- b. If the Contractor does not remove such condemned work within a reasonable time, fixed by written notice, the Owner may remove it and may store the material at the expense of the Contractor. If the Contractor does not pay the expenses of such removal within ten (10) days of the written notice, the Owner shall sell such materials at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs and expenses that should have been borne by the Contractor.
- c. Neither the final certificate nor payment nor any provision in the contract documents shall relieve the Contractor of responsibility for faulty materials or workmanship, and, unless otherwise specified, he shall remedy any defects due thereto and pay for any damages to

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other work, resulting therefrom which shall appear within a period of two (2) years from the date of substantial completion.

### **Clause 46 - Inspection by Other Jurisdictions**

Whenever any part of the work to be performed is under the jurisdiction or control or is to be paid for, in whole or in part, by another entity or public jurisdiction, including but not limited to: city, United States Government, or State of California, such work shall be subject to inspection by the proper officials of such jurisdictions and it must pass inspection, in addition to Owner inspection and such other inspection as may be otherwise provided for in the contract documents.

### **Clause 47 - Final Inspection and Tests**

The Contractor shall give the Owner at least ten (10) calendar days' advance written notice of the date the work will be fully completed and ready for final inspection and tests. Final inspection and tests will be started within 10 calendar days from the date specified in the aforesaid notice unless the Owner determines that the work is not ready for final inspection and so informs the Contractor.

## **M. ACCEPTANCE**

### **Clause 48 - Acceptance of the Work**

- a. If, from the final inspection and after all contract documentation has been received, the Owner determines that the contract has been completed, the Representative will certify to the Board of Supervisors and a copy of a letter of acceptance will be sent to Contractor. (See final payment clause.) Upon receipt of the copy of the acceptance, Contractor will be relieved of the duty of maintaining and protecting the work. If the Owner determines that work is not complete after receipt of certification by Contractor, Contractor shall be notified in writing of deficiencies, and procedures for final inspection, as set forth above, shall again be initiated by Contractor. Neither determination by the Owner that the work is complete nor acceptance thereof shall operate as a bar to

claim against Contractor pursuant to warranty and guarantees.

- b. Partial payments shall not be construed as acceptance of any part of the work.
- c. In judging the work no allowance for deviations from the drawings and specifications will be made, unless already approved in writing at the time and in the manner as called for herein.
- d. Owner shall be given adequate opportunity to make any necessary arrangements for fire insurance and extended coverage.
- e. Acceptance of the contract will not be given until all requirements of the contract documents are complete and approved by the Owner. This shall include, but is not limited to, all construction, guarantee forms, parts lists, schedules, tests, operating instructions, and as-built drawings - all as required by the contract documents.

## **N. WARRANTY AND GUARANTEES**

### **Clause 49 - Contractor's Warranty and Guarantee**

- a. The Owner shall not, in any way or manner, be answerable or suffer loss, damage, expense or liability for any loss or damage that may happen to said building, work, or equipment or any part thereof, or in, on, or about the same during its construction and before acceptance. In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph j. of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.
- b. This warranty shall continue for a period of two (2) years from the date of substantial completion of the work. If the Owner takes possession of any part of the work before final acceptance, this warranty shall continue for a period of two (2) years from the date the Owner

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- takes possession. Contract bonds are in full force during the warranty period.
- c. The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Owner-owned or controlled real or personal property, when that damage is the result of:
- (1.) The Contractor's failure to conform to contract requirements or
  - (2.) Any defect of equipment, material, workmanship, or design furnished
- d. The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for two (2) years from the date of repair or replacement.
- e. The Owner shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage. The Contractor further agrees that within ten (10) calendar days after being notified in writing by the Owner of any work not in accordance with the requirements of the contract or any defects in the work, the Contractor will commence and prosecute with due diligence all work necessary to fulfill the terms of this guarantee, and to complete the work within a reasonable period of time.
- (1.) Obtain all warranties that would be given in normal commercial practice;
- (2.) Require all warranties to be executed, in writing, for the benefit of the Owner, if directed by the Owner; and
- (3.) Enforce all warranties for the benefit of the Owner, if directed by the Owner.
- h. In the event the Contractor's warranty under paragraph b. of this clause has expired, the Owner may bring suit at the Contractor's expense to enforce a subcontractor's, manufacturer's, or supplier's warranty.
- i. Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material or design furnished by the Owner nor for the repair of any damage that results from a defect in Owner-furnished material or design.
- j. This warranty shall not limit the Owner's rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.

**O. ENVIRONMENTAL PROTECTION**

**Clause 50 - Dust Control**

- Notwithstanding the foregoing paragraph, in the event of any emergency constituting an immediate hazard to health or safety of Owner employees, property, or licensees, the Owner may undertake at Contractor's expense, without prior notice, all work necessary to correct such hazardous conditions when it was caused by work of Contractor not being in accordance with requirements of this contract.
- f. If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Owner shall have the right to place, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.
- g. With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall:
- a. The Contractor shall provide such and so much water, dust palliative, or other authorized material, and the labor and devices necessary to spread such material, as the Owner deems necessary to control dust. The Contractor shall provide any and all dust control required by the Owner or any regional, state or federal governmental entity having jurisdiction over the Site or the Project. The payment for dust control shall be considered as included in other items of work and no additional compensation shall be made therefor, unless otherwise provided by the contract documents.
- b. Whenever the Contractor is negligent in providing adequate dust control, the Owner shall order the Contractor to provide such adequate dust control and, if the Contractor does not comply forthwith with such order, the Owner shall have the authority to suspend the work, wholly or in part, for such period as the



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Owner may deem necessary until the Contractor provides adequate dust control to the satisfaction of the Owner, or the Owner may provide such dust control and charge the Contractor therefor by deducting the cost thereof from periodic payments to the Contractor as such costs are incurred by the Owner.

### **Clause 51 - Excessive Noise**

The Contractor shall use only such equipment on the work and in such state of repair, that the emission of sound therefrom is within the noise tolerance level of that equipment, as established by accepted standards of the industry.

Should the Owner determine that the muffling device on any equipment used on the work is ineffective or defective so that the noise tolerance of such equipment, as established by accepted standards of the industry is exceeded, such equipment shall not, after such determination by the Owner, be used on the work until its muffling device is repaired or replaced so as to bring the noise tolerance level of such equipment within such standards.

### **Clause 52 - Pollution Control, Cleaning**

The Contractor shall not, in connection with the work, discharge any smoke, dust or other contaminants into the atmosphere or discharge any fluids or materials into any lake, river, stream, or channel as will violate regulations of any legally constituted authority. The Contractor shall control accumulation of waste materials and rubbish and dispose waste materials and rubbish off-site at the least at weekly intervals. Burning of materials is not permitted.

## **P. EMPLOYMENT PRACTICES**

### **Clause 53 - Qualifications for Employment**

According to Section 1735 of the California Labor Code, no person under the age of 16 years of age and no person currently serving sentence in a penal or correctional institution shall be employed to perform any work under this contract. No person whose age or physical condition is such to make his employment dangerous to his health or safety or to the health or

safety of others shall be employed to perform work under this contract; provided that this sentence shall not operate against any physically handicapped persons otherwise employable where such persons may be safely assigned to work which they ably perform.

The Contractor and each subcontractor shall comply with the provisions of Sections 1777.5 and 1777.6 of the Labor code of the State of California concerning employment of apprentices by the contractor or any subcontractor under him. The contractor is responsible for compliance with the requirements of Section 1777.5 and the prime contractor and any subcontractor under him shall comply with the requirements of Section-1777.6.

All employees engaged in work on the project under this contract shall have the right to organize and bargain collectively through representatives of their own choosing, and such employees shall be free from interference, restraint, and coercion of employers in the designation of such employees for the purpose of collective bargaining or other mutual aid or protection, and no person seeking employment under this contract shall be required as a condition of initial or continued employment to join any company, union, or to refrain from joining, organizing, or assisting a labor organization of such person's own choosing. No person in the employment of the Owner shall be further employed to do any work hereunder.

### **Clause 54 - Hours of Work:**

Eight hours of labor during any one calendar day and forty hours of labor during any one calendar week shall constitute the maximum hours of service upon all work done hereunder, and it is expressly stipulated that no laborer, workman, or mechanic employed at any time by the Contractor or by any subcontractor or subcontractors under this contract, upon the work or upon any part of the work contemplated by this contract, shall be required or permitted to work thereon more than eight (8) hours during any one calendar day and forty (40) hours during any one calendar week, except, as provided by Section 1815 of the Labor Code of the State of California, work performed by employees of Contractors in excess of eight hours per day and forty hours during any one week shall be permitted upon public work upon compensation for all hours worked in excess of eight hours per day at not less than one and one-half times the basic rate of pay. It is further expressly stipulated that for each and every violation of Sections 181 1-

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1815, inclusive, of the Labor Code of the State of California, all the provisions whereof are deemed to be incorporated herein, said Contractor shall forfeit, as a penalty to Owner, twenty-five dollars (\$25.00) for each laborer, workman, or mechanic employed in the execution of this contract by Contractor, or by any subcontractor under this contract, for each calendar day during which said laborer, workman, or mechanic is required or permitted to work more than eight hours in any one calendar day and forty hours in any one calendar week in violation of the provisions of said Sections of the Labor Code.

The Contractor, and each subcontractor, shall keep an accurate record showing the names of and actual hours worked each calendar day and each calendar week by all laborers, workmen, and mechanics employed by him in connection with the work contemplated by this Contract, which record shall be open at all reasonable hours to the inspection of the Owner or its officers or agents and to the Division of Labor Law Enforcement of the Department of Industrial Relations.

### **Clause 55 - Wages & Records**

#### **a. Wage Rates**

(1.) Pursuant to Section 1770 and 1773 et seq. of the Labor Code of the State of California, the Director of Industrial Relations has ascertained the general prevailing rate of per them wages and the rates for overtime and holiday work in the locality in which the work is to be performed for each craft, classification, or type of workman needed to execute the contract which will be awarded to the successful bidder, copies of which are on file and available upon request from the Clerk of the Board.

(2.) It shall be mandatory upon the Contractor and upon any subcontractor under him, to pay not less than the said specified rates to all laborers, workmen, and mechanics employed in the execution of the Contract. It is further expressly stipulated that the Contractor shall, as a penalty to Owner, forfeit Fifty dollars (\$50.00) for each calendar day, or portion thereof, for each laborer, workman, or mechanic paid less than the stipulated prevailing rates for any work done under this Contract by him or by any subcontractor under him; and Contractor agrees to comply with all

provisions of Section 1770 and 1773 of the Labor Code.

(3.) In case it becomes necessary for the Contractor or any subcontractor to employ on the project under this contract any person in a trade or occupation (except executives, supervisory, administrative, clerical, or other non-manual workers as such) for which no minimum wage rate is herein specified, the Contractor shall immediately notify the Owner who will promptly thereafter determine the prevailing rate for such additional trade or occupation and shall furnish the Contractor with the minimum rate based thereon. The minimum rate thus furnished shall be applicable as a minimum for such trade or occupation from the time of the initial employment of the person affected and during the continuance of such employment.

#### **b. Wage Records**

The Contractor and each subcontractor shall keep or cause to be kept an accurate record (certified payroll) showing the names and occupations of all laborers, workers, and mechanics employed by him in connection with the execution of this contract or any subcontract thereunder and showing also the actual per diem wages paid to each of said workers, which records shall be provided to the Owner, and to the Division of Labor Law Enforcement. Copies provided will include one which has the name and social security numbers marked out.

### **Clause 56 - Notice of Labor Disputes**

- a. If the Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of this contract, the Contractor shall immediately give notice, including all relevant information, to the Owner.
- b. The Contractor agrees to insert the substance of this clause, including this paragraph b. in any subcontract to which a labor dispute may delay the timely performance of this contract; except that each subcontract shall provide that in the event its timely performance is delayed or threatened by delay by any actual or potential labor dispute, the subcontractor shall immediately notify the next higher tier subcontractor or the prime Contractor, as the

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case may be, of all relevant information concerning the dispute.

### **Clause 57 - Nondiscrimination**

- a. Contractor shall comply with the California Fair Employment and Housing Practices Act (Government Code 12900 et seq.) and any amendments thereto. No discrimination shall be made in the employment of persons upon public work because of the race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, or sex of such persons, except as provided in Section 12940 of the Government Code, and every contractor for public works violating this section is subject to all the penalties imposed for a violation of Chapter I of Part 7, Division 2 of the Labor Code.
- b. This contract may, at the option of Owner, be terminated or suspended in whole or in part in the event Contractor fails to comply with the nondiscrimination clause of this contract. In the event termination under this paragraph, Contractor shall be compensated for goods and services provided to the date of determination. Termination or suspension shall be effective upon receipt of written notice thereof.

### **Q. SUBCONTRACTING**

#### **Clause 58 - Subcontractors**

A subcontractor is a person or organization who has a direct contract with the Contractor to perform any of the work at the site. Subcontractors shall be listed in the bid proposal according to the instructions contained therein.

The Contractor agrees that he is as fully responsible to the Owner for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

Nothing contained in the contract documents shall create any contractual relation between any subcontractor and the Owner.

#### **Clause 59 - Relations of Contractor and Subcontractor**

The Contractor agrees to bind every subcontractor and every subcontractor agrees to be bound by the terms of the Agreement, the General Conditions, Supplementary Conditions, the drawings and specifications as far as applicable to his work, including the following provisions of this article, unless specifically noted to the contrary in a subcontract approved in writing as adequate by the Owner. This does not apply to minor subcontracts under \$5,000.

The subcontractor agrees:

- a. To be bound to the Contractor by the terms of the Agreement, General Conditions, Special Conditions, drawings and specifications, and to assume toward him all the obligations and responsibilities that he, by those documents, assumes toward the Owner.
- b. To submit to the Contractor applications for payment in such reasonable time as to enable the Contractor to apply for payment under terms of the General Conditions.
- c. To make all claims for extras, for extensions of time and for damages for delays or otherwise, to the Contractor in the manner provided in the General Conditions for claims by the Contractor upon the Owner.

The Contractor agrees:

- a. To be bound to the subcontractor by all the obligations that the Owner assumes to the Contractor under the Agreement, General Conditions, Special Conditions, drawings and specifications, and by all the provisions thereof affording remedies and redress to the Contractor from the Owner.
- b. To pay the subcontractor, upon the payment of certificates, the amount allowed to the Contractor on account of the subcontractor's work to the extent of the subcontractor's interest therein.
- c. To pay the subcontractor to such extent as may be provided by the contract documents or the subcontract, if either of these provides for earlier or larger payments than the above.

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**Clause 60 - Subcontracts**

Pursuant to the provisions of Sections 4100 to 4114 of the California Public Contract Code, inclusive of the State of California, the Contractor shall not without the consent of the Owner, either:

- a. Substitute any persons as subcontractors in place of the subcontractors designated in his original bid. (The Owner's consent can only be given in cases permitted by Public Contract Code Section 4107.)
- b. Permit any subcontractor to be assigned or transferred or allow any work to be performed by anyone other than the original subcontractor listed in his bid.
- c. Other than in the performance of change orders, sublet or subcontract any portion of the work in excess of one-half of one percent of his bid to which his original bid did not designate a subcontractor. Should the Contractor violate any of the provisions of said Sections 4100 to 4114, inclusive, of the Public Contract Code, his so doing shall be deemed a violation of this contract, and the Owner may cancel the contract, or may assess the Contractor a penalty in the amount not more than ten (10) percent of the amount of the subcontract involved, or may both cancel the contract and assess the penalty.

**R. TAXES**

**Clause 61 - Sales and Payroll Taxes**

Each Contractor, subcontractor, and material dealer shall include all sales tax and payroll taxes required by law.

**S. CHANGES**

**Clause 62 - Change Order Work Notification**

- a. Should the Owner at any time during the progress with notice to sureties of said work request any alterations, deviations, additions, or omissions from said specifications or Plans or other contract documents it shall be at liberty to do so, and the same shall in no way affect or

make void the contract, but will be added to or deducted from the amount of said contract price, as the case may be, by a fair and reasonable valuation, agreed to in writing between the parties hereto. No extra work shall be performed or a change be made unless in pursuance of a written order from the Owner, duly authorized by resolution of its governing body, and by all agencies whose approval is required by law, stating that the extra work or change is authorized and no claim for an addition to the contract sum shall be valid unless so ordered. Changes may include but not be limited to:

- (1.) The specifications (including drawings and designs);
- (2.) The method or manner of performance of the work;
- (3.) The Owner-furnished facilities, equipment, materials, services, or site;
- (4.) Directing acceleration in the performance of the work; or
- (5.) Extra terms or time.

- b. Any other written or oral order (which, as used in this paragraph b., includes direction, instruction, interpretation, or determination) from the Owner that causes a change shall be treated as a change order under this clause; provided, that the Contractor immediately gives the Owner written notice stating (1) that date, circumstances, and source of the order and (2) that the Contractor regards the order as a change order.
- c. Except as provided in this clause, no order, statement, or conduct of the Owner shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.
- d. If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by any such order, the Owner shall make an equitable adjustment and modify the contract in writing as a Change Order. However, except for a "proposal for adjustment or request for a change (hereafter referred to as proposal) based on defective specifications, no proposal for any change under paragraph b.

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above shall be allowed for any costs incurred more than seven (7) days before the Contractor gives written notice as required. In the case of defective specifications for which the Owner is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.

- e. No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.
- f. Changes will be performed in accordance with the original contract requirements.

### **Clause 63 - Change Order Process**

#### **a. Notice**

The Contractor will give notice of a change on his letterhead within seven (7) days from discovery and, if the Owner agrees, a proposed change order will be issued on the Owner's standard proposed change order form.

#### **b. Proposal**

Upon receipt of the proposed Change Order, the Contractor shall submit a proposal, in accordance with the requirements and limitations set forth in the "Change Orders" clause, for work involving contemplated changes covered by the proposed change.

The Contractor's written statement of the monetary extent of a request for a change shall be submitted in the following form:

(1.) Cost proposals totaling \$500 or less shall be submitted in the form of a lump sum proposal with supporting information to clearly relate elements of cost with specific items of work involved to the satisfaction of the Owner, or its representative.

(2.) For cost proposal in excess of \$500, the cost proposal shall be submitted in the form of a lump sum proposal supported with a detailed itemized breakdown of all increases and decreases in the contract, including all labor, equipment and materials, as required by the following paragraphs. The Contractor will use the prescribed Owner furnished proposed

change order form. The Contractor shall upon request by the Owner permit inspection of the original unaltered contract bid estimate, subcontract agreements, or purchase orders relating to the change; and documents substantiating all costs associated with the cost proposal.

#### **c. Disagreement**

If the Owner disagrees with the request for change it will notify the Contractor in writing and the Contractor may elect to issue a dispute notification according to the disputes clause.

#### **d. Pricing Time**

The Contractor must submit a proposal within fifteen (15) days upon receipt of the proposed change order or the furnishing of written notice. The Contractor must submit cost proposals in less than 15 days if requested by the Owner or if required by schedule limitations.

#### **e. Failure to Price**

If the Contractor fails to submit the cost proposal within the 15-day period (or as requested), the Owner has the right to order the Contractor in writing to commence the work immediately on a force account basis and/or issue a lump sum change to the contract price in accordance with the Owner's estimate of cost. If the change is issued based on the Owner estimate, the Contractor will waive his right to dispute the action unless within 15 days following completion of the added/deleted work, the Contractor presents proof that the Owner's estimate was in error.

#### **f. Failure to Agree**

If the Owner and the Contractor fail to agree as to the cost of the proposed change order, the Contractor upon written order from the Owner shall proceed immediately with the change work. The Contractor shall be directed to proceed on a time and materials (T&M) (force account) basis. When there has been failure to agree as to the cost, no payment will be made to the Contractor until completion of the work called for in the change order or in the written order authorizing performance of the work.

#### **g. T&M Changes**

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The Owner will establish a budget not-to-exceed (NTE) price for the T&M change order which may be increased with the approval of the Owner. The Contractor will notify the Owner when he has reached 80% of the not-to-exceed budget. The Contractor shall proceed and shall maintain a daily job force account record containing detailed cost summary of labor, materials, and equipment required for the changed work. Upon being signed and agreed to by the Owner Representative on a daily basis, the force account record will become the basis for payment of the changed work, but such agreement shall not preclude subsequent adjustment based upon later audit by the Owner. The Contractor will provide a weekly accounting of cost compared to the NTE budget.

Upon completion of the work under the change order, the Contractor shall submit its invoice therefor containing only the items of labor, materials, and equipment which are in addition to the requirements of the contract and as approved by both parties, together with the allowable markups.

### h. Time

The Contractor shall identify any adjustment in time of the final completion of the work as a whole which is directly attributable to the changed work within fifteen (15) days upon the receipt of the proposed change order. The Contractor's request for a change in time will be supported by a detailed schedule analysis indicating the activities which have been affected and the additional time being requested.

For a change in time for the work, the Contractor shall be entitled only to such adjustments in time by which completion of the entire work is delayed due to the performance of the changed work. Each estimate for change in the work submitted by the Contractor shall state amount of the extra time the Contractor considers should be allowed for making the requested change. Failure to request extra time when submitting such estimate shall constitute waiver of the right to subsequently claim adjustment in time for final completion based upon such changed work.

### i. Type of Change

A change order may adjust the contract price either upward or downward in accordance with one or a combination of the following bases as the Owner may elect:

- (1.) On a lump sum basis as supported by the breakdown of estimated costs.
- (2.) On a unit price basis.
- (3.) On a time and material (T&M) force account basis.

### j. Change Order Costs.

#### (1.) Markups.

(a.) For work performed by the General Contractor in the amount equal to the direct cost (as defined herein) for the work plus 15% of the direct costs for overhead and profit.

(b.) For work performed by Subcontractor in the amount equal to the direct cost (as defined herein) for the work plus 20% of the direct cost for overhead and profit. (Suggested Breakdown: 15% to the Subcontractor, 5% to the General Contractor.)

(c.) For work performed by a Sub-subcontractor (any tier), in the amount equal to the direct cost (as defined herein) for the work plus 25% of the direct cost for overhead and profit. (Suggested Breakdown: 15% for Sub-subcontractor, 5% to Subcontractor and 5% to General Contractor.)

(d.) In no case will the total markups be greater than 25% of the direct cost notwithstanding the number of contract tiers actually existing.

(e.) For deleted work the credit markup shall be 10% of the direct cost or the agreed upon estimate thereof.

(f.) The markup shall include small tools, cleanup, bonds, engineering, supervision, warranties, job site overhead and Home Office overhead. No markup will be allowed on taxes. (See the following paragraphs for more detailed exceptions.)

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### (2.) Direct Costs.

#### (a.) Labor

Cost for labor shall include any employer payments to or on behalf of the workmen for health, welfare, pension, vacation, and similar purposes. Labor rates will not be recognized when in excess of those prevailing in the locality and time the work is being performed. The costs for all supervision including General Superintendents and Foremen will be included in the markups established by the Contract. The only exception to this will be working foremen who perform actual manual labor. No labor charges will be accepted for engineering or proposal preparation. These costs will be included in the markups established by the Contract. A breakdown of the payroll rates for each trade will be provided for all change orders 15 days after notice to proceed including the base rate, benefits, payroll taxes, and insurance.

Overtime and premium time pricing will only be allowed for labor which, based on mutual agreement, shall be performed after normal working hours.

#### (b.) Materials

The actual cost to the Contractor for the materials directly required for the performance of the changed work. Such cost of materials may include the cost of transportation and no delivery charges will be allowed unless the delivery is specifically for the changed work.

If a trade discount by an actual supplier is available to the Contractor, it shall be credited to the Owner. If the materials are obtained from a supplier or source owned wholly by or in part by the Contractor, payment thereof will not exceed the current wholesale price for the materials. The term "trade discount" includes the concept of cash discounting.

If in the opinion of the Owner, the cost of the materials is excessive or if the

Contractor fails to furnish satisfactory evidence of a cost to him other from the actual supplier thereof, then, in either case, the cost of the materials shall be deemed to be the lowest current wholesale price at which similar materials are available in the quantities required. The Owner reserves the right to furnish such materials as it deems advisable and the Contractor shall have no claims for cost or profits on material furnished by the Owner.

#### (c.) Equipment

The actual cost to the Contractor for the use of equipment directly required in the performance of the changed work. In computing the hourly rental of equipment, any time less than 30 minutes shall be considered one-half hour. No payment will be made for time while equipment is inoperative due to breakdown or for non-workdays. In addition, the rental time shall not include the time required to move the equipment to the work for rental of such equipment, and to return it to the source. No mobilization or demobilization will be allowed for equipment already on site. If such equipment is not moved by its own power, then loading and transportation costs will be paid in lieu or rental time thereof. However, neither moving time nor loading and transportation costs will be paid if the equipment is used on the project in any other way than upon the changed work.

Individual pieces of equipment having a replacement value of \$ 1,000 or less shall be considered to be small tools or small equipment and no payment will be made thereof.

The rental rate for equipment will not exceed that as recommended by the lower of Cal-trans or as contained in the Association of Equipment Distributors (AED) book.

For equipment owned, furnished, or rented by the Contractor no cost thereof shall be recognized in excess of the rental

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rates established by Cal-trans and/or the AED any tier book.

The amount to be paid to the Contractor for the use of equipment as set forth above shall constitute full compensation to the Contractor for the cost of fuel, power, oil, lubricants, supplies, small tools, small equipment, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, labor (except for equipment operators) and any and all costs to the Contractor incidental to the use of the equipment.

**(d.) Records**

The Contractor shall maintain his records in such a manner as to provide a clear distinction between the direct costs of extra work and the cost of other operations. This requirement pertains to proposed change orders, change orders and work the Contractor considers to be potential change orders.

The Contractor will provide at the beginning of the project a certified statement and detailed calculation from its accountant establishing the job site and pro rata home office overhead rates for itself and its major subcontractors.

The Contractor at the beginning of the project shall provide a complete listing of all Contractor and subcontractor hourly labor rates.

**(e.) Emergency Changes**

Changes in the work made necessary due to unexpected or unforeseen site conditions, discovery of errors in plans or specifications requiring immediate clarifications in order to avoid serious work stoppage, or other changes of kind where the extent cannot be determined until completed, or under any circumstances whatsoever deemed necessary by the Owner, are types of emergency changes which may be authorized by the Owner in writing to the Contractor. The Contractor shall commence performance of emergency changes immediately upon authorization. These changes will be performed on a

time and material (force account) basis as aforementioned.

**(f.) Surety**

All alterations, extensions of time, extra and additional work and other changes authorized by these specifications or any part of the contract may be made without securing consent of the surety or sureties on the contract bonds

**(g.) Impact**

The Contractor may not reserve a right to assess impact cost, extended job site costs, extended overhead, and/or constructive acceleration at some later date as related to any and all changes. These costs or estimated costs must be supported with full schedule and cost documentation with each proposed change within the prescribed submission times. If a request for a change is denied and the Contractor disputes the denial, the Contractor must supply the aforementioned documentation to support his claim under the disputes clause of this contract. The Contractor shall waive his right to impact extended jobs and overhead costs and construction acceleration due to the multiplicity of changes and clarifications.

**Clause 64 - Audit**

- a. The Owner shall have the right to examine and audit all books, estimates, records, contracts, documents, bid documents, subcontracts, and other data of the Contractor (including computations and projections) related to negotiating, pricing, or performing the modification in order to evaluate the accuracy, completeness, and currency of the cost or pricing data at no additional cost to the Owner.
- b. The Contractor shall make available at its office at all reasonable times the materials described in paragraph (a) above, for examination, audit, or reproduction, until 3 years after final payment under this contract.
- c. The Contractor shall insert a clause containing all the provisions of this clause, including this



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paragraph c., in all subcontracts over \$10,000 under this contract.

certified by the Representative and countersigned by him before any certificate shall be given to Owner. If errors are found in a request for payment, the errors shall be corrected by the Contractor, and the request resubmit to the Owner and to the Representative for approval, bearing the date of same as corrected.

### **T. PAYMENT**

#### **Clause 65 - Payment**

- a. The Owner shall pay the Contractor the contract price as provided in this contract.
- b. The Owner shall make progress payments monthly as the work proceeds, on estimates approved by the Owner. The Contractor shall furnish a breakdown of the total contract price showing the amount included therein for each principal category of the work, in such detail as requested, to provide a basis for determining progress payments.
- c. Contractor shall submit to the Owner and to the Representative vouchers, schedule activities, or other satisfactory proof of the value of any work for which he claims payment on such account, and receipts showing that progress payments have been duly made on such contracts, and for materials furnished.
- d. In the preparation of estimates the Owner may authorize material delivered on the site and preparatory work done to be taken into consideration for major equipment if:
  - (1.) Consideration is specifically authorized by this contract; and
  - (2.) The Contractor furnishes satisfactory evidence that it has acquired title and paid invoices for such material and that the material will be used to perform this contract.
- e. On the 25th of each month the Contractor will submit his request for payment. Prior to that submittal the Owner will review the requested percentage of completion for each activity. The payment request will be in the format as prescribed by the Owner and will refer to the schedule (or cost loaded CPM where required).
- f. All estimates of work performed during the preceding calendar month and all requests for payment thereof or for partial payment on account of equipment delivered but not installed, as herein provided for, shall be

#### g. Retainage and Withholds

(1.) Retainage. In making progress payments, there shall be retained 10 percent of the estimated amount until final completion and acceptance of the contract work. When the work is substantially complete, the Owner shall retain an amount that the Owner considers adequate protection and may release to the Contractor all or a portion of any excess amount.

#### h. Payment of Employers

Contractor and each subcontractor shall pay each of his/her employees engaged in work under this contract in full (less deductions made mandatory by law) at least once a week.

#### i. Withholds

The Representative may withhold (in excess of retainage) or, on account of subsequently discovered evidence, nullify the whole or a part of any certificate to such extent as may be necessary to protect the Owner from loss on account of.

(1.) Defective work not remedied.

(2.) Claims filed or reasonable evidence indicating probable filing of claims.

(3.) Failure of the Contractor to make payments properly to subcontractors or for material or labor.

(4.) Damage to another Contractor.

(5.) Delays in progress toward completion of the work, with the stipulated amount of liquidated damages being withheld for each day of delay for which no extension is granted.

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When the above grounds are removed, payment shall be made for the amount withheld because of them.

j. **Liens and Stop Notices**

(1.) Should stop notices be filed with the Owner or Owner Auditor, Owner shall withhold the amount claimed from certificates until such claims shall have been resolved pursuant to law, Civil Code Section 3179 et seq.

(2.) At the election of the Owner, Contractor shall provide, within ten (10) days of receipt of each progress payment, unconditional waivers and release of lien rights, signed by Contractor and each of its subcontractors and materials suppliers, in the form established therefor by Section 3262 of the Civil Code of the State of California.

(3.) Subject to other conditions of these specifications, within thirty (30) days after receipt of Contractor's monthly request for payment on account, during the progress of the work, the Owner shall issue certificates of payment on account of the contract, for labor and materials actually incorporated in place in the building in a satisfactory manner approved by Representative.

k. **Rights to Property**

All material and work covered by progress payments made shall, at the time of payment, become the sole property of the Owner, but this shall not be construed as:

(1.) Relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or

(2.) Waiving the right of the Owner to require the fulfillment of all of the terms of the contract.

**Clause 66 - Final Payment**

a. **General.** The Owner shall pay the amount due the Contractor under this contract after:

(1.) Final Completion and acceptance of all work; per the acceptance clause of this contract

(2.) Presentation of a properly executed voucher;

(3.) Release of all liens; and

(4.) Presentation of release of all claims against the Owner arising by virtue of this Contract, other than claims, disputes in stated amounts, that the Contractor has specifically excepted from the operation of the release.

b. **Liens.** Neither the final payment nor any part of the retained percentage shall become due until the Contractor, if required, shall deliver to the Owner a complete release of all liens arising out of this contract, or receipts in full in lieu thereof and, if required in either case, an affidavit that so far as he has knowledge or information the releases and receipts include all labor and material for which a lien could be filed; but the Contractor may, if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Owner, to indemnify him against any lien. If any lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all moneys that the latter may be compelled to pay in discharging such a lien, including all costs and reasonable attorney's fees.

c. **Final Certificates.** When the work is ready for acceptance by the Owner, the Representative shall so certify in writing to the Board of Supervisors, and a certificate of acceptance will be issued to the Contractor which will bring his progress payment up to ninety percent of the contract price, less sums withheld regarding liquidated damages, if any.

Notice of Completion will be filed by the Owner upon completion and acceptance of the work. Providing no stop notices have been filed, thirty-five (35) days after filing of such Notice of Completion, payment due under the contract will become due to the Contractor and the Representative shall so certify to the Owner authorizing the final payment. Such payment may withhold any reasonable sums payable to Contractor for any work which could not have been completed on said date or that the Owner may have found defective and ordered to be replaced, final payment for withholdings to be made when certified by Representative in writing to Owner.

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d. Final Payment and Claims Disputes. After acceptance of work, the Owner will submit to Contractor a statement of the sum due Contractor under this contract, together with Owner payment in the amount thereof. Said statement shall take into account the contract price, as adjusted by any change orders; amounts already paid; and sums to be withheld for incomplete work, liquidated damages, and for any other cause under the contract. Within thirty (30) days after receipt thereof, Contractor shall approve such statement or file a claim with the Owner under the disputes clause. Approval of said statement or failure to file claim within said 30 day period shall constitute a waiver by Contractor of additional right to compensation under or by reason of the contract and the payment so made by Owner shall thereupon become a complete settlement between Owner and Contractor. To constitute filing of claim Contractor shall set forth in writing and in detail the basis for claim and amount of money for which demand is made and shall submit same to the Owner in accordance with the disputes clause of this contract. No demand by Contractor shall be recognized as a claim by the Owner unless it is filed in accordance with this paragraph and the disputes clause.

The Owner shall examine claim so filed and, if the claim is found to be proper, an Owner payment will be issued in the amount due upon such claim. If the Owner finds that such claim is without merit, Contractor will be so notified. Finding by the Owner on such claim shall be binding and conclusive upon Owner and Contractor as to questions relating to performance of the contract and amount to be paid thereunder except in case of gross error. Decision of the Owner will be in writing and a copy finished to Contractor.

The Contractor shall, from the effective date of acceptance until the expiration of three (3) years after final settlement under this contract, preserve and make available to the Owner, all its books, records, documents, and other evidence bearing on the costs and expenses of the Contractor under this contract.

### **Clause 67 - Assignment**

Neither the Contract, nor any part thereof, nor moneys due or to become due thereunder may

be assigned by the Contractor without the prior written approval of the Owner.

### **U. SUSPENSION OF WORK, TERMINATION**

#### **Clause 68 - Suspension of Work**

- a. The Owner may order the Contractor, in writing, to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Owner determines appropriate for the convenience of the Owner.
- b. If the performance of all or any part of the work is, for any unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Owner in the administration of this contract, or (2) by the Owner's failure to act within the time specified in this contract (or within a reasonable time if not specified), the Contractor will provide notice according to this clause.

Any increase in the cost of performance of this contract (excluding profit) necessarily caused by the unreasonable suspension, delay, or interruption, will result in the contract being modified in writing accordingly by Change Order. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which a change order is provided for or excluded under any other term or condition of this contract.

- c. A claim under this clause shall not be allowed (1) for any costs incurred more than seven (7) days before the Contractor notified the Owner in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order), and (2) unless the claim in an amount stated, is asserted in writing within 7 days after the termination of the suspension, delay, or interruption. Failure to provide a 7 day notice and/or a fully detailed claim including all facts and pricing within the 7 days after termination of suspension will result in the Contractor waiving his/her right to claim.

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- d. The Owner may stop work in accordance with the safety and health clause and noncompliance clause of this contract for no additional cost or time.

**Clause 69 - Non-Compliance with Contract Requirements**

In the event the Contractor, after receiving written notice from the Owner of noncompliance with any requirement of this contract, fails to initiate promptly such action as may be appropriate to comply with the specified requirement within a reasonable period of time, the Owner shall have the right to order the Contractor to stop any or all work under the contract until the Contractor has complied or has initiated such action as may be appropriate to comply within a reasonable period of time. The Contractor will not be entitled to any extension of contract time or payment for any costs incurred as a result of being ordered to stop work for such cause.

**Clause 70 - Termination**

**a. Termination for Breach**

If the Contractor should be adjudged bankrupt or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he or any of his subcontractors should violate any of the provisions of the Contract, the Owner may serve written notice upon him and his surety of its intention to terminate the Contract, such notice to contain the reasons for such intention to terminate the Contract, and, unless within ten (10) days after serving of such notice, such violation shall cease and satisfactory arrangements for correction thereof be made, the Contract shall, upon the expiration of said ten days, cease and terminate. In the event of any such termination, the Owner shall immediately serve written notice thereof upon the surety and the Contractor, and the surety shall have the right to take over and perform the Contract; provided, however that, if the surety within fifteen (15) days after the serving upon it of notice of termination does not give the Owner written notice of its intention to take over and perform the contract or does not commence performance thereof within thirty (30) days from the date of

the serving of such notice, the Owner may take over the work and prosecute the same to completion by contract or by any other method it may deem advisable, for the account and at the expense of the Contractor, and the Contractor and his surety shall be liable to the Owner for any excess cost occasioned the Owner thereby, and in such event the Owner may without liability for so doing take possession of and utilize in completing the work, such materials, appliances, plants, and other property belonging to the Contractor as may be on the site of the work and necessary therefor.

**b. Termination for Convenience**

(1.) The Owner may terminate performance of work under this contract in whole or, from time to time, in part if the Owner determines that a termination is in the Owner's interest. The Owner shall terminate by delivering to the Contractor a Notice to Terminate specifying the extent of termination and the effective date.

After receipt of a Notice of Termination, and except as directed by the Owner, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:

- Stop work as specified in the notice.
- Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the contract.
- Terminate all subcontracts to the extent they relate to the work terminated.
- Assign to the Owner, as directed, all right, title, and interest of the Contractor under the subcontracts terminated, in which case the Owner shall have the right to settle or to pay any termination settlement proposal arising out of those terminations.
- With approval or ratification to the extent required by the Owner, settle all outstanding liabilities and termination settlement proposals arising from termination of

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subcontracts; the approval or ratification will be final for purposes of this clause.

- As directed by the Owner, transfer title and deliver to the Owner (1) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (2) the completed or partially completed plans, drawings, information, and other property that, if the contract had been completed, would be required to be furnished to the Owner.
- Complete performance of the work not terminated.
- Take any action that may be necessary, or that the Owner may direct, for the protection and preservation of the property related to this contract that is in the possession of the Contractor and in which the Owner has or may acquire an interest.
- Use its best efforts to sell, as directed or authorized by the Owner, any property of the types referred to in subparagraphs above; provided, however, that the Contractor (1) is not required to extend credit to any purchaser and (2) may acquire the property under the conditions prescribed by, and at prices approved by, the Owner. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by the Owner under this contract, credited to the price or cost of the work, or paid in any other manner directed by the Owner.

(2.) After termination, the Contractor shall submit a final termination settlement proposal to the Owner in the form and with the certification prescribed by the Owner. The Contractor shall submit the proposal promptly, but no later than 30 days from the effective date of termination. If the Contractor fails to submit the proposal within the time allowed, the Owner may determine, on the basis of information available, the amount, if any, due the Contractor because of the termination and shall pay the amount determined.

(3.) Subject to paragraph (2) above, the Contractor and the Owner may agree upon the whole or any part of the amount to be paid because of the termination. The amount may include a reasonable allowance for profit on work done. However, the agreed amount, whether under this paragraph (3) or paragraph (4) below, exclusive of costs shown in subparagraph (4) below, may not exceed the total contract price as reduced by (1) the amount of payments previously made and (2) the contract price of work not terminated. The contract shall be amended with a Change Order, and the Contractor paid the agreed amount. Paragraph (4) below shall not limit, restrict, or affect the amount that may be agreed upon to be paid under this paragraph.

(4.) If the Contractor and Owner fail to agree on the whole amount to be paid the Contractor because of the termination of work, the Owner shall pay the Contractor the amounts determined as follows, but without duplication of any amounts agreed upon under the above paragraphs:

- (a.) For contract work performed before the effective date of termination, the total (without duplication of any terms) of:
  - (i) The cost of this work;
  - (ii) The cost of settling and paying termination settlement proposals under terminated subcontracts that are properly chargeable to the terminated portion of the contract if not included in subdivision (i) above; and
  - (iii) A sum, as profit on (i) above, determined by the Owner to be fair and reasonable; however, if it appears that the Contractor would have sustained a loss on the entire contract had it been completed, the Owner shall allow no profit under this subdivision (iii) and shall reduce the settlement to reflect the indicated rate of loss.
- (b.) The reasonable costs of settlement of the work terminated including:

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(i) Accounting, legal, clerical, and other expenses reasonably necessary for the preparation of termination settlement proposals and supporting data;

(ii) The termination and settlement of subcontracts (excluding the amounts of such settlements); and

(iii) Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory.

(5.) Except for normal spoilage, the Owner shall exclude from the amounts payable to the Contractor under paragraph (4) above, the fair value, as determined by the Owner, defective work, and of property that is destroyed, lost, stolen, or damaged so as to become undeliverable.

(6.) The Contractor shall have the right of claim under the Disputes clause, from any determination made by the Owner under paragraph (2), (4), or (8), except that if the Contractor failed to submit the termination settlement proposal within the time provided in paragraph (2) or (8), and failed to request a time extension, there is no right of appeal. If the Owner has made a determination of the amount due under paragraph (2), (4), or (8), the Owner shall pay the Contractor the amount determined by the Owner if there is no right of appeal or if no timely appeal has been taken, or the amount finally determined on legal determination.

(7.) In arriving at the amount due the Contractor under this clause, there shall be deducted:

(a.) All unliquidated advance or other payments to the Contractor under the terminated portion of this contract;

(b.) Any claim which the Owner has against the Contractor under this contract; and

(c.) The agreed price for, or the proceeds of sale of, materials, supplies, or other things acquired by the Contractor or sold under the provisions of this clause and not recovered by or credited to the Owner.

(8.) If the termination is partial, the Contractor may file a proposal with the Owner for a Change Order of the price(s) of the continued portion of the contract. The Owner shall make any Change Order agreed upon. Any proposal by the Contractor for an equitable adjustment under this clause shall be requested within 30 days from the effective date of termination unless extended in writing by the Owner.

(9.) The Owner may, under the terms and conditions it prescribes, make partial payments and payments against costs incurred by the Contractor for the terminated portion of the contract, if the Owner believes the total of these payments will not exceed the amount to which the Contractor will be entitled. If the total payments exceed the amount finally determined to be due, the Contractor shall repay the excess to the Owner upon demand, together with interest.

(10.) Unless otherwise provided in this contract or by statute, the Contractor will maintain all records and documents relating to the terminated portion of this contract for 3 years after final settlement. This includes all books and other evidence bearing on the Contractor's costs and expenses under this contract. The Contractor shall make these records and documents available to the Owner, State and/or the U.S. Government or their representatives at all reasonable times, without any direct charge.

## **V. DISPUTES/CLAIMS**

### **Clause 71 - Disputes/Claims**

a. Definition of Claim: A "claim" means a separate demand by the contractor for (a) time extension, (b) payment of money or damages arising from work done by or on behalf of the contractor pursuant to the contract and payment of which is not otherwise entitled to, or (c) an amount the payment of which is disputed by the owner.

b. Filing Claim Is Not Basis To Discontinue Work: the contractor shall promptly comply with work under the contract or work requested by the owner even though a written claim has been filed. The contractor and the owner shall

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- make good faith efforts to resolve any and all claims that may arise during the performance of the work covered by this contract.
- c. Claim Notification: the contractor shall, within seven (7) calendar days after the claim arises, submit a notification with the owner stating clearly the basis for the claim. The owner's representative will issue a decision. If the notification is not submitted within seven (7) days after the claim arises, the contractor shall be deemed to have waived all right to assert the claim and the claim shall be denied.
- d. Formal Claim Submission: If the contractor does not concur with the representative's decision, the contractor will issue a formal claim within seven days of receipt and all detailed information within thirty days. All claims shall be submitted before the date of final payment. If the formal written claim is not submitted within seven calendar days and detailed information within thirty days, the contractor shall be deemed to have waived his right to assert the claim, and the claim shall be denied.
- e. Formal Claim Format: The contractor shall provide all written detailed documentation which supports the claim, including but not limited to: arguments, justifications, cost, estimates, schedule analysis, and detailed documentation. The format of the claim shall be as follows:
- (1.) Cover letter.
  - (2.) Summary of factual basis of claim and amount of claim.
  - (3.) Summary of the legal basis of the claim, including applicable law and the specific clause or section under the contract under which the claim is made.
  - (4.) Documents relating to the claim, including:
    - (a.) Specifications
    - (b.) Drawings
    - (c.) Clarifications (RFI's)
    - (d.) Other relevant information
- (5.) Analysis of claim merit.
- (6.) Analysis of claim cost.
- (7.) Certification.
- (8.) Chronology of events and correspondence.
- f. Certification: The contractor (and subcontractors, if applicable) shall submit with the claim a certification that:
- (1.) The claim is made in good faith;
    - (a.) Supporting data are accurate and complete to the best of the contractor's knowledge and belief;
    - (b.) The amount requested accurately reflects the amount of compensation for which the contractor believes the owner is liable.
  - g. Signature of Certification: If the contractor is not an individual, the certification shall be executed by an officer or general partner of the contractor having overall responsibility for the conduct of the contractor's affairs.
  - h. False Claims: If a false claim is submitted, it will be considered fraud, and the contractor may be subject to criminal prosecution.
  - i. Mandatory Claim Procedure: The contractor's claim will be denied if it fails to provide the written basis of the claim and certification as set forth herein.
  - j. Owner May Request Additional Information: Within thirty days of receipt of the formal claim detailed information, the owner may request in writing any additional documentation supporting the claim or documentation relating to defenses to the claim which the owner may assert.
  - k. Public contract code Section\_20104: For claims of \$375,000 or less, Section 20104 of the Public Contract Code shall apply. Claims shall not be subject to arbitration, except as expressly required in Section 20104 et seq. of the Public Contract Code as stated below:

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Section 20104

- a. (1) This article applies to all public works claims of three hundred seventy-five thousand dollars (\$375,000) or less which arise between a contractor and a local agency.

(2) This article shall not apply to any claims resulting from a contract between a contractor and a public agency when the public agency has elected to resolve any disputes pursuant to Article 7.1 (commencing with Section 10240) of Chapter I of Part 2.

- b. (1) "Public work" has the same meaning as in Sections 3100 and 3106 of the Civil Code, except that "public work" does not include any work or improvement contracted for by the State or the Regents of the University of California.

(2) "Claim means a separate demand by the contractor for (A) a time extension, (B) payment of money or damages arising from work done by or on behalf of the contractor pursuant to the contract for a public work and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (C) an amount the payment of which is disputed by the local agency.

- c. The provisions of this article or a summary thereof shall be set forth in the plans or specifications for any work which may give rise to a claim under this article.
- d. This article applies only to contracts entered into on or after January 1, 1991.

Section 20104.2 For any claim subject to this article, the following requirements apply:

- a. The claim shall be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims.
- b. (1) For claims of less than fifty thousand dollars (\$50,000), the local agency shall respond in writing to any written claim within 45 days of the receipt of the claim, or may request, in writing, within 30 days of receipt of the claim,

any additional documentation supporting the claim or relating to defenses or claims the local agency may have against the claimant.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim as further documented, shall be submitted to the claimant within 15 days after receipt of the further documentation or within a period of time no greater than that taken by the claimant in producing the additional information, whichever is greater.

- c. (1) For claims of over fifty thousand dollars (\$50,000) and less than or equal to three hundred seventy-five thousand dollars (\$375,000), the local agency shall respond in writing to all written claims within 60 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses or claims the local agency may have against the claimants

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in producing the additional information or requested documentation, whichever is greater.

- d. If the claimant disputes the local agency's written response, or the local agency fails to respond within the time prescribed, the claimant may so notify the local agency, in writing, either within 15 days of receipt of the local agency's response or within 15 days of the local agency's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the local agency shall schedule a meet-and-confer conference within 30 days for settlement of the dispute.



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- e. If following the meet-and-confer conference the claim or any portion remains in dispute, the claimant may file a claim pursuant to Chapter 1 (commencing with Section 900) and Chapter (commencing with Section 900) of Part 3 of Division 3.6 of Title I of the Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision (a) until the time the claim is denied, including any period of time utilized by the meet-and-confer conference.

Section 20104.4 The following procedures are established for all civil actions filed to resolve claims subject to this article.

- a. Within 670 days, but no earlier than 30 days, following the filing or responsive pleadings, the court shall submit the matter to nonbonding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced within 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court.
- b. (1) If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act of 1986 (Article 3 (commencing with Section 2016) of Chapter 3 of Title 3 of Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.  
  
(2) In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, (A) arbitrator shall, when possible, be experienced in construction law, and (b) any party appealing an arbitration award who does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, also pay the attorney's fees on appeal of the other party.

### Section 20104.6

- a. No local agency shall fail to pay money as to any portion of a claim which is undisputed except as otherwise provided in the contract.
- b. In any suite filed under Section 20104.4, the local agency shall pay interest at the legal rate on any arbitration award or judgment. The interest shall begin to accrue on the date the suit is filed in a court of law.

### Section 20104.8

- a. This article shall remain in effect only until January 1, 1994, and as of that date is repealed, unless a later enacted statute, which is enacted before January 1, 1994, deletes or extends that date.
- b. As stated in subdivision (c) of Section 20104, any contract entered into between January 1, 1991, and January 1, 1994, which is subject to this article shall incorporate this article. To that end, these contracts shall be subject to this article even if this article is repealed pursuant to subdivision (a).

## SECTION 01000

### SPECIAL CONDITIONS

#### PART 1 – GENERAL

##### A Occupied Site

1. Clients and staff of San Joaquin County Sheriff's Office (SO) use adjoining space, grounds and parking. Pedestrian and vehicular access around the construction site will continue to be used and must be kept open at all times. Provide protection as required to maintain existing exiting.
2. Contractor will be required to provide a list of all employees who will be working on the job. A valid California driver's license or Social Security number must be furnished for each employee if so requested. All employees will be subject to a Sheriff's Office criminal history background check. The Owner reserves the right to bar any individual from the project.
3. Contractor shall ensure that no alcohol, firearm, weapon, or controlled substance enters or is used at the project site. The Contractor shall immediately remove from the site and terminate the employment of any employee found in violation of this provision.

##### B Noise Constraints

1. Contractor is advised that site is adjacent to operational SO Administration activities. Noise extraneous to construction proper is not allowed.

##### C Hours Of Work

1. Hours of operation are to be 7:00 AM to 5:00 PM Monday through Friday; Saturdays and Sundays as required. Other hours can be addressed through the Owner's representative.

##### D Safe Environment

1. Contractor is to secure site to protect the general public, staff and clients of the SO. The Contractor will be required to maintain adequate protective measures around the site.

##### E Deportment

1. The Contractor and all of the Contractor's employees and Subcontractors and their employees shall conduct themselves in a professional manner, avoid using profanity, playing loud music and shall be fully clothed while on the work site. The color of clothing can be addressed through the Owner's Representative. The contractor may be requested to remove employees who refuse to comply.

##### F Owner To Procure And Pay For All Permits

##### G Temporary Utilities

1. Contractor is responsible for providing its own utilities.

#### H Parking/Laydown

1. Contractor laydown and parking areas are to be coordinated with the Owner's representative.

I The Owner shall procure, at its own expense, certain project-related materials and equipment including, but not limited to, two chillers and controls that will be installed by the contractor as owner-furnished contractor-installed (OFICI). These materials and equipment will be delivered to the Central Plant located at the SO site. Contractor shall be responsible for the appropriate hoisting equipment for the delivery of these Owner pre-purchased materials and equipment to the point of installation by the contractor.

J The old chillers and any associated equipment or materials removed or replaced by the contractor as part of the project shall become the property of the contractor and the contractor shall be responsible for haul-off and legal disposal at the contractor's expense. At the discretion of the Owner's Representative, the contractor may be directed to set aside parts and pieces for the Owner to retain.

#### K Entrances

1. Contractor shall not impede existing vehicular or pedestrian entrances. Coordinate required traffic disruptions with Owner.

#### L Pre-construction Meeting

1. Pre-construction meeting to be held prior to Notice to Proceed. Contractor to present work plan, schedule, schedule of values, advise of permit progress, and address site clean up plan.

#### M Prevailing Wage Job

1. Contractor is advised that this is a prevailing wage job.

#### N 60 Days

1. Duration of the contract is 105 calendar days from Notice to Proceed through Substantial Completion

#### O 12 Month Warranty Period

1. Warranty period is a minimum of 24 months from Substantial Completion.

**PART 2 - PRODUCTS**

Not used.

**PART 3 - EXECUTION**

Not used.

**END OF SECTION**

## SECTION 01010

### SUMMARY OF WORK

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. Summary of Work: See Technical Specification Section 15053 Scope and Common Work Results for Mechanical for detailed description of the work.

##### 1.2 CONTRACTOR'S GENERAL DUTIES

- A. The following provides a general list of duties, which is not all-inclusive. Should there be a conflict with other Contract requirements the more restrictive will apply.
- B. Unless specifically noted otherwise, provide and pay for all of the following:
  - 1. Labor, materials, and equipment. Note is made that this is a prevailing wage job.
  - 2. Tools, construction equipment, and machinery.
  - 3. Transportation, quality control, and other facilities and service necessary for the proper completion of the work in accordance with the Contract Documents.
  - 4. Pay legally required sales, consumer, and use taxes.
  - 5. Water, heat, utilities required during construction period.
  - 6. Enforce offsite parking provisions for employees, vendors, suppliers, etc. as required. Monitor and enforce traffic and parking in areas off limits to contractors.
  - 7. Legal disposal of hazardous and non-hazardous wastes.
- C. Give required notices.
- D. Comply with codes ordinances, rules, regulations, orders, and other legal requirements of public authorities, which govern the performance of the work.
- E. Promptly submit written notice to the Owner's Representative of any observed variances of the Contract Documents from legal requirements.
- F. Enforce strict discipline and good order among employees. Do not employ persons on the job who are unfit or unskilled in their assigned tasks.
- G. Seek clarifications in accordance with RFI procedures established by the Owner's Representative.
- H. Prepare a Schedule describing in detail the Contractor's approach and methods of prosecuting the work in accordance with the construction and time constraints. The Schedule should show the interdependence of construction activities and shall be cost and resource loaded.

- I. Be responsible for the overall coordination of the work. Prepare coordination drawings to indicate how work shown by separate subcontractor shop drawings will be interfaced and sequenced for installation.
- J. Submit a Schedule of Values, Construction Schedule, and Requests for Payment in accordance with the General Conditions, the Supplemental Conditions, and these specifications.
- K. Revise and refine the Schedule to reflect authorized changes as they occur.
- L. Maintain appropriate accounting records (including separate accounts for changes).
- M. Recommend necessary or desirable changes in the work for the review of the Owner's Representative. Review subcontractors' requests for changes and submit recommendations to the Owner's Representative. Submit requests for substitutions in accordance with these specifications.
- N. Consult with the Owner's Representative to obtain interpretations of the Contract Documents. Assist in resolutions of questions and transmit written interpretations to concerned parties.
- O. Attend Project meetings and special meetings as necessary.
- P. Be responsible for the quality of the work performed under the Contract and for the materials, equipment, and supplies to be incorporated in the work.
- Q. Provide temporary facilities and controls.
- R. Provide site security and safety.
- S. Maintain accurate Project records which will be turned over to the Owner at termination of the work.
- T. Verify that the jobsite is maintained in a clean, neat and orderly manner during the progress of the work and at the completion of the work. Maintain access point in a clean condition daily.
- U. Direct the checkout of utilities, operation systems, and equipment, including the initial start-up and testing and provide operating instructions.
- V. Submit maintenance manuals, operating data, warranties, bonds, etc., to the Owner's Representative.
- W. Perform all other work described in the Contract Documents to complete the work.
- X. Submit copies of all subcontractor agreements (including pricing) within thirty (30) days of Notice to Proceed. Also, provide the original bid estimate of the General Contractor and major subcontractors within seven (7) days of the Notice to Proceed or payment may be withheld.
- Y. Prevent any impact to the adjacent facilities or their operations.

### **1.3 WORK BY OTHERS**

- A. The County may have other Contractors performing work outside of this contract within the same general area, and mutual coordination with that Contractor will be required.
- B. Contractor understands that this project connects to existing utilities and will become familiar with and coordinate to integrate with the previous work.

#### **1.4 PROGRESS AND COMPLETION**

- A. All work shall be done under the Contract and shall be completed within 105 calendar days beginning on the date stipulated in the written Notice to Proceed.
- B. Actual, physical work shall commence no later than one day after the date stipulated on the Notice to Proceed, and shall be performed in complete accordance with the Contractor's Work Plan and Progress Schedule. The Contractor shall perform his work in an expedient manner furnishing enough equipment and workforce to maintain at all times Contractor's program of work.
- C. It is expressly agreed that time is of the essence of this Contract, and Contractor agrees to perform the work within the time and in the manner specified, or within the time of such extensions as may be granted. Contractor shall be liable for liquidated damages for failure to meet the completion date.
- D. In the event that the rate of actual progress of the work falls ten (10) days behind the estimated progress indicated on the Contractor's Progress Schedule, the Contractor shall accelerate the work by placing additional forces and equipment on the Project or any other means so that the project will be completed within the Contract time irrespective of the Contractor's claim for time extensions.
- E. The Contractor shall continuously staff the job with no interruption of work. The Contractor shall keep the Owner's Representative advised of his work schedule with weekly work plans, progress reports, and photographs or video documentation of Contractor progress transmitted to the Owner.
- F. The Contractor will provide the necessary crews and workforce to meet the schedule requirements for constructing all facilities within the Contract duration.

#### **1.5 ADJACENT SITE CONDITION SURVEY**

- A. Prior to commencement of Work, the Contractor, the Owner and the Owner's Representative shall jointly survey the site and existing buildings, paving, plant life and other items, noting and recording existing damage such as cracks, sags, loose masonry, unhealthy plant life and other damage.
- B. This record shall serve as a basis for subsequent determination of damage to these items due to settlement or movement caused by demolition and construction operations.
- C. Such damage, as noted, shall be suitably marked on the item if possible, and the parties making the survey shall sign the official record of existing damage.
- D. Cracks, sags or other damage to the site and adjacent buildings, paving, plant life and other items not noted in the original survey but subsequently observed shall be reported immediately to the Owner.

#### **1.6 PROTECTION OF EXISTING UTILITIES**

- A. The Drawings show approximate locations of existing above and below grade structures, drainage line, storm drains, sewers, water, gas, electrical lines, and other items as they are known to exist in the area of the work.
- B. Verify the horizontal location and vertical elevation of these known existing installations before proceeding with excavation or other operations which may cause damage, maintain them in service where appropriate, and repair damage caused by the performance of the work, at no increase in the Contract Sum. The existing buildings, facilities, and utilities must be kept in continuous operation throughout the term of this Contract. Special consideration should be given to work being performed near the existing building foundations. Contractor shall contact underground service alert in accordance with their protocol, prior to any excavation.

- C. Additional utilities and portions of structures whose locations are unknown may exist. If such utilities are encountered, immediately notify the Owner's Representative.
- D. In addition to notification, if a structure or utility is damaged, take appropriate action as specified in the General Conditions.

## **1.7 PROTECTIVE MEASURES**

- A. The Contractor shall provide and maintain substantial and adequate protection as may be required to protect new and existing work, adjacent facilities, the Owner's clients and employees, the public at large, their possessions (such as cars) and all items of equipment and furnishing for the duration of work.
- B. The Contractor shall repair or make good any and all damage that it may cause to the building's facilities and utilities, (including landscaping, roads, fencing, etc.) or property (such as cars) to the full satisfaction of the Owner's Representative and at no cost to the Owner.

## **1.8 PROJECT ADMINISTRATION**

- A. The Owner's Representative is an agent of General Services Department-Capital Projects and has exclusive authority in all matters concerning this project. Contractor shall take direction from the Owner's Representative or his designee only. Any directions, suggestions or proposed changes from any other entity not associated with construction administration or inspection shall be disregarded and immediately reported to the Owner's Representative.
- B. All materials supplied and all work done by the Contractor shall be under the general administration of the Owner's Representative and in accordance with the Drawings and Specifications.
- C. The County has the right but not the duty to maintain a duly authorized representative on the work, full or part-time, who will perform observation and administration during the construction phase.
- D. Code Inspection will be by personnel of City of Stockton, County Building Department, County Public Works, and Owner's Representative. General Services Department-Capital Projects Inspectors will monitor quality control and specification compliance.
- E. Contractor to procure all plans and specifications needed for its use of its subcontractors, etc. at its own cost. Plans and specifications may be purchased from ARC Stockton Blue (formerly Stockton Blueprint) Plan Well at [www.stocktonblue.com](http://www.stocktonblue.com), or at the ARC Stockton Blue Office, 1421 N. El Dorado Street, Stockton, CA 95202, (209) 464-6012.

## **1.9 CONTRACTOR MANAGEMENT**

- A. The Contractor will provide a Project Manager and/or Superintendent who have previously constructed projects of similar size and scope. If requested by the Owner, the Contractor will provide the resumes for Project Manager and/or Superintendent for approval by the County. In addition, the Contractor's Superintendent and Project Manager will be available for interview with the County if requested as part of the approval process. If requested by the Owner the Contractor will also provide references from previous owners who have worked with the Project Manager and/or Superintendent. The Project Manager and/or Superintendent shall personally attend the jobsite each day work is ongoing and be available by direct phone contact when not on site.
- B. County reserves the right to replace Superintendent or Project Manager during the project. If the County finds the performance of the Superintendent or Project Manager unacceptable, the Contractor will be required to replace the staff.



## **1.10 CHANGES AND CLARIFICATIONS**

- A. Contractor and subcontractors by submission of a bid acknowledge and waive right to claim extended overhead, delay, impact, disruption, etc., due to:
1. The multiplicity of changes issued within ten percent (10 %) of the award amount, and
  2. The multiplicity of requests for information (RFI) (clarifications) if they do not exceed 100 in number.
  3. If the changes exceed ten percent (10 %) of the Contract amount and the RFIs exceed 100 in number, the Contractor must demonstrate on a case-by-case basis the effect on the Contract as a whole with detailed Schedule and Cost Analysis.
  4. Should any unforeseen condition be discovered that necessitates a work stoppage, Owner is not liable for any claim of extended overhead, delay, disruption, remobilization or related restrictions of contractor activities.

## **1.11 PARTNERING**

- A. The County of San Joaquin is committed to the concept of partnering in its construction projects. County staff believes that through open communication, fair negotiation and group problem solving a superior construction project can be realized. To this end, the successful contractor and subcontractors may be invited to join with the designers and County personnel to develop a partnering approach for use throughout the life of the Project.

**END OF SECTION**

## **SECTION 01020**

### **WORK PLAN**

#### **PART 1- GENERAL**

##### **1.1 GENERAL**

- A. It is expressly agreed that time is of the essence of this Contract, and the Contractor agrees to perform the work within the time and in the manner specified, or within the time of such extensions as may be granted. The Contractor shall be liable for liquidated damages for failure to meet the final completion date specified herein.
  
- B. The Contractor's scheduling of work crews, equipment, and materials will be of utmost importance for completing the work within the time allowed. The Contractor may be required to employ one or more of the following measures to build the project within the time constraints:
  - 1. Utilize extra equipment and manpower.
  
  - 2. Work more than one normal 8-hour shift per day; work more than the normal 5-day week. Overtime, two or three 8-hour shifts per day, 6 to 7 days per week may be required.
  
  - 3. Employ extra staff to plan, schedule, coordinate, and expedite the work.
  
- C. In addition to employing additional resources as described above, the Contractor will be expected to take whatever additional steps are necessary to ensure timely completion of the Project.
  
- D. Submission of a bid by the Contractor constitutes acknowledgement that the foregoing requirements have been taken into account in the Contractor's bid price.

**END OF SECTION**

## SECTION 01035

### REQUEST FOR INFORMATION AND CLARIFICATION

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. Work included in this Section: The procedures to be followed by the Contractor upon discovery of any apparent conflicts, omissions, or errors in the Contract Documents, or upon having any questions concerning interpretation.

##### 1.2 PROCEDURES

- A. Notification by Contractor: Should the Contractor discover conflicts, omissions, or errors in the Contract Documents, or have any questions concerning interpretation or clarification of the Contract Documents, or if it appears to the Contractor that work to be done or any matter relative thereto are not sufficiently detailed or explained in the Contract Documents, then, before proceeding with the work affected, the Contractor shall immediately notify the Owner's Representative in writing and request interpretation, clarification, or additional detailed instructions concerning the work. The Contractor shall ask for any clarification or request for information immediately upon discovery, but no less than seven (7) working days prior to the start date of the activities related to the clarification, based on the latest updated version of the official Contract Schedule. It should be noted that the Contractor must use an RFI for any change made on a Submittal, but that an RFI does not replace the Submittal process.
- B. The Contractor shall submit all requests for clarification and/or additional information in writing to the Owner's Representative using the Request for Information (RFI) form included in this section. An electronic version is available.
- C. Number: The Owner's Representative will assign blocks of numbers for the Contractor, Engineer, Owner's Representative, and for substitutions. The Contractor will use the block of numbers consecutively with the date of issue, except for reissuance of a respective RFI in which the subscript a, b, c, etc., will be added until the RFI is resolved. Contractor shall number all attachments with RFI number followed by .1, .2, .3 etc. in the lower right hand corner of the attachment.
- D. Response Time: The County, or its representative whose decision will be final and conclusive, shall resolve such questions and issue instruction to the Contractor within a reasonable amount of time, but no more than fourteen (14) calendar days. In some cases, this time may need to be lengthened or shortened for emergency situations as mutually agreed upon by all parties. Should the Contractor proceed with the work affected before receipt of a response from the Owner's Representative within the response time described above, any portion of the work which is not done in accordance with the Owner's interpretation, clarifications, instructions, or decisions subject to removal or replacement and the Contractor shall be responsible for all losses.
- E. Reason for Submission: The Contractor may submit RFIs if one of the following conditions occur:
1. The Contractor discovers an unforeseen condition or circumstance that is not described in the Contract Documents.
  2. The Contractor discovers an apparent conflict or discrepancy between portions of the Contract Documents that appears to be inconsistent or is not reasonably inferred from the intent of the Contract Documents.

3. The Contractor discovers what appears to be an omission from the Contract Documents that cannot be reasonably inferred from the intent of the Contract Documents.
- F. Rejections: RFIs will not be recognized or accepted if, in the opinion of the County, one of the following conditions exists:
1. The Contractor submits an RFI as a Submittal.
  2. The Contractor submits the RFI under the pretense of a Contract Documents discrepancy or omission without thoroughly reviewing the documents.
  3. The Contractor submits the RFI in a manner that suggests that specific portions of the Contract Documents are assumed to be excluded, or by taken as an isolated portion of the Contract Documents in part rather than whole.
  4. The Contractor submits an RFI in an untimely manner without proper coordination and scheduling of work or related trades.
- G. Subject: Each RFI shall be limited to one (1) subject.
- H. Additional Detailed Instructions (Clarifications): The Owner may furnish additional detailed written instructions to further explain the work, and such instructions shall be a part of the Contract Documents. Clarifications will be issued using the above RFI system. Should additional detailed instructions in the opinion of the Contractor constitute work in excess of the Scope of the Contract, the Contractor shall submit notification immediately and written notification thereof to the Owner's Representative no more than seven (7) calendar days following receipt of such instruction, and in any event prior to the commencement of work thereon. The Owner's Representative will then consider such notice, and if the Owner's Representative considers it justified the instructions of the Owner will be revised or a proposed Change Order will be issued. The Contractor shall have no claim for additional compensation or extension of the Schedule because of any such additional instructions unless the Contractor provides the Owner's Representative written notice thereof within the time frame specified above. In addition, the Contractor shall within fourteen (14) days from the date of notification provide detailed justification and analysis as well as complete pricing and schedule CPM fragmentary network to support any request for time extension. See the Changes Clause of the General Conditions for more details.

**END OF SECTION**



**SAN JOAQUIN COUNTY GENERAL SERVICES DEPARTMENT-CAPITAL PROJECTS  
SAN JOAQUIN COUNTY JAIL CHILLER REPLACEMENT PROJECT  
REQUEST FOR INFORMATION**

RFI: \_\_\_\_\_

<b>CONTRACTOR:</b>	<b>TRANSMITTAL RECORD</b>	<b>ATTN/FIRM</b>	<b>SENT</b>	<b>REC'D</b>	<b>DUE</b>
<b>INFORMATION REQUESTED BY:</b>	<b>CONTRACTOR TO CM</b>				
<b>SUBJECT:</b>	<b>CM to A/E</b>				
	<b>A/E CM TO CONSULTANT(S)</b>				
<b>DRAWING REF:</b>	<b>CONSULTANT(S) TO A/E</b>				
<b>SPEC REF:</b>	<b>A/E TO CM</b>				
<b>CONTRACT NO:</b>	<b>CM TO CONTRACTOR</b>				

**INFORMATION NEEDED:**

**DATE:** \_\_\_\_\_

**SIGNATURE:** \_\_\_\_\_

**REPLY:**

**DATE:** \_\_\_\_\_

**SIGNATURE:** \_\_\_\_\_

**You are authorized to proceed with the work identified in the reply to this RFI on the assumption that no change in the contract amount or completion date is required. If the RFI involves a change in the work affecting your contract amount or completion date, notify the CM immediately.**

## SECTION 01150

### PAYMENT

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. Monthly Progress Payment request preparation, approval and payment shall conform to the provisions of this Section and will supersede the General Conditions. In case of conflict, the more restrictive shall apply.
- B. Related provisions specified elsewhere include:
  - 1. Bid Form
  - 2. Construction Agreement (Contract)
  - 3. General Conditions
  - 4. Summary of Work (Section 01010)
  - 5. Progress Schedules (Section 01310)
  - 6. Schedule of Values (Section 01370)

##### 1.2 SUBMITTAL PROCEDURE

- A. Upon notification of acceptance of the bid by the County, the apparent successful bidder shall, within five (5) calendar days, submit a cost breakdown of his/her bid allocated to each of the Specification Divisions. This information shall be consistent with the data in the Schedule of Values. The cost breakdown shall be in conformance with the CSI format and with subcontract values. Breakdown shall include separating all costs by building area or site work.
- B. Submit a Schedule of Values based on the Cost-Loaded Schedule for each activity of work thirty (30) days after Notice to Proceed for approval by the Owner's Representative. Payment will not be made until the Schedule of Values and Cost-Loaded Schedule have been approved. The Schedule of Values shall be in conformance with the CSI format and roll up from the Cost-Loaded Schedule.
- C. The Contractor will break out itemized payments for any and all stored materials as individual activities on the Cost-Loaded CPM.
- D. An updated rough draft payment request based on the Cost-Loaded Schedule will be presented to the Owner's Representative at the billing meeting on or about the twenty-fifth (25<sup>th</sup>) of each month.
- E. On or about the first of each month and after the billing meeting with the Owner's Representative, submit an Application for Payment on a copy of the form provided by the Owner. Include the Monthly Progress Payment and the Cost Report. The monthly invoice will be based on work completed through the twenty-fifth (25<sup>th</sup>) day of the previous month.
- F. Using the Monthly Progress Payment and Cost Report, fill in or mark up quantities/percentages/dollars requested, including that of approved Change Orders executed prior to the date of submittal of Monthly Progress Payment and Cost Report, and submit to the Owner's Representative for review. Include such substantiating data as the Owner's Representative or Owner may request. The Monthly Progress Payment and Cost Report shall show the value of work completed, by each of the Specification Divisions as well as by each activity. The stipulated retainage shall be included in the invoice. The Contractor shall provide a sort by CSI format. The Monthly Progress and Cost Report will have the following format:
  - 1. Activity and Specification Division number
  - 2. Cost

3. Percent Complete
  4. Cost of Previous Period
  5. Previous percent complete
  6. Cost This Period
  7. Total Cost to Date
- G. After review and when agreement is reached with the Owner's Representative on the Progress Payment Estimate, the Contractor shall generate the revised Application for Payment with Monthly Progress Payment and Cost Report for signature by the Contractor, Owner's Representative, and the Architect. The Owner's Representative will make the final determination if agreement cannot be reached on the Contractor's Payment Request.
- H. The Contractor shall execute certification with signature of a responsible officer of the Contractor's firm, as the first signature on the Application for Payment with Monthly Progress Payment and Cost Report
- I. The Application for Payment with Monthly Progress payment and Cost Report shall be in electronic format.
- J. The Application for Payment with Monthly Progress Payment and Cost Report shall be supported with conditional releases from subcontractors.
- K. Unconditional lien releases due ten (10) days after payment.

### **1.3 STORED MATERIALS/EQUIPMENT**

- A. Payment for stored material and equipment is at the discretion of the Owner. Submit separate Schedule of Prices of material and equipment to be stored on or off the work site. The schedule will show the quantities, prices, and types of materials to be stored. Stored material prices shall be shown separately on the Cost Loaded CPM based on the Schedule of Prices.
- B. Payment Request may include the value of acceptable material/equipment not yet incorporated into the work, provided that all of the following conditions are met:
1. Payment will only be made for major individual material/equipment which have a value PER ITEM in excess of \$10,000.00.
  2. Such acceptable materials/equipment is either furnished and delivered to the site or furnished and stored for use on the Contract and such storage is within a bonded and insured warehouse located within San Joaquin County.
  3. Forty-eight (48) hours prior, written approval by the Owner's Representative shall be obtained for each delivery to the warehouse.
  4. Title to stockpiled material/equipment shall be vested in the Owner at the time of delivery to the site or warehouse.
  5. Stockpiled material/equipment shall be inventoried and accounted for by the Contractor by an independent firm and available for inspection by the Owner's authorized agents and shall be segregated and marked as the property of Owner.
  6. After delivery of the material/equipment, if any inherent or acquired defects are discovered, defective material shall be removed and replaced with suitable material at the Contractor's expense.
  7. At his/her expense, the Contractor shall insure material/equipment against theft, fire, vandalism, and malicious mischief and shall deliver the policy or certificate of such insurance to the Owner's Representative naming the Owner as the insured. Insurance shall not be cancelable for at least thirty (30) days and cancellation shall not be effective until certificate thereof is given to the Owner. Present proof of insurance with each Request for Payment.

8. Submit bills of sale or paid invoices for all stored material/equipment on which payment is requested. Payment for stored materials will only be approved for individual major equipment or materials in excess of \$10,000.00.
9. Nothing in the above conditions shall relieve the Contractor of his/her responsibility for incorporating material/equipment into the work in conformity with the Contract Documents.
10. Maximum payment for stored material/equipment will be the cost of the item plus applicable taxes. Submit supplier's invoice and receipt as evidence of purchase and payment, and provide supplier's executed Lien Release. Such payment shall in no case exceed the bid price for the item of work for which the material/equipment is furnished and shall not be greater than the Cost Loaded Activity.

**1.4 TIMING AND TURNAROUND OF PROGRESS PAYMENTS**

- A. The end date for each monthly pay period shall be established as the twenty-fifth (25<sup>th</sup>) day of each month and a formal payment request on or about the first (1<sup>st</sup>) of the following month. The payment request will be accompanied by Certified Payrolls and complete As-Builts. Deducts may be taken for defective work, untimely Submittals, Stop Notices, etc.
- B. It is the intention of the Owner to make Progress Payments to the Contractor thirty (30) days after receipt of the approved Monthly Progress Payment Application and all backup data including but not limited to payrolls, material inventories, releases of liens, certifications, and invoices.
- C. Final payment shall be in accordance with the Construction Agreement and General Conditions after all of the requirements of Specification Section 01700 - Project Closeout have been met.

**1.5 SPECIAL REQUIREMENTS**

- A. The items outlined below are to be included within the Schedule of Values. The below quantities and/or percentages are separate of the retention amounts specified elsewhere.
- B. One percent (1.0%) of the total Contract value will be allocated to activities for turn-on, testing and inspection of plumbing (0.25%), mechanical (0.25%), electrical (0.25%), and access/security controls (0.25%).

Accomplishment	Percent
1. Rough-In: All conduit, wiring, piping, including hangers, supports, insulation, etc. completely installed, inspected and tested for conformance to applicable Specification sections.	25%
2. Trim/Finish: All equipment certified by manufacturer (if applicable), installed and inspected in accordance with applicable Specification section.	50%
3. Operational: Entire system is checked out, inspected, approved, and fully operational in accordance with applicable Specification. All test reports delivered to Owner's Representative.	100%

- C. One-half percent (0.5%) of the total Contract value will be allotted to punch list activities.



D. Cleanup: For administrative and payment purposes, allocate as a minimum one-quarter percent (0.25%) of the total Contract value for cleanup. (The actual amount required may be more or less). The 0.25% will be pro-rated as follows:

	<u>Job Completion</u>	<u>Clean Up Paid</u>
1.	25	10
2.	50	25
3.	75	50
4.	100	100

- E. One tenth percent (0.10%) of the total Contract value will be allocated for accepted record documents for each subcontractor and the General Contractor.
- F. If schedule updates are not complete and/or not completed by the last day of the month, payment or a portion thereof may be withheld.
- G. If Submittals are not provided in the time proscribed by the Contract, payment or a portion may be withheld.
- H. If As-Builts are not maintained on a consistent basis ten percent (10%) of the payment may be withheld.
- I. One tenth percent (0.10%) of the total Contract will be withheld if all Guaranties/Warranties are not provided. This amount will be allocated for each Subcontractor.
- J. Submittals: a maximum of five percent (5%) of the subcontract amount may be included for engineering and shop drawings for deferred submittals. Payment will be allowed after those submittals are completely approved.

**END OF SECTION**

**SAN JOAQUIN COUNTY GENERAL SERVICES DEPARTMENT-CAPITAL PROJECTS**



**CONTRACTOR:**

**Project:** San Joaquin County Jail Chiller Replacement Project

**Pay Estimate No:**

**Date:**

**Period From:**

**To:**

	<b>Schedule Amount</b>	<b>Previous Work Complete</b>	<b>Work This Period</b>	<b>Work to Date</b>	<b>% Comple te</b>	<b>Balance to Finish</b>
<b>SUMMARY:</b> Base Contract Amount Approved PCO's & CO's Total Contract Amount						
<b>Gross Earnings (Attachment B)</b>  Retention 10%  Withhold Due To Stop Notice Withhold For Defective As-Builts Withhold For Notice to Withhold  Net Earnings						
<b>Less Previous Earnings</b>  <b>Net Payment This Period</b>						

(Contractor)	Date:
Taylor Systems Engineering (Engineer)	Date:
San Joaquin County General Services Department-Capital Projects (Owner)	Date:

**REMIT PAYMENT TO:**

## SECTION 01310

### SCHEDULE

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. Progress Schedule preparation, submittal, update, and changes shall conform to the provisions of this Section. This will supersede the General Conditions Clause 22. Note equipment required by Part 2 of this section.
- B. Related provisions
  - 1. Payment (Section 01150)
  - 2. Schedule of Values (Section 01370)

##### 1.2 REQUIREMENTS:

- A. Submit a preliminary Critical Path Method (CPM) Progress Schedule within five (5) calendar days of the Notice to Proceed. This can be an activities only four (4) week look ahead.
- B. Submit a Critical Path Method (CPM) Progress Schedule with preliminary cost loading within fifteen (15) days of the NTP covering the first ninety (90) calendar days of the Contract.
- C. Submit a CPM Schedule for the entire project duration with cost and man-loading no later than thirty (30) days after the Notice to Proceed.
- D. Schedule submittals are subject to review and acceptance by the Owner's Representative. The Owner's Representative retains the right to withhold Progress Payments until the Contractor submits a Progress Schedule acceptable to the Owner's Representative.
- E. Submit monthly progress review and update of the schedule with each Progress Payment. Schedule revisions, as requested by the Owner's Representative, are specified in Paragraph 1.6 of this Section.
- F. Utilize computer scheduling system for producing CPM Progress Schedule Drawings and Network Reports.
  - 1. Reports sorted by area, phase or activity shall be provided as approved by the Owner's Representative. The reports shall indicate activities, duration, early start & finish, man-days, unit cost, quantities and float.
  - 2. Computer scheduling software used by the Contractor shall be Microsoft Projects 2003 or later.

##### 1.3 PREPARATION GUIDELINES

- A. The Progress Schedule shall represent a practical plan to complete the work within the Contract time. The Progress Schedule shall be consistent in every way with the Contractor's Work Plan submitted previously.
  - 1. A schedule extending beyond the Contract time will not be acceptable.
  - 2. A schedule showing the work completed in less than the Contract time may be found by the Owner's Representative to be impractical.
  - 3. Any schedule found to be impractical for the preceding reason or any other reason shall be revised by the Contractor and resubmitted.
  - 4. A schedule showing the work completed in less than the Contract time, which is found to be practical by the Owner's Representative, shall be considered to have float. The float is the time between the scheduled completion of the work and Contract completion date. In this case and others, float is a resource available to both the Owner's Representative and the Contractor.
  - 5. The Contractor's Progress Schedule shall be formulated with written allowance for adverse weather

conditions normally anticipated. The Contract time has been predicated assuming a normal amount of adverse weather. The weather days will be calculated utilizing NOAA data for the local area and will be based on a ten (10) year average for the number of days per month for which rainfall is greater than ½ of one (1") inch. The Contractor will provide copies of the NOAA data and the summation of the number of weather days per month to the Owner's Representative with the CPM Schedule. The weather days shall be shown on the Schedule and if not used will become float at the end of the Project Schedule. No less than twenty-two (22) calendar days will be allotted for each winter weather period which is defined as the months of October, November, December, January, February and March. A total of twenty-two (22) days are to be included if the start or completion occurs any time within the defined inclement weather period.

6. The Contractor will provide the following activities for completion of the Project specifically on the critical path:
    - a. Checkout and performance testing of all mechanical/electrical systems and equipment for not less than ten (10) work days.
    - b. Checkout and testing of access controls, security controls, intrusion system, P.A. system, etc., not less than ten (10) days.
    - c. Checkout and testing of fire protection system with the Fire Marshal for not less than four (4) work days.
    - d. Training on mechanical, electrical and security systems equipment not less than five (5) workdays.
    - e. Not less than 21 calendar days will be allocated for each O&M submittal review. Accepted O&M Shall precede training sessions.
    - f. Cleanup of not less than five (5) calendar days.
    - g. Preparation of Punchlist five (5) calendar days for substantial completion.
    - h. Correction of Punchlist items for not less than ten (10) calendar days.
  7. No more than fifteen (15%) percent of the activities shall be critical or near critical. Near critical is defined as float in the range of one to ten (1-10) work days.
  8. The Contractor will provide the necessary crews and manpower to meet the schedule requirements for constructing all facilities within the Contract duration. The Contractor will provide manpower and crewing calculations to support the critical path front.
  9. The Contractor will provide all submittals on the Schedule.
- B. The Progress Schedule shall clearly show the sequence and interdependence of construction activities and shall specifically indicate:
1. The start and completion of all items of work, their major components, and interim milestone completion dates.
  2. Activities for procurement, delivery, installation, and completion of each major piece of equipment, materials, and other supplies, including:
    - a. Time for submittals, resubmittals, and review.
    - b. Time for fabrication and delivery of manufactured products for the work.
    - c. The interdependence of procurement and construction activities.
  3. Activities for maintaining Project Record Documents.
- C. The Schedule Shall:
1. Be in sufficient detail to assure adequate planning and execution of the work. Activities should generally range in duration from three to ten (3 to 10) calendar days each.

2. Be suitable, in the judgment of the Owner's Representative, to allow monitoring and evaluation of progress in the performance of the work.
3. Show detailed subcontractor work activities. In addition, the Contractor will provide copies of the subcontractor's schedules and/or bid data, and manpower/equipment upon which the CPM was built. Each major subcontractor will submit on his letterhead a statement certifying he/she has concurred with the General Contractor's CPM and that his/her related subcontractors' schedules and/or data have been incorporated, including the activity duration and cost and manpower loading.
4. Be calendar time-scaled in the form of an activities-on-arrow network diagram.
  - a. The activities shall include:
    1. Description: what is to be accomplished and where.
    2. Calendar day duration.
    3. Responsibility code: identifies who performs the activity. One (1) per activity, identified by subcontractor.
    4. The dollar value of each activity on the Schedule for cash flow and payment purposes (cost loading). The total of activity costs shall equal the Contract amount and be in conformance with the bid proposal and Schedule of Values, Section 01370.
    5. The total quantity of manpower (in terms of man days) assigned to each activity.
    6. The total number of full-time workers assigned to work on each activity (man loading).
  - b. The network shall show continuous flow from left to right. Constraints will not be allowed without the Owner's Representative's prior approval.
    1. Identify days per week and shifts per day worked.
    2. Include time for the Owner's Representative/Architect to review submittals or observe the work.
    3. Identify the activities which constitute the controlling operations or critical path.
- D. All Schedule submittals shall include one (1) 11"x17" size copy of each of the required CPM Drawing(s). Additionally, submit a complete computerized CPM Progress Schedule on data disk(s) in a format which can be read into other computerized scheduling packages. Data disks containing the Contractor's Schedule shall be readable by a PC compatible with a CD Rom drive. Costs for preparation and reproduction of all Schedule submittals shall be paid for by the Contractor.
- E. Submittal of the Progress Schedule shall be understood to be the Contractor's representation that:
  1. Schedule meets the requirements of the Contract Documents and that work will be executed in the sequence indicated on the Schedule.
  2. Contractor shall distribute Progress Schedule to subcontractors for review and acceptance which will be noted on the subcontractor's letterhead to the General Contractor and transmitted to the Owner's Representative for the record.

#### **1.4 SUBMITTALS**

- A. The Contractor shall provide a copy of his/her Pre-bid Schedule with the along with the preliminary CPM Schedule within five (5) days after Notice to Proceed.
- B. Within five (5) days after the Notice to Proceed, provide to the Owner's Representative for review copies of the Preliminary Construction Schedule sufficiently complete in detail so as to indicate sequence of operations and durations of construction for the first four weeks.
- C. The Preliminary Schedule will be reviewed by the Owner's Representative. The Contractor shall modify the Preliminary Schedule, when requested by the Owner's Representative, and resubmit the Schedule for

approval. Approval of the Preliminary Schedule if based on less time than the maximum time allowed does not serve to change the specified time of completion, nor serve as a waiver of the Contractor's nor the Owner's right to the full amount of time specified as the time of completion, unless the time of completion is changed by a formal Change Order to this Contract.

- D. Within fifteen (15) days after the Notice to Proceed, provide to the Owner's Representative the CPM Program Schedule with preliminary cost loading covering the first ninety (90) days sufficiently complete in detail so as to indicate sequence of operation and duration of construction. Review will be as in Point C above.
- E. Within thirty (30) days after Notice to Proceed, the Contractor shall provide to the Owner's Representative copies of a complete computer cost and man-loaded construction schedule consisting of required functions or activities, tabulation of activities, and critical path. A Project calendar shall also be submitted. No payments will be considered without this submittal.
- F. Not later than the twenty-fifth (25<sup>th</sup>) day of each month thereafter during duration of the Project, Contractor shall provide the Owner's Representative with copies of an updated Schedule showing work progress. Submittal of the updated Schedule shall be attached with the Request for Payment and will be a condition of monthly payment.

**END OF SECTION**

## SECTION 01340

### SUBMITTALS

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. This Section describes the requirements for the deferred approval and submission of a Submittal Schedule, Shop Drawings, calculations, product data, samples, Certificates of Compliance, and other items as specified. This will supersede the General Conditions. Submittal shall be made to the Owner's Representative for review by the Architect. Other miscellaneous submittal include, but are not limited to, bonds, warranties, guarantees, maintenance agreements, project photographs, survey data and reports, quality testing and certifications, copies of industry standards (if requested), record drawings, operating and maintenance manuals and materials, engineer's calculations, and keys.
- B. Related work not included in this section:
  - 1. Specific section reference requiring submittal. Make submittal only where specifically required.
  - 2. Requirements of other types of submittal including, but not necessarily limited to, test reports, operating instructions, maintenance data, and maintenance materials.
- C. In preparing the Submittals, consider the nature and complexity of each submittal item and allow ample time for review, revision, correction, resubmittal, and approval sufficiently in advance of the construction requirements.
  - 1. Allow at least fifteen (15) calendar days for review by the Owner's Representative for each Submittal or resubmittal.
  - 2. Allow at least thirty (30) calendar days for review of complex Submittals and resubmittals which require review by both the Architect and his consultants.
  - 3. No claim for delay will be granted to the Contractor when the delay is caused by his/her failure to make Submittal in a timely manner and in accordance with the accepted Submittal Schedule.
  - 4. Allow adequate time beyond the required review time for processing and distribution of each Submittal or resubmittal.
- D. Schedule Submittal in sequence with the Schedule for work except as required for deferred approval products known to require long lead time. For submittal of items requiring long lead time, submit written verification of the required lead time from the supplier.
- E. All substitutions will be submitted and approved prior to Submittal.

##### 1.2 SUBMITTAL NUMBERING SYSTEM

- A. Submittals shall be numbered in consecutive ascending order. Resubmittals shall be followed by a subscript "a", "b", "c", etc., as necessary for resubmission. For example, the first Submittal shall be "001". The first resubmittal of "001" shall be "001a". The Contractor shall keep each Submittal and resubmittal intact with the original number and will not add new drawings or information outside the scope of the original Submittal, nor will the Contractor provide a new number for a resubmittal. Submittal will be returned to the Contractor without review if incorrectly numbered.

##### 1.3 SHOP DRAWINGS

- A. Submit to the Owner's Representative at least five (5) copies of blue-line or black-line prints plus one (1) reproducible paper or mylar of each shop drawing. Only the reproducible will be returned to the Contractor.

After completion of checking, the Owner's Representative will obtain prints of the transparency for his/her record and will return transparency to the Contractor. The Owner's Representative will forward only the reproducible to the Contractor. Shop Drawings shall be new drawings prepared by the Contractor responsible for his/her respective work, and not reproduced from the Architect's drawings and no exceptions will be made.

1. The sheet size of shop drawings shall not exceed 36" x 42".
2. Each Shop Drawing shall have blank spaces large enough to accept 4" x 10" review stamps of the Contractor, the Architect, or the Architect's consultants.
3. Shop Drawings shall include plans, sections, and details including complete information for making connections with other work and any other information necessary to adequately describe the unit of work.
4. Materials and finishes shall be clearly identified and, where applicable, Specification Section numbers shall be included as reference.
5. Identify details by reference to sheet and detail numbers shown on the Contract Documents.
6. Identify applicable standards, such as ASTM numbers or Federal Specification numbers, on the drawings.
7. Identify deviations from the Contract Documents by clouding and the words "CONTRACT DEVIATION" in boldface type.
8. Shop Drawings shall be drawn to a minimum scale of 1/8 inch equals one (1') foot, showing all equipment; with Mechanical and Electrical rooms to a minimum scale of 1/4 inch equals one (1') foot, showing all equipment, ductwork, and piping to be installed under the Mechanical sections. For critical areas, provide section drawings to a minimum scale of 1/4 inch equals one (1') foot. Layouts shall show clearances of piping, ducts, etc., above floor.

#### **1.4 CALCULATIONS**

- A. Where calculations are required by the Specifications, they shall be prepared by a registered professional engineer, licensed in the State of California, who shall sign and stamp each copy of the Submittal prior to submission to the Owner's Representative.
- B. Submit five (5) copies of required calculations for the record only. The Owner's Representative will not be responsible for checking calculations in detail.
- C. Indicate all formulae and criteria used in the preparation of calculations.
- D. Submit calculations in 8-1/2" x 11" sheets only with the following information on each sheet:
  1. The name and address of the engineer.
  2. The license number, stamp, and signature of the engineer.
  3. The project name and address.
  4. The Contractor's name and address.

#### **1.5 PRODUCT DATA**

- A. Product Data shall permit the Owner's representative to determine which materials, equipment, and systems will be accepted in the Project and shall consist of brochures, catalog cuts, or other data sufficient to clearly identify subject items, optional features to be utilized, performance characteristics, limitations, capacities, schedules, complete engineering information, physical dimensions, conformance with standards, codes, fire ratings, acoustical ratings, appearance characteristics, and any other pertinent data to identify it as either item specified or an equal to that specified. Statements such as "as specified" will not suffice.
- B. Submit seven (7) copies of manufacturers' catalog cuts, brochures, diagrams, schedules, performance charts, illustrations, and other descriptive data as required by the Specification Sections. When manufacturer's printed literature is required to be submitted, it shall be submitted in original form. Heat transfer or other impermanent reproduction method or fading type of reproduction will not be accepted. Make one (1)



coordinated Submittal for each unit of work or system. Two (2) copies will be returned to the Contractor and one (1) copy to the Owner's Representative.

- C. Mark the manufacturer's data to clearly indicate the items to be included as a part of the work. Product data submitted with multiple items and no clear indication as to which item is to be used in the work will be returned to the Contractor without being reviewed.
- D. Submit manufacturer's standard printed recommendations for application and use. Supplement standard information to provide additional information applicable to the Project.
- E. Include dimensions and clearances required. Indicate field dimensions which have been checked and verified.
- F. Show performance characteristics and capacities.
- G. Show wiring diagrams and controls.
- H. Review product data prior to submission to the Architect. Stamp and sign each Submittal to indicate that the Contractor has reviewed the Submittal for compliance with the Drawings and Specifications.
- I. Identify deviations from the Contract Documents by clouding and the words "CONTRACT DEVIATION" in boldface print.

## **1.6 SAMPLES**

- A. Review of Samples shall permit the Owner's Representative to physically verify conformance of materials, products, fixtures, or devices with Contract Documents either by inspection and to select textures, colors, or other characteristics as stipulated in the Contract Documents.
  - 1. Review of Samples will be only for characteristics or uses named in such review and shall not be taken to change or modify any Contract requirement except as specifically authorized or requested by the Owner's Representative.
  - 2. Samples shall set standards for items or characteristics of which samples are representative; after sample has been reviewed, no further change in brand, make, or quality will be permitted.
- B. Submit four (4) samples as specified. Unless otherwise specified, samples shall be sufficient size and quantity to clearly indicate:
  - 1. Functional characteristics of the product or material, with integrally related parts and attachment devices.
  - 2. Full range of color samples.

## **1.7 CONTRACTOR'S RESPONSIBILITIES**

- A. Maintain a log of Submittals showing the Submittal number, description, Specification Section, schedule Submittal date, date to the Owner's Representative, requested due date, date received from Owner's Representative, Submittal review action code, and comments. The Contractor shall submit a current copy of the submittal log each month.
- B. Do not submit drawings, samples, or data for products that have not been specified unless such products have been formally approved as a substitute in accordance with Section 01660 - Substitutions.
- C. Begin no work which requires Submittal until such Submittal have been reviewed by the Architect/Engineer and returned to the Contractor with the Architect/Engineer's stamp and initials.
- D. The Contractor will notify the Owner's Representative immediately if he/she considers any comments, notations, instructions, notes, etc., applied to the Submittal by the Owner's Representative to be a change to the Contract requirements. The Contractor will initiate an RFI (Request for Information) identifying the Scope of Work which they consider to be a change to the Contract requirements. The RFI will be submitted in accordance with the RFI processing requirements contained within the Specifications. Failure of the Contractor to issue an RFI within seven (7) days upon receipt of the Submittal will waive the Contractor's right to a Change Order.

- E. Submittal "Approved as Noted" will not be resubmitted. The Owner's representative approved or reviewed as noted items will be incorporated in the record drawings.

## **1.8 REVIEW BY THE OWNER'S REPRESENTATIVE/ARCHITECT/ENGINEER**

- A. Review Submittal within time frames of 1.1C for design concept and compliance with the Contract Documents.
- B. The Owner's Representative/Architect/Engineer review of the Shop Drawings will be for general conformance with design conditions only and will not relieve the Contractor of his/her responsibility for quantity, fit, dimensions, coordination, and full compliance with all of the Contract Documents.
- C. The Owner's Representative/Architect/Engineer reserves the right to reject Submittal which, in his/her opinion, are incomplete and/or lack sufficient information to enable him/her to accomplish a thorough review.
- D. The Owner's Representative/Architect/Engineer may reject resubmittals which do not clearly indicate where revisions have been made to the original Submittal.
- E. The Owner's Representative/Architect/Engineer will reject Submittal for products which have not been specified unless such products have been formally approved as acceptable substitutes in accordance with Section 01660 - Substitutions.
- F. The Owner's Representative/Architect/Engineer review of the Submittal shall not be construed as approving departures from the Contract requirements.
- G. The Owner's Representative/Architect/Engineer review of separate items does not constitute review of an assembly in which the item functions.
- H. Indicate action, stamp and initial the Submittal certifying review.
- I. Retain one (1) copy for the Owner's Representative file and one (1) copy for each major consultant who has reviewed the Submittal.
- J. Return Submittal via the Owner's Representative to the Contractor for distributions.

**END OF SECTION**



**SAN JOAQUIN COUNTY GENERAL SERVICES DEPARTMENT-CAPITAL PROJECTS  
 SAN JOAQUIN COUNTY JAIL CHILLER REPLACEMENT PROJECT  
 SUBMITTAL TRANSMITTAL**

Submittal # \_\_\_\_\_ Page \_\_\_\_ of \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_ SPECIFICATION SECTION: \_\_\_\_\_

SUBCONTRACTOR/SUPPLIER: \_\_\_\_\_

DRAWING REFERENCE: \_\_\_\_\_

TRANSMITTAL RECORD	ATTN:	DATE SENT	DATE REC'D	DATE DUE	REPRO.	PRINT	SAMPLE	MFG. LT.	REC'D BY (INT)
CONTRACTOR TO PM									
PM TO ARCH/ENGR.									
ARCH/PM TO CONSULTANT									
CONSULTANT TO ARCH/ENGR.									
ARCH/ENGR. TO PM									
PM TO CONTRACTOR									

**REVIEW ACTION CODE:**

- |                                 |                                 |                                   |
|---------------------------------|---------------------------------|-----------------------------------|
| 1. Reviewed/No Exceptions Taken | 2. Make Corrections noted       | 4. Incomplete Submittal, Resubmit |
|                                 | 3. Revise as noted and resubmit | 5. Rejected/Resubmit as specified |

1	2	3	4	5

DWG/ITEM	DATED	DESCRIPTION

GENERAL SERVICES DEPARTMENT-CAPITAL PROJECTS REMARKS	ARCH/ENGR. REMARKS:

NOTE: Notations do not authorize changes to Contract sum or time. If you are authorized to proceed with the work identified in this Submittal, it is assumed that no change in the Contract amount or completion date is required. If a change in the work affecting your Contract amount or completion date is involved, notify the PM immediately.

**SECTION 01370**  
**SCHEDULE OF VALUES**

**PART 1-GENERAL**

- 1.1** Work included: Provide a detailed breakdown of the agreed Contract Sum showing values allocated to each of the various parts of the Work, as specified herein and in other provisions of the Contract Documents.
- A. Related Provisions Elsewhere:
1. Payment (Section 01150)
  2. Schedule (Section 01310)
- 1.2 Requirements**
- A. Use Excel spread sheet (Office 97 or newer).
- B. Supply Schedule of Values on disk and on paper.
- C. When so required by the Owner's Representative, provide copies of the subcontracts or other data acceptable to the Owner's Representative, substantiating the sums described.
- D. Prior to final schedule submittal or first application for payment and within twenty (20) days of Notice to Proceed, submit a proposed Schedule of Values to the Owner's Representative.
1. Meet with the Owner's Representative and determine additional data, if any, is required to be submitted.
  2. Secure the Owner's Representative's approval of the Schedule of Values prior to final schedule submittal or submitting first application for payment.

**END OF SECTION**

## SECTION 01400

### QUALITY CONTROL

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. This Section describes the requirements for Quality Control.

##### 1.2 DUTIES AND RESPONSIBILITIES OF OWNER'S REPRESENTATIVE

- A. The Owner's Representative and the Owner have the right, but not the duty, to monitor and inspect all work performed by the Contractor to insure performance of the work to the Contract Documents and Specifications. All work shall be subject to inspection and test by the Owner's Representative and the Owner at all reasonable times and at all places prior to acceptance. Any such inspection and test is for the sole benefit of the Owner and shall not relieve the Contractor of responsibility for providing Quality Control measures to assure that the work strictly complies with the Contract requirements. No inspection or test by the Owner or Owner's Representative shall be construed as constituting or implying acceptance.

##### 1.3 CONTRACTOR'S DUTIES AND RESPONSIBILITIES

- A. The Contractor is responsible for the quality of the work performed under this Contract as well as the quality of the material, equipment, and supplies furnished by him/her to be incorporated into the work.
- B. The Contractor shall designate a Quality Control Representative who will be on site at all times while the respective Contractor's work is in progress and will have the authority and responsibility to accept or reject items of work. The Contractor's Quality Control Representative may delegate his/her duties but the primary responsibility and authority rest with him/her.
- C. The Contractor's Quality Control Representative shall coordinate the submittal of all shop drawings, product data, and samples to the Owner's Representative. Any submittal that is a change to the Contract requirements shall be identified as such and transmitted to the Owner's Representative. No work requiring submittal of a shop drawing, product data, or sample shall be commenced until the submittal has been reviewed and accepted by the Owner's Representative.
- D. The Contractor shall cooperate with an approved material testing laboratory to perform testing of materials as required by the Contract Drawings and Specifications, or the Owner's Representative. The Contractor shall provide a one (1) working day; (two (2) working day for nights, weekends, and holidays) notice when testing/inspection are required. The Contractor will request all tests and inspections in accordance with the Specifications and the Owner's Representative's request and approval for testing services procedures. The Contractor will utilize the form supplied by the Owner's Representative for requesting tests and inspections. The Contractor will not contact the testing firms directly without going through the Owner's Representative.
- E. The Contractor's Quality Control Representative shall review his/her drawings, procurement documents, and Contracts to insure that the technical information provided and all work performed is in accordance with the latest revisions of the Contract Drawings and Specifications.
- F. The Contractor's Quality Control Representative shall perform an inspection upon receipt at the site of all materials, equipment, and supplies. Items which are damaged or not in conformance with the respective submittals, quality standards, Contract Drawings and Specifications will be identified and segregated from accepted items. Items thus identified shall not be incorporated into the work until corrective action acceptable to the Owner's Representative/Owner is completed. Items determined unsalvageable will be removed from the jobsite.

- G. The Contractor will establish a performance testing plan for all equipment and systems for mechanical, electrical, plumbing, heating or air conditioning, security, communications and hardware. The testing plan will include test and report forms for each type of application and will be approved by the Owner's Representative. The performance testing of each equipment and system will be documented and approved by the Owner's Representative. Copies of the approved performance tests will be required for project closeout as required by Section 01700-Project Closeout and by Section 01730-Operation and Maintenance Data/Training.
- H. The Contractor's Quality Control Representative and subcontractors will attend a weekly QC Meeting. The Contractor will provide a list of current controlling activities for that week and bring an outlined Specification Section to the meeting noting areas applicable for inspection/testing for the controlling activities.
- I. All requests for testing will be provided for the current week and all Notices of Non-Compliance will be reviewed.
- J. The Contractor will provide copies of his Quality Control Inspection Reports each day. Format of the report will be approved by the Owner's Representative.

#### 1.4 INSPECTION AND TESTING

- A. The Contractor is responsible to different authorities for the elements of work concerned (Note that this list may not be inclusive):
  - 1. San Joaquin County General Services Department-Capital Projects is the Owner's Representative and will have general Quality Assurance duties.
  - 2. The San Joaquin County Community Development Building Department will have all other code enforcement duties.
  - 3. There will be code required specialty inspections. Fees and responsibilities are covered in relevant Specification Sections.
- B. Should the Contractor fail to correct work in a reasonable time, the Owner's Representative will issue a Notice of Non-Compliance. This is a two (2) part notice/reply form. The Owner's Representative will specify the non-compliant item on Part One (1) and the Contractor shall respond on Part Two (2) indicating the fix once it has been accomplished. The Contractor will maintain a log of all Notices of Non-Compliance which shall contain the following information: Notice number, description, specification section, date issued, date response from the Contractor, date corrected, number of days to correct, and remarks. The Contractor will present a copy of this log at the weekly meetings and shall keep it currently updated. Upon compliance with the Notice of Non-Compliance, the Owner's Representative will officially notify the Contractor of the release of Notice on Non-Compliance.
- C. Operation and Check-out Testing: The Contractor shall provide personnel and equipment to perform the operational tests and checkout of the equipment, facilities, or equipment constructed, fabricated, or installed under this Contract. **The Owner's Representative will coordinate and witness all such tests, at final project location, in California.** Inspection request will be made forty eight (48) hours in advance of the scheduled tests. Refer also to requirements for operating and maintenance data and training specified in Section 01730.

- D. Substantial and Final Inspection: The Owner's Representative will coordinate all final inspections of the work. Requests for finalizing portions of the work performed under this Contract shall be made to the Owner's Representative at least fifteen (15) days in advance of the inspection. Prior to requesting a substantial completion inspection, all tests of the equipment and systems and training shall be completed. Refer to Section 01700 for detailed requirements for substantial completion and final completion inspections for Project Closeout. The Contractor will be provided with a punchlist from the Owner indicating items over and above those shown on the Contractor's punchlist. The Owner will only provide two (2) inspections: substantial completion and final completion. Others will be at the Contractor's expense. The Owner will provide a hand-written punchlist to the Contractor. The Contractor will enter and maintain a computerized punchlist based on the Owner's punchlist in a format approved by the Owner's Representative. The Contractor will provide the Owner's Representative with one (1) copy, paper and electronic (Excel), of the computerized list within five (5) working days upon receipt of the Owner's list and update it on a weekly basis.
- E. The Contractor will at each weekly meeting during the closeout period provide an annotated punchlist indicating those items which have been completed and are ready for inspection. The Contractor will maintain and keep this list current and provide a copy to the Owner's Representative each week until all items are complete. Prior to the request for substantial completion and throughout the life of the Project, the Contractor will maintain a Testing and Inspection Schedule. This Schedule will be provided at each weekly meeting indicating the tests or inspections which will be required during the following week. Based on this Schedule, the Contractor will provide the Required Request for Testing forms.

#### **1.5 VERIFICATION OF TEST REPORTS**

- A. The Testing Laboratory will submit a report in duplicate covering all of the tests which are done during the progress of the Project. Such report shall be furnished each time that Work on the Project is performed, covering the tests up to that time, and at the completion of the Project, covering all tests.

#### **1.6 OWNER'S INSPECTORS**

- A. Inspectors employed by the Owner in accordance with the requirements referenced in these specifications, will be assigned to the Work. Their duties are specifically defined in California Buildings Code chapter seventeen A (17A), and section seven (7) of Title 24, Part 1 of the California Building Standard Code.
- B. The tenant improvements, in all stages of progress, will be subject to the personal, continuous observation of the Inspector. He/she shall have free access to any and all parts of the Work at any time. Furnish the Inspector reasonable facilities for obtaining such information as necessary to keep him/her fully informed regarding the progress and manner of the Work and the character of the materials. Inspection of the Work shall not relieve the Contractor from any obligation to fulfill this Contract.

#### **1.7 SPECIFIC TESTS AND INSPECTIONS**

- A. Applicable tests and inspections may be required to the extent that the Work represented thereby is required by the Contract. The testing and inspection requirements are stipulated in each particular Specification Section addressing the corresponding work.

**END OF SECTION**



REQUEST FOR INSPECTION  
SAN JOAQUIN COUNTY  
JAIL CHILLER REPLACEMENT PROJECT

This section to be completed by the Contractor:

I have personally checked for compliance with Contract Documents and certify this to be ready for inspection.

**CONTRACTOR'S SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

	TYPE OF TEST OR INSPECTION	LOCATION	TIME & DESIRED DATE	RESULTS	DATE
1					
2					
3					
4					

This section to be completed by the Special Inspector:

**INSPECTION AGENCY:** \_\_\_\_\_  
PRINT

- To the best of my knowledge the work is in conformance with the approved plans and specifications.
- Work is non-conforming. See Below.

**SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_  
SPECIAL INSPECTOR

**COMMENTS:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

<b>APPROVED</b>	<b>TOTAL HOURS:</b>

NOTE: BILLINGS WILL NOT BE APPROVED FOR ANY SERVICES W/O HOURS & SIGNATURES



## SECTION 01410

### TESTING

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. This Section summarizes which tests and inspections will be performed by the Contractor, and which will be performed by the Owner's Representatives. The detailed tests and inspections required to be performed by the Contractor may be found in the individual Sections of Divisions 2 through 16 of these Specifications.

##### 1.2 OWNER'S TESTING AGENCY

- A. For the purpose of meeting A/E and County requirements the Owner will employ and pay a testing agency, identified in the various Specification Sections as "the Owner's Testing Agency" and "Owner's Soils Engineer" to perform tests, inspections, and sampling of the following work after start of construction:
  - 1. Earthwork.
  - 2. Concrete, reinforcement, ingredients and quality control.
  - 3. Asphaltic Concrete
- B. The Owner's employment of the testing agency shall in no way relieve the Contractor of his obligations to perform the work in accordance with Contract requirements nor to retain their own testing firm for Quality Control.
- C. The Owner will back-charge the Contractor for costs incurred in the event the Contractor's poor Quality Control of any material requires excessive repeated testing by the Owner's Testing Agency.

##### 1.3 QUALITY ASSURANCE

- A. Qualifications of Testing Agents: Agencies, bureaus, or laboratories shall be acceptable to the Owner's Representative.
- B. Failure of Materials and Equipment Tested or Inspected:
  - 1. The Contractor shall be charged for retesting and reinspection resulting from the Contractor's noncompliance with the Contract as evidenced by tests and inspections by the Owner's Testing Agency.
  - 2. Previous acceptance may be withdrawn and material of which tested samples are representative or equipment may be subject to removal and replacement by the Contractor at his/her expense with material or equipment meeting Specification requirements.
  - 3. The Owner's Representative may refuse consideration of further samples of same brand or make for testing.
  - 4. At the Owner's discretion, defective material and equipment may be permitted to remain in place subject to adjustment of Contract price.

##### 1.4 TESTING AGENCY'S DUTIES

- A. Cooperate with Owner's Representative and the Contractor. Provide qualified personnel promptly upon notice.
- B. Perform required inspecting, sampling, and testing of materials and methods of construction.
  - 1. Comply with specified standards, other recognized authorities as specified.
  - 2. Check for compliance with Contract Documents.

- C. Promptly notify the Owner's Representative and the Contractor of observed irregularities or deficiencies in the work.
- D. Promptly submit reports to the following:
  - 1. One (1) copy each to the Contractor's office
  - 2. One (1) copy to the Owner's Representative.
  - 3. One (1) copy to the Architect.
  - 4. One (1) copy to the appropriate Engineer.
  - 5. One (1) copy to San Joaquin County Community Development Department.
- E. Reports shall include the date issued and date of test, Project title and number, testing agency's name and address, name and signature of inspector, date of inspection or sampling, record of temperature and weather, identification of product and Specification Section, location in project, type of inspection or test, reference to applicable standards and codes and observation regarding compliance with Contract Documents.
- F. Perform additional services as required by the Owner.
- G. The testing agency is not authorized to release, revoke, alter, or enlarge on the requirements of the Contract Documents, approve or accept any portion of the work, and perform any of the Contractor's duties.

## **1.5 CONTRACTOR'S RESPONSIBILITIES**

- A. Initiate and coordinate tests and inspections required by Contract Documents and public authorities having jurisdiction of the work.
- B. Notify the Owner's Testing Agency through the Owner's Representative a sufficient time in advance (but no less than five (5) days) of the manufacture of materials to be supplied which, by requirements of the Contract Documents, must be tested at the source of supply so that the Laboratory may arrange for testing. Request on site testing twenty-four (24) hours in advance through General Services Department-Capital Projects (Forty-eight (48) hours for weekends or nights).
- C. When changes of construction schedule are necessary during construction coordinate all such changes with the County's Testing Agency as required.
- D. When the Owner's Testing Agency is ready to test according to the established schedule, but is prevented from testing or taking specimens due to incompleteness of the work, all extra charges for testing attributable to the delay may be back-charged to the Contractor and shall not be borne by the Owner.
- E. Provide access, facilities, tools, and labor necessary for duties to be performed at the site by Owner's Testing Agency and Inspector including furnishing ladders, hoisting, lighting, water supply, and like services.
- F. Completed Work: Should the Owner require tests and inspections for work completed before final acceptance of entire work, furnish necessary facilities, labor, and materials to uncover or remove work in question to extent necessary.
  - 1. If such work is found defective due to fault of the Contractor, the Contractor shall defray expense of removal, test, and inspections, and satisfactory reconstruction. Time extension may not be granted.
  - 2. If such work is found to conform to requirements of the Contract, the Contractor shall be reimbursed by the Owner for facilities, labor, and materials required for removal, and costs of satisfactory reconstruction in accordance with Contract amounts for extra work. Reasonable time extension shall be granted.
- G. Furnish and deliver samples of materials to be tested at no extra cost to County. Test samples will be selected by the Inspector or County's Testing Agency and not by the Contractor.
- H. Reports:

1. Furnish copies of each test and inspection report (if provided per Section 01410.1.9), signed and certified by the Contractor's Testing Agency supervising engineer as follows:
    - a. Owner's Representative: one copy.
    - b. Architect: one copy.
    - c. Engineer one copy
    - d. Contractor: As required.
  2. Promptly process and distribute required copies of test reports and related instructions to assure necessary retesting and replacement of materials with the least possible delay in progress of the work.
  3. The reports shall include detailed information relative to progress and condition of work including variances from the Contract Documents, and stipulating dates, hours and locations of the tests and inspections, as applicable.
- I. Records:
1. Maintain correct records on an appropriate form for all inspections and tests performed, instructions received from the County or testing agency, and actions taken as a result of those instructions.
  2. These records shall include evidence that the required inspections or tests have been performed (including type and number of inspections or tests, nature of defects, causes for rejections, etc.), proposed or directed remedial action, and corrective action taken.
  3. Document inspections and tests as required by each Section of the Specifications.
- J. If laws, ordinances, rules, regulations, or orders of public agency having jurisdiction require work to be inspected, tested, or approved by some authority other than the County or Contractor, the Contractor shall give required notices and make arrangements, deliver to the County the certificates of inspections, test, or approval of such public agency, and pay costs therefore unless otherwise provided in the Contact Documents.

## **1.6 TEST PROCEDURES**

- A. Testing:
1. Owner's testing agency will perform tests according to method(s) of test specified in these Specifications.
  2. If no procedure or test method is specified, testing shall conform to material specification references unless otherwise directed by the Owner.
  3. The Owner's testing agency will tag, seal, label, record, or otherwise suitably identify the materials for testing. No materials shall be used in the work until the test reports are submitted and approved, excepting only the materials specified to be placed or installed prior to testing.
- B. Retesting:
1. Repeat applicable tests at specified intervals, when:
    - a. The source of supply is changed.
    - b. The characteristics of the materials change or vary.
    - c. Unsatisfactory test results are received.
  2. Quantity and nature of additional testing, if required, will be determined by the Owner.
  3. Additional tests shall be taken in the presence of the Owner's Engineer.

4. Proof of non-compliance will make the Contractor liable for any corrective action which the Owner feels is prudent, including complete removal and replacement of defective materials.
5. Nothing contained herein is intended to imply that the Contractor does not have the right to have tests performed on any material at any time for his/her own information and job control so long as the Owner does not assume responsibility for costs or for giving them consideration when appraising quality of materials.

## **1.7 PAYMENT FOR TESTING**

### **A. Initial Services:**

1. The Owner will pay for initial testing services requested by the Owner.
2. When initial tests indicate non-compliance with the Contract Documents, the costs of initial tests associated with that non-compliance will be deducted by the Owner from the Contract Sum.

### **B. When initial tests indicate non-compliance with the Contract Documents, subsequent retesting occasioned by the non-compliance shall be performed by the same testing agency, and costs thereof will be deducted by the Owner from the Contract Sum.**

### **C. Reimburse the Owner all or any part, as the Owner may deem just and proper, of the inspection costs incurred by the Owner due to:**

1. Failure of materials to pass initial tests.
2. Contractor's failure to complete the work within the Contract time and any previously authorized extensions thereof.
3. Claims between separate contractors.
4. Covering of work before the required inspections or tests are performed.
5. Additional inspections required for the Contractor's correction of defective work.
6. Overtime costs for acceleration of work done for Contractor's convenience.

## **1.8 CODE COMPLIANCE TESTING**

- ### **A. Inspections and tests required by California codes or ordinances, or by a plan approval authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be back-charged to the Contractor, unless otherwise provided in the Contract Documents.**

## **1.9 CONTRACTOR'S CONVENIENCE TESTING**

- ### **A. Inspecting and testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.**

## **1.10 REQUEST FOR TESTING PROCEDURES**

- ### **A. Testing will be performed as ordered by the Owner's Representative. The Contractor will follow the Owner's Representative's procedures for requests for tests and inspections.**

**END OF SECTION**

## SECTION 01500

### CONSTRUCTION FACILITIES & TEMPORARY CONTROLS

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

A. Work included in this Section: Provision, maintenance, and removal of facilities and controls required to execute work of this Project efficiently and successfully including, but not necessarily limited to, the following:

- 1.2 Utilities
- 1.3 Roads/Temporary Access
- 1.4 Construction Aids
- 1.5 Barriers and Enclosures
- 1.6 Security
- 1.7 Temporary Controls
- 1.8 Water Pollution Control
- 1.9 Clean-up
- 1.10 Project Identification
- 1.11 Field offices and sheds
- 1.12 Shoring and Underpinning
- 1.13 Traffic Control

B. Related Work Not Included in this Section:

- 1. Provision of protective measures described with respect to specific unit of work.
- 2. Provision of progressive and final cleaning.

##### 1.2 UTILITIES-TEMPORARY & PERMANENT

A. General:

- 1. Contractor to furnish, install, pay for and maintain temporary utilities as required including power, water and phone service.
- 2. Materials, installation, and maintenance of temporary utilities shall be in compliance with applicable regulatory requirements.
- 3. Remove temporary utilities, including associated materials and equipment when no longer required unless otherwise directed by Owner's Representative. Restore and recondition areas of the site damaged by temporary utilities or their installation. Remove and properly dispose of debris resulting from removal and reconditioning operations.

B. Temporary Electric Power and Lighting:

1. Arrange as required to provide services required for Contractor's power. Distribute electric power and lighting as required for performance of the work. The Contractor will provide and maintain sufficient lighting to properly apply finishes and allow for accurate inspection by Owner's Representative.
2. Provide adequate lighting and convenience outlets in temporary structures and as otherwise required for the performance of the work. Do not use permanent lighting for construction operation.

C. Temporary Water:

1. Arrange with the utility company to provide water for construction purposes. Pay all costs for service and for water used. Contact utility company for specific requirements.
2. Install branch piping with taps located so that water for construction purposes is available throughout the work area by use of hoses.
3. If the Contractor uses water connected to the County/City system, the capacity will be limited in order not to affect the pressure and volume being utilized by existing Owner facilities.

D. Temporary Sanitary Facilities:

1. Provide approved temporary sanitary facilities and locate them on the site in locations approved by the Owner's Representative.
2. Regularly maintain the facilities in a neat, sanitary condition, adequately supplied.
3. Comply with CAL/OSHA 1526 as a minimum.

E. Temporary Fire Protection: Provide and maintain fire extinguishers, fire hoses, and other equipment necessary for proper fire protection during the progress of the work.

F. Quality Assurance:

1. Structural Engineer, Civil Engineer and Surveyor: Where required for engineering temporary facilities or aiding in construction, employ a structural engineer, civil engineer and surveyor licensed in the State of California.
2. Temporary Facilities: Adequate for the intended use and for the loads imposed without excessive settlement, deflection, or deformation. Parts shall be properly supported, wedged, and secured to prevent displacement or failure.

G. Temporary telephone service, is the responsibility of the Contractor and subcontractors. Arrange and pay for all service charges or additional line charges as required by the Contractors operation.

H. Temporary Weather Protection:

1. Provide and maintain adequate temperature weather protection for all exposed points of connection to the existing structure until protected by new weather tight construction.
2. Provide and maintain adequate temperature weather protection for permanent interior finishes during construction until protected by new weather tight construction.

### 1.3 TEMPORARY ACCESS

- A. Maintain temporary lay down areas designated for Contractor trailers and equipment. Protect fencing from damage. Contractor shall restore or repair damaged road or parking areas and fencing resulting from his/her operations. Provide temporary access to all areas of the Project throughout all weather conditions.
- B. Access: Maintain free and unimpeded access to and egress from site and the existing facilities at all times.

1. The Contractor's access to the construction area will be permitted only through designated approaches in such manner that traffic will not interfere with the Owner's activities.
  2. Whenever interference with normal street and sidewalk traffic becomes necessary for proper and convenient performance of the Work, and no satisfactory detour route exists, before beginning the interference provide satisfactory detour, temporary bridge, or other proper facility for traffic to pass around or over interference, and maintain in satisfactory condition as long as interference continues. Owner's Representative's approval is required.
- C. Grading: The Contractor will grade where necessary to provide temporary positive drainage and seal graded areas to prevent soil saturation in accordance with its approved storm water pollution control plan. The Contractor will protect all storm sewer lines from silty or polluted run-off.
- D. Maintain existing paving and parking lots free of mud and construction debris.

#### **1.4 CONSTRUCTION AIDS**

- A. Construction aids shall be in compliance with applicable regulatory requirements.
1. Install and maintain construction aids as required for the performance of the work.
  2. Relocate construction aids as required by the progress of the work.
  3. Remove construction aids when no longer required. Clean and repair damage caused by installation and use.
  4. Restore permanent facilities used for temporary purposes to a condition satisfactory to the Owner's Representative.
- B. Construction Hoists:
1. Furnish, operate, and maintain a complete facility for handling, conveying, installing, and erecting work and materials required under the Contract. Include hoists and conveyances for transporting workers and transporting and placing materials; debris chutes; and tools, appliances, power equipment, and other required items. Furnish, arrange, and set up the plant to facilitate the proper and timely performance of the work.
  2. Maintain plant and equipment in safe operating condition. Repair damages due to the use of defective plant and equipment, at no increase in Contract Sum.
- C. Scaffolds and Platforms:
1. Furnish, erect, and maintain scaffolds, guardrails, platforms, and similar temporary construction necessary for the performance of the work.
  2. Connect the levels of the structure by means of suitable ladders, ramps, and temporary stairs, as necessary; permanent stairways may be used as specified. Enclose open wells and shafts.
- D. Temporary Enclosures and Protection of Work in Place: Provide temporary, weathertight enclosures as required for acceptable working conditions, weather protection for interior materials, effective temporary heating, and to prevent entry of unauthorized persons.

#### **1.5 BARRIERS AND ENCLOSURES**

- A. General:
1. Materials and construction shall be in compliance with applicable regulatory requirements.
  2. Provide and maintain suitable temporary barriers as required to prevent public entry; protect the work and existing facilities, persons, and trees and plants from damage or injury from construction operations.

3. Should work and/or regulatory requirements necessitate construction of temporary barriers, barricades, or pedestrian walkways not indicated or specified, construct at no increase in Contract Sum. If required, paint such items in a color selected by the Owner's Representative at no cost to Owner.
  4. Maintain temporary barriers in a structurally sound condition and neat appearance.
  5. Relocate as required by progress of the work.
  6. Restore and recondition site areas damaged or disturbed.
- B. Barricades: Erect where required to prevent accidents and losses, and provide adequate warning lights.
- C. Fences and Gates:
1. Construction site is to be securely fenced and gated during construction. With Owner's pre-approval, Utilize existing fencing if applicable. Maintain entrance and exit control so to keep members of the public and/or clients of the existing facility from the premises. Provide Owner's Representative with keys for padlocks.
- D. Tree and Plant Protection: Provide adequate protection of existing landscaping against damage from construction operations. Employ methods at the Contractor's discretion.
1. Where barricades are necessary, make four (4') feet high and locate at or beyond drip lines of item so protected.
  2. Especially protect roots, trunk, and foliage of existing and new shrubs and trees.
  3. Do not permit following conditions:
    - a. Using trees as support posts, power poles, sign posts, or anchorage for ropes, guy wires, and power lines or other similar functions.
    - b. Poisoning items by disposing of paint, petroleum products, dirty water, or other deleterious materials on or around roots.
    - c. Burning of trash under or near shrubs or trees.
    - d. Compaction of root area by moving trucks, grading machine, storage of equipment, gravel, earth fill, supplies, etc.
    - e. Damage to trunk or limbs caused by maneuvering vehicles or stacking material and equipment too close to the item.
  4. Compensation for Planting Loss: Any tree or shrub to remain, damaged or destroyed due to the Contractor's negligence or failure to provide adequate protection shall be compensated for in accordance with following schedule of values, using "tree caliper" method (greatest trunk diameter measured 30 inches above ground):
    - a. For trees or shrubs with diameters up to and including six (6") inches, the actual cost of replacement with item similar in species, size, and shape, including:
      1. Actual out-of-ground cost for boxed item.
      2. Transportation or delivery of boxed item to site.
      3. Planting and staking.
      4. Maintenance in watering, fertilizing, pruning, pest control, and other care to bring replacement to same general condition of original item.
    - b. For trunks up to:



1. 7 inches	\$1,000
2. 8 inches	1,400
3. 9 inches	1,800
4. 10 inches	2,200
5. 11 inches	2,600
6. 12 inches	3,000
7. 13 inches	3,400
8. 14 inches	3,800
9. 15 inches	4,200
10. 16 inches	4,600
11. 17 inches	5,000
12. 18 inches and over, add 500 for each caliper inch	

**1.6 SECURITY**

- A. Maintain temporary enclosure of partially completed construction areas to prevent unauthorized entrance, vandalism, and theft.
- B. Secure temporary storage areas as required to prevent theft.
- C. Be responsible for construction period security measures.
- D. Project Inspector's Access: Provide the Owner's Project Inspector with keys necessary to gain access to locked areas of the Work. The Project Inspector will be responsible for such keys and will return them to the Contractor at the time of final inspection.

**1.7 TEMPORARY CONTROLS**

**A. NOISE AND VIBRATION CONTROL:**

- 1. Comply with all applicable state and local laws, ordinances, and regulations relative to noise control. Due to the close proximity of this work to within an existing public facility, equipment to be employed on this site shall not produce a noise level exceeding the following limits in Db(A) at a distance of fifty (50') feet from the equipment under test.

a. Earthmoving Equipment

Front loader	79
Backhoes	85
Dozers	80
Tractors	80
Scrapers	88
Graders	85
Truck	91
Paver	89

b. Materials Handling Equipment

Concrete Mixer	85
Concrete Pump	82
Crane	83

Derrick	88
c. Stationery Equipment	
Pumps	76
Generators	78
Compressors	81
d. Impact Equipment	
Pile Drivers	Not permitted
Jack Hammers	88
Rock Drills	98
Pneumatic Tools	86
e. Other Equipment	
Saws	78
Vibrators	76

2. This equipment shall not be operated before 6:00 a.m. or after 5:00 P.M.
3. Equipment and impact tools shall have intake and exhaust mufflers.
4. Secure written permission from the Owner's Representative at least three (3) working days prior to using noisy and vibratory equipment, such as jack hammers, concrete saws, impact tools, and high-frequency electrical equipment.
5. Cooperate with Owner if the use of noisy equipment becomes objectionable.
6. Idling diesel engines shall be turned off.

**B. Dust and Dirt Control:**

1. Conduct construction operations to prevent windblown dust and dirt from interfering with the progress of the work, ongoing operations, and vehicular traffic. See Section 01562.
2. Periodically water construction area as required to minimize the generation of dust and dirt. Dust must be controlled to a level compliant with the Valley Joint Air Pollution Control District standards.
3. Hauling equipment and trucks carrying loads of soil and debris shall have their loads sprayed with water or covered with tarpaulins.
4. Prevent dust and dirt from accumulating on walks, roadways, parking areas and plantings, and from washing into sewer and storm drains.
5. Water for compaction and dust control:
  - a. Water for compaction and dust control shall be fresh, clean, and free from injurious amounts of oil, acid, and organic matter.
  - b. If the Contractor wishes to use reclaimed water for compaction and dust control purposes, a CCR Title 22 water quality analysis shall be submitted to the Owner. The Owner reserves the right to prohibit the use of reclaimed water.
  - c. If water is drawn from fire hydrants, back flow prevention, meters and usage accounts must be secured from water agency and all costs are to be paid by the Contractor.
  - d. If the Contractor elects to use chemical additives in water for compaction or dust control, it shall be at his/her sole expense. The Architect/Engineer reserves the right to prohibit the use of a particular type of additive.

- e. The Contractor shall construct and install connections to water systems, air gap devices, back flow prevention devices, meters, storage tanks, truck fill risers, or other equipment as required by the utility company or as shown on the plans.
  - f. The Contractor shall pay for all costs in conjunction with connecting to the water system as well as utility company charges for water used.
  - g. The Contractor shall have at least one (1) mobile unit with a minimum capacity of 1,000 gallons available for applying water on the Project at all times.
  - h. The Owner's Representative has the right to require the Contractor to apply a dust palliative if, in the opinion of the Owner's Representative, the dust control plan is insufficient. The cost of application of dust palliative shall be at the Contractor's sole expense.
- C. Water Control: Do not permit surface or subsurface water and other liquids to accumulate on or in areas adjacent to the Project site. Should such conditions be encountered or develop, control the water or other liquid, and suitably dispose of by means of temporary pumps, piping, drainage lines, troughs, ditches, dams or other Owner's Representative approved methods. Also reference "F" below.
- D. Pollution Control:
- 1. No burning of refuse, debris, or other materials will be permitted on or in the vicinity of the Project site.
  - 2. Comply with regulatory requirements and anti-pollution ordinances during the performance of construction and disposal operations, including the disposal of solid, liquid, and gaseous contaminants.
  - 3. Reference Section 1.8 below.
- E. Soil Disposal: Dispose of excess soil on site as directed by Owner's Representative. Excess soil may be stockpiled during construction for reuse as directed by the Owner.
- F. Erosion Control: Erosion control shall consist of, but not be limited to, constructing such facilities and taking such measures as are necessary to prevent, control, and abate water, mud, and erosion damage to public and private property as a result of the construction of this Project, including the stockpiling of excavated material. Temporary erosion control measures included, but are not limited to the following:
- 1. The Contractor shall conduct his/her operations in such a manner that storm runoff will be contained within the project or channeled into the storm drain system which services the runoff area using Best Management Practices.
  - 2. Temporary drainage structures and other devices shall be provided to channel storm runoff water into the respective permanent storm drainage systems during construction. Mud and silt shall be settled out of the storm runoff before said runoff enters the storm drainage system using Best Management Practices.
  - 3. Embankment, graded and excavation areas shall be protected from erosion and the resulting siltation of downstream facilities and adjacent areas by use of temporary erosion control measures.

## **1.8 WATER POLLUTION CONTROL**

All construction sites less than one acre and in National Pollutant Discharge Elimination System (NPDES) Phase 1 Area must comply with San Joaquin County's Small Site Storm Water Pollution Prevention Plan (SWPPP). This project is within the NPDES Phase 1 Area. Please review and evaluate the Small Site SWPPP located at the following Internet location:

[http://www.sjcleanwater.org/PDF%20Documents/SJCO\\_small\\_site\\_SWPPP07\\_10.pdf](http://www.sjcleanwater.org/PDF%20Documents/SJCO_small_site_SWPPP07_10.pdf)

## **1.9 CLEANING AND PROTECTING**

- A. General: During handling and installation of work at Project site, clean and protect work in progress and adjoining work on a basis of perpetual maintenance. Apply suitable protective covering on newly installed work where reasonably required to ensure freedom from damage or deterioration at time of substantial completion; otherwise, clean and perform maintenance on newly installed work as frequently as necessary through remainder of construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- B. Limiting Exposures of Work: To extent possible through reasonable control and protection methods, supervise performance of work in a manner and by means which will ensure that none of the work whether completed or in progress, will be subjected to harmful, dangerous, damaging, or otherwise deleterious exposures during construction period. Such exposures include (where applicable, but not by way of limitation) static loading, dynamic loading, internal pressures, external pressures, high or low temperatures, thermal shock, high or low humidity, air contamination or pollution, water, solvents, chemicals, light, radiation, puncture, abrasion, heavy traffic, soiling, bacteria, insect infestation, combustion, electrical current, high-speed operation, improper lubrication, unusual wear, misuse, incompatible interface, destructive testing, misalignment, excessive weathering, unprotected storage, improper shipping/handling, theft, and vandalism.

## **1.10 PROJECT IDENTIFICATION AND SIGNS**

- A. Provide at least four (4) "Hard Hat Area" signs stating the danger of the construction project and stating that all unauthorized personnel must keep off the site. These signs shall be approximately 2 x 2 feet and shall consist of design, text, and colors as compliant with OSHA Regulations and made up of exterior grade plywood. Provide four (4) 2x2 foot signs designating "Construction Entrance" and/or "No Construction Vehicles".

## **1.11 CONTRACTOR FIELD OFFICES AND SHEDS**

- A. Contractor may provide a field office for housing of the Contractor's project manager or superintendent.
- B. Furnish, install and maintain additional field offices and sheds as required.
- C. Construct, install and maintain field offices and sheds in accordance with applicable regulatory requirements.
- D. Construction shall be structurally sound, weathertight, with floors raised above the ground. Doors shall be sturdy and shall be provided with provisions for dead bolt locking, temperature transmission resistance compatible with occupancy and storage requirements, and painted as directed by the Owner's Representative.
- E. Portable or mobile buildings complying with the specified requirements may be used.
- F. Storage sheds:
  - 1. Number and Sizes: Adequate for material storage and handling requirements.
  - 2. Ventilation: Comply with specified and regulatory requirements for stored products.
  - 3. Heating: Adequate to maintain temperatures specified in the Specification Sections for the products to be stored.

- 4. Lighting: As required to facilitate product handling and inspection.
- G. Obtain Owner's Representative approval of locations for field offices and sheds prior to commencing site preparations for the structures.
- H. Construct field offices and sheds on proper foundations, and provide connections and utility services.
- I. Remove field offices and sheds from the site as soon as the progress of the work permits and as approved by the Owner's Representative. Remove foundations, steps, landings, and contents. Retain or remove utility services as directed by Owner's Representative, Grade and restore portions of the site occupied by the temporary structures to a condition acceptable to the Owner's Representative.
- J. Maintain the telephone, electrical, water, and sanitary systems to the existing facilities at all times. Relocate the utility poles and other utility lines as necessary during construction to maintain construction work at no additional cost to the Owner.
- K. Provide location, grading, utility distribution for Owner's Representatives trailer if required.
- L. Maintain all utility distribution, structures, services, etc. for Phase II work if so directed.

#### **1.12 SHORING AND UNDERPINNING**

- A. Provide temporary shoring, underpinning, or whatever other measures, including their structural engineering, necessary to prevent movement, settlement, or collapse of the Owner's or adjacent property.
- B. Determine methods and procedures to be used, construct and maintain such measures, and be fully responsible for both their design and execution to the extent of making good damage caused by neglect or failure of these measures.
- C. Employ a Structural Engineer licensed in the State of California, and pay costs of engineering design and inspection of shoring, underpinning, and such measures.
- D. Remove entirely from excavations shoring and lagging within ten (10') feet from finished grade prior to completion of backfilling unless shoring or lagging is steel, wood treated in accordance with American Wood Preservers' recommendations, or tieback system.
- E. Be responsible for preventing overloading portions of structure beyond calculated safe carrying capacities during and after erection.

#### **1.13 TRAFFIC CONTROL**

- A. All work in streets to be per City of Stockton requirements as regards permitting, notice, days and hours of work, warning and barricading, flagging, etc.
- B. Contractor is to keep streets free of mud, dirt, debris, etc.

**END OF SECTION**

## SECTION 01540

### SECURITY AND SAFETY

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. This Section describes the requirements for providing site security and safety.

##### 1.02 SECURITY

- A. Advise Owner's representative of any disruption, planned or not.
- B. Provide protection for materials, tools, and equipment being employed on the Project, including the tools of workers. The Owner shall not be held to have incurred any liability for loss of, and damage to, materials, tools, and equipment of the Contractor or of those employed by him/her, by Contract or otherwise.
- C. The Contractor shall employ such watchman service as he may deem necessary to protect and safeguard the work. The Owner shall not in any way be liable for the damage or loss to the work due to trespass or theft.
- D. The Owner may provide such watchman service as he deems necessary to protect his interest during the progress of the work. Any protection provided by the Owner shall not in any way relieve the Contractor of the responsibility for the safety of the work and acceptance thereof.
- E. The Contractor shall provide temporary fencing to secure the areas of work, laydown, and office areas. Refer to construction Drawings and Specifications for the scope of this work.

##### 1.03 PROTECTION

- A. Continuously maintain protection as necessary to protect the work as a whole and in part, and adjacent property and improvements from accidents, injuries and damage.
- B. Properly protect the work:
  - 1. With lights, guardrails, temporary covers, and barricades.
  - 2. Enclose excavations with proper barricades.
  - 3. Brace and secure all parts of the work against storm and accident.
  - 4. Provide such additional forms of protection which may be necessary under existing circumstances.
  - 5. Secure and lock all access points to the site at the close of each day's work.
- C. Provide and maintain in good condition all protective measures required to adequately protect the public from hazards resulting from the work and to exclude unauthorized persons from the

work. When regulated by Building Code or other authority, such legal requirements for protection shall be considered as minimum requirements; be responsible for the protection in excess of such minimum requirements as required.

#### **1.04 CONTROL OF SITE**

- A. The Contractor shall ensure that no alcohol, firearm, weapon, or controlled substance enters or is used at the Project site. The Contractor shall immediately remove from the site and terminate the employment of any employee found in violation of this provision.
- B. The Contractor will be responsible for his employees to assure that no contraband is transmitted by his employees.

#### **1.05 SAFETY PROGRAM**

- A. The Contractor shall be required to comply with the Safety Program and all applicable Federal, State, and local regulation codes rules, laws, and ordinances.
- B. It is essential that each Contractor and Subcontractor implement an effective and vigorous Safety and Health Program to cover his portion of the work. It shall be understood that the full responsibility for providing a safe place to work with respect to his portion of the work rests with each individual contractor.
- C. The wearing of hard hats will be mandatory at all times for personnel on this site. The Contractor shall supply sufficient hard hats to properly equip all employees and visitors.

#### **1.07 SAFETY REQUIREMENTS**

- A. Standards: Maintain the Project in accordance with the State and local safety and insurance standards.
- B. Hazards Control:
  - 1. Store volatile wastes in covered metal containers, and remove from premises daily.
  - 2. Prevent accumulation of wastes which create hazardous conditions.
  - 3. Provide adequate ventilation during use of volatile or noxious substances.
- C. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
  - 1. Do not burn or bury rubbish and waste materials on Project site.
  - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
  - 3. Do not dispose of wastes into streams or waterways.

- D. Provide accident information on the forms provided by the Construction Manager. This information will be provided on the same day as the occurrence of said incident.
- E. The Owner will identify safety issues as they become apparent and will issue Notices of Non-Compliance to the Contractor. These notices, however, do not relieve the Contractor of the sole responsibility for safety on the job site.
- F. The Contractor's attention is directed to Clause 41 of the General Conditions and compliance with CCR Title 8, General Industrial Safety Orders, Section 1529 and 5208 in the removal of hazardous materials.

**PART 2 - PRODUCTS:**

Not used.

**PART 3 - EXECUTION:**

No used.

**END OF SECTION**



## **SECTION 01561**

### **SITE CLEANUP**

#### **PART 1 - GENERAL**

##### **1.1 DESCRIPTION**

- A. The work to be performed under this Section shall consist of furnishing all labor, materials, tools, transportation, supplies, equipment, appurtenances, fuel and power, unless specifically excepted, necessary or required for the clean-up of the work as described in these specifications.

#### **PART 2 - EXECUTION**

##### **2.1 GENERAL CLEAN UP**

- A. Throughout all phases of construction, including suspension of work, and until final acceptance of the project, the Contractor shall keep the premises occupied by him in a clean and orderly condition, disposing of construction debris and refuse in a manner approved by the Owner's Representative. The cost of providing clean-up throughout the life of the contract shall be deemed to be included in the other items of work and no separate allowance will be made therefor.

##### **2.2 EXCESS MATERIALS**

- A. Excess or unsuitable backfill material, broken pipe, or other waste material shall be removed from the jobsite and disposed of by the Contractor.

##### **2.3 CONSTRUCTION DEBRIS**

- A. Trash, construction debris, packaging, refuse, or other waste material shall be stored in approved containers and be removed from the job site and disposed of by the Contractor.

##### **2.4 ROADWAY MAINTENANCE**

- A. Spills resulting from hauling operations along or across existing streets, roads, or ramps shall be removed immediately by the Contractor. All gutters and roadside ditches shall be kept clean and free from obstructions. The Contractor shall immediately remove spills by sweeping or flushing the areas.

##### **2.5 DUST CONTROL**

- A. In areas where excessive dust caused by construction operations is a nuisance to property owners, the Contractor shall frequently wet down the area to control the dust in accordance with other Sections of these Specifications.

##### **2.6 DRAINAGE STRUCTURES**

- A. The contractor shall provide dams, settling ponds, or filtering structures as may be required to keep construction debris and soil erosion from entering drainage systems. Upon completion of all grading and after establishment of all landscaping, the Contractor shall clean and remove all soil, debris, etc, from drainage structures and systems.

##### **2.7 FINAL COMPLETION**

- A. As a condition of final acceptance of the work, the Contractor shall carefully clean up the work and the premises, remove all temporary structures built by or for him, remove all surplus construction materials, debris, and rubbish of all kinds from the grounds which he has occupied and leave them in a neat condition.

**END OF SECTION**

## SECTION 01660

### SUBSTITUTIONS

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. This Section describes the procedures to be followed in requesting substitutions to specified items.
- B. Definitions:
  - 1. The manner of Specification shall determine whether a Submittal shall be considered a substitution, to be accepted or rejected according to criteria stated in this section.
  - 2. Where Specification is by manufacturer's trade name or model designation, an item which bears different trade name or model designation will be considered a substitution.
  - 3. Where Specification is by reference to standards of trade, industry, or governmental organizations, and the item not in compliance with standards referenced, it shall be considered a substitution.
  - 4. An item which does not conform with descriptive, performance, or dimensional requirements shown or noted will be considered a substitution.
  - 5. Where Specification is by combination of descriptive material, reference to standards, performance criteria, or manufacturer's trade names and there are discrepancies or conflicts between requirements specified, the Owner's Representative reserves the right to consider item a substitution which fails to satisfy one or more requirements of the Specification. Bidders who discover such discrepancies should request clarification by addendum during the bidding period.
- C. "Or-Equal" products will be submitted in accordance with the substitution procedures herein to determine if they are in fact equal to the specified product or system. "Or-Equal" shall qualify as such where material, product, or system proposed "as equal" conforms with descriptive, performance, or proprietary requirements of the Specifications and requirements shown or noted in the drawings. In determining equals, the Owner's Representative/Architect/Engineer's judgment shall be final and he/she reserves the right to consider unequal any material, product, or system which, though in conformity with Contract requirements, exhibits features which the Owner's Representative deems objectionable even though not specifically disallowed by the Contract Documents.
- D. Failure by the Contractor to order materials or equipment in a timely manner will not constitute justification for a substitution.

##### 1.2 PRODUCT

- A. The term "product" includes materials, systems, and equipment. Products shall be new, undamaged, of the types specified, and furnished in ample quantities to facilitate proper execution of the work.
- B. An "equal" product is any material, product, thing, or service which is in all respects equal to the item specified, including, but not limited to, size, quantity, guarantees, and materials. The final determination of whether or not a proposed product is "equal" to the specified product rests with the Owner's Representative/Architect/Engineer.
- C. A "substitution" is any material, product, thing, or service which may or may not be equal, as determined by the Owner's Representative/Architect/Engineer in all respects to the specified item but which is proposed by the Contractor to be used in lieu of the specified item.
- D. Where available, provide standard products or types which have been produced and used previously and successfully on other Projects and in similar applications.

##### 1.3 LIST OF PRODUCTS

- A. Not later than five (5) days after the receipt of the Notice to Proceed, provide a list to the Owner's Representative showing the names of the manufacturers proposed to be used for each of the products identified in the Specifications, including substitutions and, where applicable, the name of the installer.
- B. All substitution requests will be submitted in writing in a time satisfactory to the Owner's Representative, but not to exceed forty five (45) days after NTP.
- C. The Owner's Representative will reply, in writing, to the Contractor stating whether after due investigation there is reasonable objection to any such proposal. If adequate data on any proposed manufacturer or installer is not available, the Owner's Representative may state that action will be deferred until the Contractor provides further data. The reply by the Owner's Representative cannot be construed as waiver of any requirement of the substitution process

#### **1.4 CONTRACTOR'S OPTIONS**

- A. The Contractor has the following options:
  - 1. For products specified only by reference standards, select any product meeting those standards, by any manufacturer.
  - 2. For products specified by naming several products or manufacturers, select one (1) of the specified products or manufacturers or submit a request, as required by this Section, for substitution, for any product not specifically named.
  - 3. For products specified by naming one or more products, but indicating the option of selecting equivalent products by stating "or equal", "equal to", "or approved equal", or "equivalent to", submit a request, as required by this Section, for substitution, for any product not specifically named.
  - 4. If it is known that a specified product is not a feasible or acceptable selection, notify the Owner's Representative in writing before proceeding with the purchase of the product.
  - 5. Where only compliance with an imposed standard, code, or regulation is required, select any product satisfying the requirement.
  - 6. Where matching with an existing sample is required, the final decision whether a proposed product matches the sample satisfactorily is the Owner's Representative/Architect/Engineer.
  - 7. Except as otherwise indicated, where Specifications include the statement, "... as selected from manufacturer's standard colors, patterns, textures..." or words of similar effect, the selection of manufacturer and basic product (complying with Specifications) is the Contractor's option, and the selection of color, pattern, and texture shall be the Owner's Representative/Architect/Engineer selection.

#### **1.5 REQUIREMENTS FOR SUBSTITUTIONS**

- A. Products proposed for substitution shall comply with specific performances indicated and/or specified, and which are recommended by the manufacturer (in published product literature or by individual certification) for application indicated. Overall performance of a product is implied where product is specified with only certain specific performance requirements.
- B. Products proposed for substitution shall have been produced in accordance with prescriptive requirements, using specified ingredients and components, and complying with specified requirements for fabricating, finishing, testing, and similar operations in manufacturing process.
- C. A proposed substitution shall not be purchased or installed by the Contractor without written acceptance from the Owner's Representative/Architect/Engineer. Acceptance of any substitution shall not relieve the Contractor from responsibility for the proper execution of the work and any other requirements specified in the Contract Documents.
- D. The Contractor shall be responsible for the effect of a substitution on related work in the Project, and shall pay additional costs generated by a substitution, including the costs of the Owner's Representative/Architect/Engineer's additional services and all costs for required approvals and calculations.

- E. The burden of proving that the proposed substitution is “equal” to the specified product is upon the Contractor and such proof shall include sufficient factual and comparative data and information necessary to establish that the requested substitution is equal in quality, utility, structural strength, mechanical and technical performance, finish, arrangement of plan, repair and maintenance, compatibility with other existing or specified items, and any other relevant data.
- F. Adjacent materials have been designed and detailed to accommodate the established standard manufacturer’s products. If one of the other approved manufacturers is selected by the Contractor, the Contractor shall design and detail all changes in all adjacent materials necessary to accommodate the selected products, shall submit such changes for review by the Owner's Representative/Architect/Engineer, shall pay for all changes to the Contract Documents (including A/E fees) to accommodate the selected products, and when approved shall make such changes to the work at no cost to the Owner.
- G. The Contractor agrees to pay all Owner's Representative/Architect/Engineer or Consultant costs for reviewing the substitute product specified herein.
- H. Substitutions will not be considered if:
  - 1. They are indicated or implied on Shop Drawings or Product Data Submittals without formal request submitted in accordance with this Section.
  - 2. Acceptance will require substantial revision of the Contract Documents.
  - 3. The proposed product is inferior to the specified product as judged by the Owner's Representative/Architect/Engineer.
  - 4. Request does not include sufficient data for the Owner's Representative/Architect/Engineer to make a reasonable judgement regarding the acceptability of the proposed substitution.
  - 5. Proposed substitutions increase the cost of work or Contract time.
- I. The Owner’s Representative will be judge of the acceptability of proposed substitutions, and his/her determination will be final.
- J. Approval of a substitution shall not relieve the Contractor from responsibility for the proper execution of the work and other requirements of the Contract Documents.
- K. If a substitution is rejected, provide the product originally specified.

## **1.6 REQUESTS FOR SUBSTITUTIONS**

- A. Submit four (4) copies of a written request for a substitution and data substantiating the request to the Owner’s Representative within 45 days after NTP and sufficiently in advance of need to allow a thorough evaluation by the Owner's Representative/Architect/Engineer. Use the form at the end of this section. Each item on form must be included.

## **1.7 REQUESTS FOR SUBSTITUTIONS AFTER TIME SPECIFIED**

- A. No substitutions of materials, products, or equipment will be considered after the time described in the above paragraphs unless the specified material cannot be delivered or incorporated into the work in the time allowed due to conditions beyond the control of the Contractor.

## **1.8 SUBSTITUTION PROCESSING**

- A. Submit substitutions with a Request for Information form provided by the Owner’s Representative. Follow the Request for Information processing requirements.

## **1.9 DOCUMENTATION**

- A. The Contractor shall support his/her proposal with sufficient information, test data, certificates, samples, or other means to permit the Owner's Representative/Architect/Engineer's to make fair, equitable, and informed judgment.

- B. The burden of proof that a substitution is equal or otherwise acceptable shall be upon the Contractor. The Owner's Representative may withhold or refuse approval for reason of insufficient documentation. The Owner's Representative may also require additional tests and inspections for which cost the Contractor shall be responsible.
- C. Where agencies such as State Fire Marshal or International Conference of Building Officials exercise jurisdiction over use of specific material or method, the Contractor shall submit calculations, designs and certification of their approval of proposed substitution.

#### **1.10 THE CONTRACTOR'S RESPONSIBILITY FOR ACCEPTED SUBSTITUTIONS**

- A. Acceptance of substitutions shall not relieve the Contractor from responsibility for complying with requirements of the Contract Documents.
- B. The Contractor shall be responsible for changes in other parts of the work occasioned by his/her substitutions and shall bear their expense, including the cost of the Owner's Representative's additional services.

#### **1.11 THE OWNER'S REPRESENTATIVE/ARCHITECT/ENGINEER'S REVIEW**

- A. The Owner's Representative/Architect/Engineer, acting as the Owner's designated agent for construction of this Project, shall be the judge of whether the Contractor's proposed substitution is equal and shall make his/her judgement in accordance with the following criteria: whether the substitution proposed conforms with description or performance specified; is equal in quality; affords comparable operation, maintenance, and performance; will provide equal longevity and service; is otherwise in the Owners interest, offering advantages in cost and time.
- B. A determination by the Owner's Representative/Architect/Engineer that the Contractor's proposed substitution is not equivalent for any single characteristic, figure, or quality as described in the above is sufficient ground for rejection.

#### **1.12 REQUEST FOR SUBSTITUTION FORM**

- A. Required form is attached.

**END OF SECTION**

**REQUEST FOR SUBSTITUTION FORM**

Request No. \_\_\_\_\_  
Date: \_\_\_\_\_  
Project: **San Joaquin County Jail Chiller Replacement Project**  
Contractor \_\_\_\_\_  
Subcontractor: \_\_\_\_\_  
Specification Section: \_\_\_\_\_

General Description of Substitute Item: \_\_\_\_\_

Specified Item: \_\_\_\_\_

Reason for Substitution Request: \_\_\_\_\_

- A. By making this Request for Substitution, the Contractor:
1. Represents that he/she has personally investigated the proposed substitute product and certifies that it is equal or superior in all respects to the specified product.
  2. Represents that he/she will provide the same warranty for the substitution that he/she would have for the specified product.
  3. Certifies that the cost data presented is complete and includes all related costs under the Contract.
  4. Waives all claims for additional costs or schedule impact related to the substitution which subsequently become apparent, regardless of trade or project component affected.
  5. Will coordinate the installation of the substitute, making changes as may be required for the work to be complete in all respects.
  6. Represents and certifies that the proposed substitute complies with all applicable regulatory requirements. The Contractor is solely responsible for securing regulatory approvals for substitutions.

- B. This request includes the following information (see attachments and enclosures):
1. Complete technical data of all characteristics of the originally specified item, including drawings, reference standards, performance specifications, cost data, samples, and test reports of the product proposed for substitution. Additional information will be submitted if requested by the Architect and/or its consultants (see Attachment No. \_\_\_\_\_).
  2. Data similar to that specified for the item for which the substitution is proposed (see Attachment No. \_\_\_\_\_).
  3. A line-by-line comparison of characteristics between specified item and proposed substitute documenting equivalent

status. Characteristics that are different from those of the specified item are noted by highlighting or other means (see Attachment No. \_\_\_\_\_).

4. Effect on progress schedule (see Attachment No. \_\_\_\_\_).
5. Complete breakdown of costs indicating the cost amount to be added to or deducted from the Contract Sum if the proposed substitution is accepted (see Attachment No. \_\_\_\_\_).
6. List of other work, if any, which may be affected by the substitution (see Attachment No. \_\_\_\_\_).
7. Availability of maintenance service and source of replacement materials (see Attachment No. \_\_\_\_\_).
8. Sample of both the originally specified product and the proposed substitute product (see Attachment No. \_\_\_\_\_).
9. Names and addresses of at least four (4) similar projects on which the proposed substitute product has been in service for at least two (2) years following final acceptance of each project by the Project's Owner and Architect. Clearly documented dates shall show compliance (see Attachment No. \_\_\_\_\_).
10. Sample of standard form of guarantee or warranty offered by the manufacturer for the substitute product proposed (see Attachment No. \_\_\_\_\_).
11. The Contractor certifies that the proposed substitution is in compliance with the Contract Documents and applicable regulatory requirements. Documentation demonstrating code compliance (see Attachment No. \_\_\_\_\_).

C. Certifying Signatures (type in names, titles, and dates):

**CONTRACTOR:**

Signature: \_\_\_\_\_

Name/Title/Company: \_\_\_\_\_

Date: \_\_\_\_\_

**SUBCONTRACTOR:**

Signature: \_\_\_\_\_

Name/Title/Company: \_\_\_\_\_

Date: \_\_\_\_\_

**MANUFACTURER (where required):**

Signature: \_\_\_\_\_

Name/Title/Company: \_\_\_\_\_

Date: \_\_\_\_\_

**END OF REQUEST FOR SUBSTITUTION FORM**

## SECTION 01700

### CLOSEOUT

#### PART 1- GENERAL

##### 1.1 DESCRIPTION

- A. This Section describes the requirements and the administrative procedures for closing out the work, which includes but is not limited to Substantial Completion, Final Completion, and Acceptance.

##### 1.2 PREPARATION FOR SUBSTANTIAL COMPLETION

- A. When the work is substantially complete, submit the following to the Owner's Representative:
1. A written notice that the work is substantially complete.
  2. A detailed, complete, and comprehensive list of items to be completed or corrected.
  3. Certification that all civil, mechanical, electrical, plumbing, and equipment has been tested and is operational. The Contractor will provide copies of all test results and reports including a binder by division fully indexed, outlining all equipment and performance tests. In addition, the Contractor will certify the Owner's maintenance and operational personnel have received the specified training (see Section 01730).
  4. Local, State and/or Fire Marshal approvals, if applicable.
  5. All warranties, certifications, etc.
  6. As built.
- B. After receipt of the above items, the Owner's Representative shall set up an inspection to determine whether or not the Project, or portion of the Project if required by the Owner's Representative, is ready for Punch List Inspection.
- C. Should the Owner's Representative determine that the work is so incomplete that it does not warrant a Punch List Inspection, the Owner's Representative will:
1. Within a reasonable amount of time notify the Contractor in writing that the work is incomplete. Charges may be assessed for reinspection.
  2. Instruct the Contractor to promptly remedy the deficiencies in the work, and send a second notice of Substantial Completion to the Owner's Representative.

##### 1.3 PUNCH LIST (OMISSIONS AND DEFECTS)

- A. When the Owner's Representative determines that the work is ready for the Punch List Inspection to determine Substantial Completion, the Owner's Representative will arrange for the inspection by the Owner's Representative and others as necessary.
- B. The Owner's Representative and representatives of the Architect/Engineer shall prepare a Punch List.
- C. The Owner's Representative will transmit the hand written Punch Lists to the Contractor. The Contractor will within five (5) working days upon receipt computerize the Punch Lists with software (Excel) and format approved by the Construction Manager and provide three (3) copies. The Contractor will add items to the computerized Punch List as they are provided by the Owner's Representative. The Contractor will update the Punch List status weekly as provided by the Owner's Representative.
- D. The Contractor will provide an updated Punch List and provide status each week indicating progress until all items are complete. When all items are complete, the Contractor will request a second Punch List Inspection. The Owner and the Owner's Representative will inspect to verify completion by the Contractor and will advise items to be completed to reach Substantial Completion.



- E. Beneficial Occupancy and Substantial Completion are not one and the same. The Owner has the right to beneficially occupy any portion of the Project, or the Project as a whole, at any time in accordance with the General Conditions.

#### **1.4 SUBSTANTIAL COMPLETION**

- A. When the specific Punch List items have been completed and accepted, the Owner's Representative will provide a letter documenting the date of Substantial Completion. The Owner's Representative will provide a Punch List to be completed for final completion. Other items which do not conform to the Contract Documents may be added to the list at any time.
- B. At Substantial Completion, the Owner has the right to move in furnishings and equipment, and initiate its transition. On all final Punch List work after the Substantial Completion, the Contractor's work force, equipment, and material may be subject to security procedures, including searches. Any delay associated with this process is part of the base Contract and will not be considered as an extra cost under the Contract.

#### **1.5 FINAL COMPLETION**

- A. When the Contractor considers the work to be complete for final inspection, he/she shall submit written certification that:
  - 1. Contract Documents have been reviewed.
  - 2. Work has been inspected for compliance with the Contract Documents.
  - 3. Work has been completed in accordance with the Contract Documents.
  - 4. Work is completed and ready for final inspection.
  - 5. Submit certified copy of final Punch List of itemized work to be completed or otherwise resolved for acceptance, endorsed and dated by the Owner's Representative and the Contractor.
  - 6. Successfully pass final fire, life safety inspections conducted by the Fire Marshall.
  - 7. Submit energy code certificates of compliance.
- B. After receipt of the above, the Owner's Representative will set up a final inspection to determine whether or not the Project is ready for final inspection. The review shall consist of verifying that the remaining Punch List items from the Substantial Completion inspection have been completed.
- C. Should the Owner's Representative find the work to be incomplete, the Owner's Representative shall advise the Contractor in writing that the work is not acceptable. The Contractor may be assessed for additional inspection costs.
- D. The Contractor shall send another Certificate when the work is complete.
- E. After the Owner's Representative has completed the final inspection and when the Owner's Representative finds that the work is complete under the Contract Documents, the Owner's Representative shall determine the "Date of Final Completion" and shall notify the Contractor, and the Owner. The Contractor shall proceed to prepare for final Close-Out/acceptance and shall make final Close-Out Submittals.

#### **1.6 CLOSE-OUT/ACCEPTANCE**

- A. Prior to acceptance by the Owner, the Contractor shall:
  - 1. Submit a statement showing accounting of changes to the Contract Sum.
  - 2. Submit warranties, maintenance agreements, final certifications, and similar documents required by the Contract Documents.
  - 3. Advise the Owner's Representative of pending insurance change-over requirements.

4. Obtain and submit releases enabling the Owner's full and unrestricted use of the work and access to services and utilities, including where required occupancy permits, operating certificates, and similar releases. Provide all release of liens and claims from subcontractors and suppliers. List all outstanding claim issues that will be litigated (see below).
  5. Submit final record documents, maintenance manuals, damage or settlement surveys, property surveys, and similar final record information as required by the Contract Documents.
  6. Deliver tools, spare parts, extra stocks of materials, and similar physical items to the Owner's Representative.
  7. Make final change-over of locks and forward keys to the Owner's Representative. Advise the Owner's personnel of change-over in security provisions.
  8. Remove all temporary facilities and services, along with construction tools and equipment, mock-ups, and similar elements.
  9. Prepare final Application for Payment in accordance with the General Conditions and these Specifications.
  10. The Contractor shall provide a Final Completion Report which shall consist of the following:
    - a. A summary time analysis providing a justification for any time extensions being requested which have not been approved.
    - b. A summary of all potential claims from the Contractor against the Owner. Attach copies of all claims made to date and new claims which are being submitted.
    - c. A copy of all Record Documents and/or transmittals of Record Documents previously submitted.
    - d. A copy of Operation and Maintenance Manuals and/or Transmittals of Operation and Maintenance Manuals previously provided.
    - e. A copy of all training information and information establishing dates training was provided to the Owner.
    - f. All materials, parts, and keys and/or a copy of transmittals of items previously provided to the Owner.
    - g. A summary of all Change Requests which the Contractor believes are outstanding and are not included in the aforementioned claims.
    - h. A copy of the Punch List with all items initialed off by the Owner's Representative.
    - i. A release of all liens from the subcontractors and suppliers.
    - j. Contractor's request for Final Payment.
    - k. Additional copies of all Warranties and Guarantees
    - l. Documents confirming all final testing and start-up operations which were conducted.
- B. After acceptance of the work by the Owner and Notice of Completion has been filed by the county, and the proper time has elapsed, the Final Payment will be made (less any outstanding items).

**END OF SECTION**

## SECTION 01720

### RECORD DOCUMENTS

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. This Section describes the requirements for maintaining records of actual conditions in the field and for changes in the work as contained on the As-Built Drawings and transcribed to become the Record Documents.
- B. The purpose of final Project Record Documents is to provide factual information regarding all aspects of the work, both concealed and visible, to enable future modifications of the work to proceed without lengthy and expensive site measurement, investigation, and examination.

##### 1.2 DOCUMENTS REQUIRED

- A. Maintain at the site the following Record Documents to be turned over to the Owner upon request for Substantial Completion:
  - 1. Drawings
  - 2. Specifications
  - 3. Change Orders and other modifications to the Contract
  - 4. Field Instructions and other written instructions from the Owner's Representative
  - 5. Reviewed shop drawings, product data, and samples
  - 6. Test reports
  - 7. Requests for Information
  - 8. Claims
  - 9. Training

##### 1.3 RECORDINGS

- A. Label each document "PROJECT RECORD" in neat, large, printed letters.
- B. Record information concurrently with the construction process.
  - 1. Do not conceal any work until required information is recorded.
  - 2. Completely, accurately, and legibly record, to the satisfaction of the Owner's Representative, all deviations in construction, especially pipe and conduit locations, and any deviations caused by approved changes and/or clarifications to the work.
  - 3. Use additional copies of prints, if necessary, to insure legible recording of data.
  - 4. Date all entries.
  - 5. Call attention to the entry by drawing a "cloud" around the area affected.
  - 6. In the event of overlapping changes, use different colors for each change.
- C. Legibly mark drawings to record actual construction:
  - 1. Depths of various elements of foundation in relation to finish first floor datum.

2. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permit surface improvements.
  3. Locations of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
  4. Field changes of dimension and detail.
  5. Changes made reflecting approved changes to the work.
  6. Details not on original Contract Drawings.
- D. Legibly mark each Section of the Specifications to record changes made reflecting approved changes to the work.
- E. Maintain shop drawings as record drawings. Legibly annotate shop drawings to record changes made after approval.
- F. Prior to submitting each request for payment, secure approval from the Owner's Representative of the current status of record documents.
- G. Periodic payments or portions thereof to the Contractor may be withheld until the Owner's Representative verifies that all As-Built information to date has been properly recorded on Project Record Documents.

#### **1.4 CONVERSION OF SCHEMATIC LAYOUTS**

- A. The drawings, arrangements of conduits, circuits, piping, ducts, and similar items are shown schematically and are not intended to portray precise physical layout. The final physical arrangement is determined by the Contractor, subject to the approval of the Architect/Engineer, and shall be accurately recorded by the Contractor on the record documents.
- B. Show on the job set of record drawings, by dimension accurate to one inch, the centerline of each run of all items specified in the preceding paragraph.
1. Clearly identify the item by accurate note such as "cast iron drain" or "galvanized flashing", etc.
  2. Show by symbol or note the vertical location of the item ("6 inches below slab", "in ceiling plenum", "exposed", etc).
  3. Make all identification sufficiently descriptive that it may be related reliably to the Specifications.
- C. Coordinate with the Coordination Drawings.

#### **1.5 FINAL PROJECT RECORD DOCUMENTS**

- A. At a time nearing Substantial Completion of the work, obtain from the Architect/Engineer through the Owner's Representative the original CADD files of the Contract Documents. The Contractor shall provide three full sized sets from the new CADD files and two CDs containing all CADD files in AutoCAD 2007 DWG format.
- B. Obtain approval from the Owner's Representative of all data recorded on the record set of prints.
- C. After Substantial Completion, carefully transfer all data shown on the job set of Record Drawings to new CADD files, coordinating the information as required.
- D. Clearly indicate at each affected detail and other drawings a full description of changes made during construction, and the actual location of items as previously specified.
- E. "Cloud" all affected areas.
- F. Identify each record drawing with the following information:
1. Project Record Document.

2. Prepared by: Contractor's name, permanent address
3. Date prepared:
4. Contractor's signature.

**1.6 SUBMITTALS**

- A. Submit the complete set of As-Built Project Record Documents to the Owner's Representative upon request for Substantial Completion.
- B. Participate in review meetings with the Owner's Representative and the Architect as required.
- C. Make the required changes and promptly deliver the final Project Record Documents and the original field marked-up sets to the Owner's Representative.

**END OF SECTION**

## SECTION 01730

### OPERATING AND MAINTENANCE DATA/TRAINING

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. This Section describes the requirements for furnishing product data and related information appropriate for Owner maintenance and operation of products furnished under the Contract. Prepare operating and maintenance data as specified in this Section and as referenced in other Sections. Check other Specification Sections for special requirements. The more restrictive will govern.
- B. Instruct Owner's personnel in the maintenance of products and in the operation of equipment and systems.

##### 1.2 QUALITY ASSURANCE

- A. Preparation of data shall be done by personnel trained and experienced in maintenance and operation of the described products, completely familiar with specified requirements, skilled as a technical writer to the extent required to communicate essential data, and skilled as a draftsman competent to prepare required drawings.

##### 1.3 FORM OF O & M SUBMITTAL

- A. Prepare a detailed training plan agenda for each instructional session for all mechanical, electrical, plumbing, hardware, communications, and systems to be approved by the Owner. Each training session will be divided into two (2) parts: classroom training and on-the-job operational instructions of the equipment. Prepare data in the form of an instruction manual for use by Owner's personnel and the Contractor's instructors for classroom and job site training. The instructional/users manual will be prepared to organize and synthesize documents along with operating instruction and functional information. The manual will be used as the single source of information about the equipment and systems, operations, and functions.
- B. Format:
  - 1. Size: 8-1/2 inch x 11 inches.
  - 2. Paper: Twenty (20) pound minimum, white, for typed pages.
  - 3. Text: Manufacturers' printed data, or neatly typewritten.
  - 4. Drawings: Provide reinforced punched binder tab, bind in with text.
  - 5. Fold larger drawing to the size of the text pages.
  - 6. Provide fly-leaf for each separate product, or each piece of operating equipment. Provide typewritten description of product, and major component parts of equipment. Provide indexed tabs.
  - 7. Cover: Identify each volume with typed or printed title 'OPERATING AND MAINTENANCE INSTRUCTIONS'. List title of Project, identity of separate structure as applicable, and identity of general subject matter covered in the manual.
- C. Binders:
  - 1. Commercial quality three-ring binders with durable and cleanable plastic covers.

##### 1.4 CONTENT OF MANUAL

- A. Neatly typewritten table of contents for each volume, arranged in a systematic order by Specification number.
- B. For each Specification Section provide:
  - 1. Contractor, name of responsible principal, address and telephone number.

2. A list of each product and certification Warranty/Guarantee required be including, indexing to the content of the volume.
  3. List, with each product, the name, address, and telephone number of:
    - a. Subcontractor or installer.
    - b. Maintenance Contractor, as appropriate.
    - c. Identify the source of responsibility of each.
    - d. Local source of supply for parts and replacements.
  4. Identify each product by product name and other identifying symbols as set forth in the Contract Documents.
  5. Product data, drawings, written text, etc. Include description of equipment, operating procedures, maintenance procedures, service schedule, etc. For materials and finishes give product information, instruction for care, etc.
- C. Copy of each Warranty, Bond and Service Contract issued.
1. Provide information sheet for Owner's personnel; include:
    - a. Proper procedures in the event of failure.
    - b. Instances which might affect the validity of Warranties or Bonds.
- D. Provide copies of performance tests.

#### **1.5 O & M SUBMITTAL SCHEDULE**

- A. Submit two (2) copies of completed data in final form at least thirty (30) days prior to the estimated date of Substantial Completion for the Architect's review. Make all corrections noted by the Owner and agents prior to their use for training and return for review. Submit two (2) hard copies of approved data in final form prior to training. Data will be used by the Inspectors and for training of Owner's personnel. Upon approval provide training prior to Substantial Completion. One (1) copy will be returned after the Substantial Completion.

#### **1.6 INSTRUCTION OF OWNER'S PERSONNEL**

- A. Prior to Owner's Representative's inspection for Substantial Completion, fully instruct Owner designated operating and maintenance personnel in the operation, adjustment and maintenance of all products, equipment and systems including mechanical, electrical, plumbing, heating, or air conditioning, security, communications, and hardware systems based on the reviewed maintenance manuals.
- B. The user's operating and maintenance manual, training plan and agenda shall constitute the basis of instruction with the Contractor for each piece of equipment and/or system. The Contractor will provide training schedules fourteen (14) days in advance of all training for approval by Owner.
- C. The Contractor will arrange for on-site training and review of each piece of equipment and system to explain the "hands-on" operation of the systems. The Contractor will provide at least two (2) hours for the on-site instruction for the mechanical, electrical, plumbing, heating or air conditioning, security, communications, and hardware systems and equipment. In addition, the Contractor will provide at least two (2) hours of classroom instruction for the mechanical, electrical, plumbing, heating or air conditioning, communications, and hardware systems and equipment. The on-site and classroom instructions as contained in this Section are considered a minimum requirement. If conflict exists between this requirement and the Technical Specifications, Divisions 2 through 16, the more restrictive requirement will be followed.
- D. Review contents of Owner's O&M Manual with personnel in full detail to explain all aspects of operation and maintenance both in the field and in the classroom.

- E. The Contractor will provide, in addition to the three (3) copies of the Operation and Maintenance Manuals required for the official file, as many additional copies as are necessary for instructing the Owner's personnel (10 maximum).
- F. Submit six (6) copies of the training plan and agendas for each training session for each piece of equipment and system for mechanical, electrical, plumbing, heating or air conditioning, communications, and hardware seven (7) days prior to the estimated date of Substantial Completion for review and approval by the Owner and the Owner's Representative.
- G. The User's Operating and Maintenance/User's Manual, which will be used for instruction purposes, shall provide for each system the theory of operation, detailed diagrams and parts lists, preventive maintenance instruction and corrective maintenance. Narrative descriptions and diagrams will be provided in addition to standard manufacturers' data to explain systems for this Project.

**END OF SECTION**



## SECTION 01740

### GUARANTEES/WARRANTIES AND BONDS

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. General: Except for specifically modified for major mechanical equipment specified elsewhere, all work shall be warranted as follows:
1. Manufacturers' warranties notwithstanding, the Contractor and Subcontractors warrant the entire Work against defects in materials and workmanship for twenty-four (24) months from the date of substantial completion.
  2. Guarantee/Warrant or Bond Work as required in the individual Specification Sections and the General Conditions.
  3. Warranties between the Contractor and manufacturers, and the Contractor and suppliers shall not affect Guarantees/Warranties between the Contractor and the Owner.
  4. The Contractor will not be held responsible for defects due to misuse, negligence, willful damage, improper maintenance or accident caused by Others, nor shall he/she be responsible for defective parts whose replacement is necessitated by failure of the Owner's maintenance forces to properly clean and service them, provided the Contractor has furnished complete maintenance instructions to the Owner.
  5. Compile specified Guarantees/Warranties and Bonds.
  6. Coexecute as required.
  7. Review Guarantees/Warranties and Bonds to verify compliance with Contract Documents.
  8. Transmit to the Architect/Engineer for review. The Architect/Engineer will forward Guarantees/Warranties and Bonds to the Owner after acceptance of Work.

##### 1.2 FORM OF GUARANTEE/WARRANTY

- A. Submit the Guarantees/Warranties, typed on the Contractor's letterhead if for the entire Work, or on the Subcontractor's letterhead if for the Work of a Specification Section.
- B. Use the attached Guarantee/Warranty form.

##### 1.3 SUBMITTAL REQUIREMENTS

- A. Time of Submittal:
1. For equipment or component parts of accepted equipment put into service for the Owner's benefit during the progress of the Work, submit Guarantees/Warranties within ten (10) days of request for acceptance of work.
  2. Otherwise submit Guarantees/Warranties prior to and within seven (7) days of request for Substantial Completion.
- B. Forms:
1. Assembled in durable, three-ring plastic binders sized for 8 ½" x 11" sheets. Fold larger sheets to fit into binders.
  2. Identification on or readable through the front cover with the Project name and address, the Contractor's name and address, and the title GUARANTEE/WARRANTIES AND BONDS.
- C. Number of Original Signed Copies required: Two (2) each.

#### **1.4 REVIEW MEETING**

- A. Twenty-three (23) months following date of acceptance, hold a meeting for the purpose of review of, and action upon Guarantees/Warranties, Bonds, and Service and Maintenance Contracts, as specified in Section 01200, "Project Meetings".

#### **1.5 SERVICE AND MAINTENANCE CONTRACTS**

- A. Compile, review and transmit specified Service and Maintenance Contracts as specified for Guarantees/Warranties and Bonds.

#### **1.6 CORRECTION OF GUARANTEED/WARRANTED WORK**

- A. Unless repair is agreed to by Owner's Representative and Architect/Engineer, Contractor shall correct failed work by removal and replacement of the failed portions with new materials.
- B. In connection with Contractor's correction of warranted work which has failed, remove and replace other work of Project which has been damaged as a result of such failure, or which must be removed and replaced to provide access for correction of warranted work.
- C. Except as otherwise indicated or required by governing regulations, special Project warranties and product warranties are not extended to cover damage to building contents (other than work of Contract) which occurs as a result of failure of warranted work.
- D. Except as otherwise indicated, when costs of replacing or restoring failing warranted units or products is Contractor's obligation, without regard for whether Owner has already benefited from use through a portion of anticipated useful service lives.
- E. Except as otherwise indicated, costs of replacing or restoring failing warranted units or products is Contractor's obligation, without regard for whether Owner has already benefited from use through a portion of anticipated useful service lives.
- F. Do not purchase, subcontract for, or allow others to purchase or sub-subcontract for materials or units of work for Project where a special Project warranty, specified product warranty, certification, or similar commitment is required, until it has been determined by the Contractor that entities required to countersign such commitments are willing to do so.

**END OF SECTION**

**Guarantee/Warranty for \_\_\_\_\_**

(Phase or portion of work under warranty identified by Specification Section).

Project: San Joaquin County Jail Chiller Replacement Project

Address: 7000 Michael N. Canlis Boulevard, French Camp, CA

Date: \_\_\_\_\_

We hereby warrant and the Contractor guarantees that the \_\_\_\_\_ which we have installed in the \_\_\_\_\_ has been performed in accordance with the Drawings and Specifications and that the work as installed will fulfill the requirements of the Guarantee/Warranty included in the Specifications.

We agree to repair or replace any or all of our work, together with any or all other work which may be damaged or displaced by so doing, that may prove to be defective in its workmanship, materials, or failure to conform to Contract provisions and requirements within a period of two (2) years from the substantial completion of the above named structure by the Owner without expenses whatever to the said Owner, ordinary wear and tear and unusual abuse or neglect excepted.

In the event of our failure to comply with the foregoing conditions within ten (10) days after being notified in writing by the Owner, we collectively or separately do hereby authorize the Owner to proceed to have said defects repaired and made good at our expense and we will honor and pay the costs and charges therefor upon demand.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
(Contractor)

or

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
(Subcontractor)

Countersigned: \_\_\_\_\_ Date: \_\_\_\_\_  
(Contractor)

Include the following if specified:

Countersigned: \_\_\_\_\_ Date: \_\_\_\_\_  
(Manufacturer)

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SECTION 15053 – SCOPE AND COMMON WORK RESULTS FOR MECHANICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SCOPE

- A. New chillers CH-2 and CH- 3 are to be purchased by the Owner and installed by the Contractor.
- B. The Contractor is to maintain Central Plant cooling while work is performed. Existing chiller CH-1 shall operate based on cooling needs of the Jail Facility. The Contractor shall provide any temporary valves or piping as necessary to allow new work while maintaining CH-1 cooling availability.
- C. Contractor to provide and install new piping systems, louvers, controls wiring, electrical power, structural systems for chiller pads, supports and louver openings, painting and demolition.
- D. Contractor to provide and install new Automatic Tube Brush (ATB) system comprised of new electric actuator, control panels, control wiring and power.
- E. Contractor to provide and install new actuators, controls and power wiring for existing cooling tower isolation valves.
- F. Contractor to provide and install new refrigerant exhaust fan, VFD and controls wiring and interface to existing refrigerant alarm panel.
- G. Record Drawings:
  - 1. The Contractor shall maintain drawings with up to date field changes. The Contractor shall provide Record Drawings in AutoCad format to the County at completion of project.

1.3 SUMMARY

- A. This section includes the following:
  - 1. Piping materials and installation instructions common to most piping systems.
  - 2. Transition fittings.
  - 3. Dielectric fittings.
  - 4. Mechanical sleeve seals.
  - 5. Sleeves.
  - 6. Escutcheons.
  - 7. Equipment installation requirements common to equipment sections.
  - 8. Painting and finishing.
  - 9. Supports and anchorages.

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1.4 DEFINITIONS

- A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct chases, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.
- B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.
- C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.
- D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and chases.
- E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.5 SUBMITTALS

- A. Product Data: For the following:
  - 1. Transition fittings.
  - 2. Dielectric fittings.
  - 3. Mechanical sleeve seals.
  - 4. Escutcheons.

- B. Welding certificates.

1.6 QUALITY ASSURANCE

- A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."
- B. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."
  - 1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
  - 2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.
- C. Electrical Characteristics for HVAC Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

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1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.
- B. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

1.8 COORDINATION

- A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for HVAC installations.
- B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.
- C. Coordinate requirements for access panels and doors for HVAC items requiring access that are concealed behind finished surfaces. Access panels and doors are specified in Division 8 Section "Access Doors and Frames."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
  - 2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 PIPE, TUBE, AND FITTINGS

- A. Refer to individual Division 15 piping Sections for pipe, tube, and fitting materials and joining methods.
- B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.3 JOINING MATERIALS

- A. Refer to individual Division 15 piping Sections for special joining materials not listed below.
- B. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.
  - 1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch maximum thickness unless thickness or specific material is indicated.

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- a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.
  - b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.
2. AWWA C110, rubber, flat face, 1/8 inch thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.
- C. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.
- D. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.
- E. Brazing Filler Metals: AWS A5.8, BCuP Series, copper-phosphorus alloys for general-duty brazing, unless otherwise indicated; and AWS A5.8, BAg1, silver alloy for refrigerant piping, unless otherwise indicated.
- F. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

2.4 DIELECTRIC FITTINGS

- A. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.
- B. Insulating Material: Suitable for system fluid, pressure, and temperature.
- C. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig minimum working pressure at 180 deg F.
1. Manufacturers:
    - a. Capitol Manufacturing Co.
    - b. Central Plastics Company.
    - c. Eclipse, Inc.
    - d. Epco Sales, Inc.
    - e. Hart Industries, International, Inc.
    - f. Watts Industries, Inc.; Water Products Div.
    - g. Zurn Industries, Inc.; Wilkins Div.
- D. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150- or 300-psig minimum working pressure as required to suit system pressures.
1. Manufacturers:
    - a. Capitol Manufacturing Co.
    - b. Central Plastics Company.
    - c. Epco Sales, Inc.
    - d. Watts Industries, Inc.; Water Products Div.

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- E. Dielectric-Flange Kits: Companion-flange assembly for field assembly. Include flanges, full-face- or ring-type neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.
  - 1. Manufacturers:
    - a. Advance Products & Systems, Inc.
    - b. Calpico, Inc.
    - c. Central Plastics Company.
    - d. Pipeline Seal and Insulator, Inc.
  - 2. Separate companion flanges and steel bolts and nuts shall have 150- or 300-psig minimum working pressure where required to suit system pressures.
- F. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig minimum working pressure at 225 deg F.
  - 1. Manufacturers:
    - a. Calpico, Inc.
    - b. Lochinvar Corp.
- G. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig minimum working pressure at 225 deg F.
  - 1. Manufacturers:
    - a. Perfection Corp.
    - b. Precision Plumbing Products, Inc.
    - c. Sioux Chief Manufacturing Co., Inc.
    - d. Victaulic Co. of America.

2.5 MECHANICAL SLEEVE SEALS

- A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.
  - 1. Manufacturers:
    - a. Advance Products & Systems, Inc.
    - b. Calpico, Inc.
    - c. Metraflex Co.
    - d. Pipeline Seal and Insulator, Inc.
  - 2. Sealing Elements: EPDM interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
  - 3. Pressure Plates: Carbon steel. Include two for each sealing element.



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4. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.6 SLEEVES

- A. Galvanized-Steel Sheet: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.
- B. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.
- C. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
- D. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.
  1. Underdeck Clamp: Clamping ring with set screws.
- E. Molded PVC: Permanent, with nailing flange for attaching to wooden forms.
- F. PVC Pipe: ASTM D 1785, Schedule 40.
- G. Molded PE: Reusable, PE, tapered-cup shaped, and smooth-outer surface with nailing flange for attaching to wooden forms.

2.7 GROUT

- A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.
  1. Characteristics: Post-hardening, volume-adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
  2. Design Mix: 5000-psi, 28-day compressive strength.
  3. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

- A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.
- B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.
- C. Install HVAC equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.
- D. Install equipment to allow right of way for piping installed at required slope.

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3.2 PAINTING

- A. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.3 ERECTION OF METAL SUPPORTS AND ANCHORAGES

- A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor HVAC materials and equipment.
- B. Field Welding: Comply with AWS D1.1.

END OF SECTION 15053

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SECTION 15062 - HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. It is the intent of this specification section to supplement work shown on Structural Drawings. Structural Drawing Notes and Details have precedent over these specifications.

1.2 SUMMARY

- A. This Section includes the following hangers and supports for HVAC system piping and equipment:
  - 1. Steel pipe hangers and supports.
  - 2. Trapeze pipe hangers.
  - 3. Thermal-hanger shield inserts.
  - 4. Fastener systems.
  - 5. Equipment supports.

1.3 DEFINITIONS

- A. MSS: Manufacturers Standardization Society for the Valve and Fittings Industry Inc.
- B. Terminology: As defined in MSS SP-90, "Guidelines on Terminology for Pipe Hangers and Supports."

1.4 SUBMITTALS

- A. Product Data: For the following:
  - 1. Steel pipe hangers and supports.
  - 2. Fiberglass pipe hangers.
  - 3. Thermal-hanger shield inserts.
  - 4. Powder-actuated fastener systems.
- B. Shop Drawings: Signed and sealed by a qualified professional engineer. Show fabrication and installation details and include calculations for the following:
  - 1. Steel pipe hangers. Include Product Data for components.
  - 2. Pipe stands. Include Product Data for components.
  - 3. Equipment supports.

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PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 STEEL PIPE HANGERS AND SUPPORTS

A. Description: MSS SP-58, Types 1 through 58, factory-fabricated components. Refer to Part 3 "Hanger and Support Applications" Article for where to use specific hanger and support types.

B. Manufacturers:

1. AAA Technology & Specialties Co., Inc.
2. Bergen-Power Pipe Supports.
3. B-Line Systems, Inc.; a division of Cooper Industries.
4. Carpenter & Paterson, Inc.
5. Empire Industries, Inc.
6. ERICO/Michigan Hanger Co.
7. Globe Pipe Hanger Products, Inc.
8. Grinnell Corp.
9. GS Metals Corp.
10. National Pipe Hanger Corporation.
11. PHD Manufacturing, Inc.
12. PHS Industries, Inc.
13. Piping Technology & Products, Inc.
14. Tolco Inc.

C. Galvanized, Metallic Coatings: Pregalvanized or hot dipped.

D. Nonmetallic Coatings: Plastic coating, jacket, or liner.

E. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion for support of bearing surface of piping.

2.3 TRAPEZE PIPE HANGERS

A. Description: MSS SP-69, Type 59, shop- or field-fabricated pipe-support assembly made from structural-steel shapes with MSS SP-58 hanger rods, nuts, saddles, and U-bolts.

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2.4 METAL FRAMING SYSTEMS

- A. Description: MFMA-3, shop- or field-fabricated pipe-support assembly made of steel channels and other components.
- B. Manufacturers:
  - 1. B-Line Systems, Inc.; a division of Cooper Industries.
  - 2. ERICO/Michigan Hanger Co.; ERISTRUT Div.
  - 3. GS Metals Corp.
  - 4. Power-Strut Div.; Tyco International, Ltd.
  - 5. Thomas & Betts Corporation.
  - 6. Tolco Inc.
  - 7. Unistrut Corp.; Tyco International, Ltd.
- C. Coatings: Manufacturer's standard finish, unless bare metal surfaces are indicated.
- D. Nonmetallic Coatings: Plastic coating, jacket, or liner.

2.5 THERMAL-HANGER SHIELD INSERTS

- A. Description: 100-psig- minimum, compressive-strength insulation insert encased in sheet metal shield.
- B. Available Manufacturers:
  - 1. Carpenter & Paterson, Inc.
  - 2. ERICO/Michigan Hanger Co.
  - 3. PHS Industries, Inc.
  - 4. Pipe Shields, Inc.
  - 5. Rilco Manufacturing Company, Inc.
  - 6. Value Engineered Products, Inc.
- C. Insulation-Insert Material for Cold Piping: ASTM C 552, Type II cellular glass with vapor barrier.
- D. Insulation-Insert Material for Hot Piping: ASTM C 552, Type II cellular glass.
- E. For Trapeze or Clamped Systems: Insert and shield shall cover entire circumference of pipe.
- F. For Clevis or Band Hangers: Insert and shield shall cover lower 180 degrees of pipe.
- G. Insert Length: Extend 2 inches beyond sheet metal shield for piping operating below ambient air temperature.

2.6 FASTENER SYSTEMS

- A. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

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1. Manufacturers:
  - a. Hilti, Inc.
  - b. ITW Ramset/Red Head.
  - c. Masterset Fastening Systems, Inc.
  - d. MKT Fastening, LLC.
  - e. Powers Fasteners.

B. Mechanical-Expansion Anchors: Insert-wedge-type zinc-coated steel, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

1. Manufacturers:
  - a. B-Line Systems, Inc.; a division of Cooper Industries.
  - b. Empire Industries, Inc.
  - c. Hilti, Inc.
  - d. ITW Ramset/Red Head.
  - e. MKT Fastening, LLC.
  - f. Powers Fasteners.

## 2.7 EQUIPMENT SUPPORTS

A. Description: Welded, shop- or field-fabricated equipment support made from structural-steel shapes.

## 2.8 MISCELLANEOUS MATERIALS

A. Structural Steel: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

B. Grout: ASTM C 1107, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.

1. Properties: Nonstaining, noncorrosive, and nongaseous.
2. Design Mix: 5000-psi, 28-day compressive strength.

## PART 3 - EXECUTION

### 3.1 HANGER AND SUPPORT APPLICATIONS

- A. Specific hanger and support requirements are specified in Sections specifying piping systems and equipment.
- B. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping system Sections.
- C. Use hangers and supports with galvanized, metallic coatings for piping and equipment that will not have field-applied finish.

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- D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.
- E. Use padded hangers for piping that is subject to scratching.

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- F. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated stationary pipes, NPS 1/2 to NPS 30.
  2. Yoke-Type Pipe Clamps (MSS Type 2): For suspension of 120 to 450 deg F pipes, NPS 4 to NPS 16, requiring up to 4 inches of insulation.
  3. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes, NPS 3/4 to NPS 24, requiring clamp flexibility and up to 4 inches of insulation.
  4. Steel Pipe Clamps (MSS Type 4): For suspension of cold and hot pipes, NPS 1/2 to NPS 24, if little or no insulation is required.
  5. Pipe Hangers (MSS Type 5): For suspension of pipes, NPS 1/2 to NPS 4, to allow off-center closure for hanger installation before pipe erection.
  6. Adjustable, Swivel Split- or Solid-Ring Hangers (MSS Type 6): For suspension of noninsulated stationary pipes, NPS 3/4 to NPS 8.
  7. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 8.
  8. Adjustable Band Hangers (MSS Type 9): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 8.
  9. Adjustable, Swivel-Ring Band Hangers (MSS Type 10): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 2.
  10. Split Pipe-Ring with or without Turnbuckle-Adjustment Hangers (MSS Type 11): For suspension of noninsulated stationary pipes, NPS 3/8 to NPS 8.
  11. Extension Hinged or 2-Bolt Split Pipe Clamps (MSS Type 12): For suspension of noninsulated stationary pipes, NPS 3/8 to NPS 3.
  12. U-Bolts (MSS Type 24): For support of heavy pipes, NPS 1/2 to NPS 30.
  13. Clips (MSS Type 26): For support of insulated pipes not subject to expansion or contraction.
  14. Pipe Saddle Supports (MSS Type 36): For support of pipes, NPS 4 to NPS 36, with steel pipe base stanchion support and cast-iron floor flange.
  15. Pipe Stanchion Saddles (MSS Type 37): For support of pipes, NPS 4 to NPS 36, with steel pipe base stanchion support and cast-iron floor flange and with U-bolt to retain pipe.
  16. Adjustable, Pipe Saddle Supports (MSS Type 38): For stanchion-type support for pipes, NPS 2-1/2 to NPS 36, if vertical adjustment is required, with steel pipe base stanchion support and cast-iron floor flange.
  17. Single Pipe Rolls (MSS Type 41): For suspension of pipes, NPS 1 to NPS 30, from 2 rods if longitudinal movement caused by expansion and contraction might occur.
  18. Adjustable Roller Hangers (MSS Type 43): For suspension of pipes, NPS 2-1/2 to NPS 20, from single rod if horizontal movement caused by expansion and contraction might occur.
  19. Complete Pipe Rolls (MSS Type 44): For support of pipes, NPS 2 to NPS 42, if longitudinal movement caused by expansion and contraction might occur but vertical adjustment is not necessary.
  20. Pipe Roll and Plate Units (MSS Type 45): For support of pipes, NPS 2 to NPS 24, if small horizontal movement caused by expansion and contraction might occur and vertical adjustment is not necessary.
  21. Adjustable Pipe Roll and Base Units (MSS Type 46): For support of pipes, NPS 2 to NPS 30, if vertical and lateral adjustment during installation might be required in addition to expansion and contraction.



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- G. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers, NPS 3/4 to NPS 20.
  2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers, NPS 3/4 to NPS 20, if longer ends are required for riser clamps.
- H. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.
  2. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.
  3. Swivel Turnbuckles (MSS Type 15): For use with MSS Type 11, split pipe rings.
  4. Malleable-Iron Sockets (MSS Type 16): For attaching hanger rods to various types of building attachments.
  5. Steel Weldless Eye Nuts (MSS Type 17): For 120 to 450 deg F piping installations.
- I. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
  2. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joint construction to attach to top flange of structural shape.
  3. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
  4. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
  5. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.
  6. C-Clamps (MSS Type 23): For structural shapes.
  7. Top-Beam Clamps (MSS Type 25): For top of beams if hanger rod is required tangent to flange edge.
  8. Side-Beam Clamps (MSS Type 27): For bottom of steel I-beams.
  9. Steel-Beam Clamps with Eye Nuts (MSS Type 28): For attaching to bottom of steel I-beams for heavy loads.
  10. Linked-Steel Clamps with Eye Nuts (MSS Type 29): For attaching to bottom of steel I-beams for heavy loads, with link extensions.
  11. Malleable Beam Clamps with Extension Pieces (MSS Type 30): For attaching to structural steel.
  12. Welded-Steel Brackets: For support of pipes from below, or for suspending from above by using clip and rod. Use one of the following for indicated loads:
    - a. Light (MSS Type 31): 750 lb.
    - b. Medium (MSS Type 32): 1500 lb.
    - c. Heavy (MSS Type 33): 3000 lb.
  13. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.
  14. Plate Lugs (MSS Type 57): For attaching to steel beams if flexibility at beam is required.

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15. Horizontal Travelers (MSS Type 58): For supporting piping systems subject to linear horizontal movement where headroom is limited.
- J. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.
  2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
  3. Thermal-Hanger Shield Inserts: For supporting insulated pipe.
- K. Spring Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Restraint-Control Devices (MSS Type 47): Where indicated to control piping movement.
  2. Spring Cushions (MSS Type 48): For light loads if vertical movement does not exceed 1-1/4 inches.
  3. Spring-Cushion Roll Hangers (MSS Type 49): For equipping Type 41 roll hanger with springs.
  4. Spring Sway Braces (MSS Type 50): To retard sway, shock, vibration, or thermal expansion in piping systems.
  5. Variable-Spring Hangers (MSS Type 51): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from hanger.
  6. Variable-Spring Base Supports (MSS Type 52): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from base support.
  7. Variable-Spring Trapeze Hangers (MSS Type 53): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from trapeze support.
  8. Constant Supports: For critical piping stress and if necessary to avoid transfer of stress from one support to another support, critical terminal, or connected equipment. Include auxiliary stops for erection, hydrostatic test, and load-adjustment capability. These supports include the following types:
    - a. Horizontal (MSS Type 54): Mounted horizontally.
    - b. Vertical (MSS Type 55): Mounted vertically.
    - c. Trapeze (MSS Type 56): Two vertical-type supports and one trapeze member.
- L. Comply with MSS SP-69 for trapeze pipe hanger selections and applications that are not specified in piping system Sections.
- M. Comply with MFMA-102 for metal framing system selections and applications that are not specified in piping system Sections.
- N. Use powder-actuated fasteners or mechanical-expansion anchors instead of building attachments where required in concrete construction.

### 3.2 HANGER AND SUPPORT INSTALLATION

- A. Steel Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.
- B. Trapeze Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Arrange for grouping of parallel runs of horizontal piping and support together on field-fabricated trapeze pipe hangers.
  - 1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified above for individual pipe hangers.
  - 2. Field fabricate from ASTM A 36/A 36M, steel shapes selected for loads being supported. Weld steel according to AWS D1.1.
- C. Metal Framing System Installation: Arrange for grouping of parallel runs of piping and support together on field-assembled metal framing systems.
- D. Thermal-Hanger Shield Installation: Install in pipe hanger or shield for insulated piping.
- E. Fastener System Installation:
  - 1. Install powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches thick in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.
  - 2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.
- F. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.
- G. Equipment Support Installation: Fabricate from welded-structural-steel shapes.
- H. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.
- I. Install lateral bracing with pipe hangers and supports to prevent swaying.
- J. Load Distribution: Install hangers and supports so piping live and dead loads and stresses from movement will not be transmitted to connected equipment.
- K. Insulated Piping: Comply with the following:
  - 1. Attach clamps and spacers to piping.
    - a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.

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- b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.
  - c. Do not exceed pipe stress limits according to ASME B31.1 for power piping and ASME B31.9 for building services piping.
2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.
    - a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.
  3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.
    - a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.
  4. Shield Dimensions for Pipe: Not less than the following:
    - a. NPS 1/4 to NPS 3-1/2: 12 inches long and 0.048 inch thick.
    - b. NPS 4: 12 inches long and 0.06 inch thick.
    - c. NPS 5 and NPS 6: 18 inches long and 0.06 inch thick.
    - d. NPS 8 to NPS 14: 24 inches long and 0.075 inch thick.
    - e. NPS 16 to NPS 24: 24 inches long and 0.105 inch thick.
  5. Pipes NPS 8 and Larger: Include wood inserts.
  6. Insert Material: Length at least as long as protective shield.
  7. Thermal-Hanger Shields: Install with insulation same thickness as piping insulation.

### 3.3 EQUIPMENT SUPPORTS

- A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.
- B. Grouting: Place grout under supports for equipment and make smooth bearing surface.
- C. Provide lateral bracing, to prevent swaying, for equipment supports.

### 3.4 METAL FABRICATIONS

- A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers.
- B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.
- C. Field Welding: Comply with AWS D1.1 procedures for shielded metal arc welding, appearance and quality of welds, and methods used in correcting welding work, and with the following:
  1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

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2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. Finish welds at exposed connections so no roughness shows after finishing and contours of welded surfaces match adjacent contours.

3.5 ADJUSTING

- A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.
- B. Trim excess length of continuous-thread hanger and support rods to 1-1/2 inches.

3.6 PAINTING

- A. See Structural Drawing Painting Notes.
- B. Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
  1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.
- C. Touch Up: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.
- D. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 15062

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SECTION 15077 - IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Equipment labels.
- 2. Pipe labels.
- 3. Valve tags.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: For color, letter style, and graphic representation required for each identification material and device.
- C. Equipment Label Schedule: Include a listing of all equipment to be labeled with the proposed content for each label.
- D. Valve numbering scheme.
- E. Valve Schedules: For each piping system to include in maintenance manuals.

1.4 COORDINATION

- A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
- B. Coordinate installation of identifying devices with locations of access panels and doors.
- C. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 EQUIPMENT LABELS

- A. Metal Labels for Equipment:

- 1. Material and Thickness: Brass, 0.032-inch minimum thickness, and having predrilled or stamped holes for attachment hardware.
- 2. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.

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3. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
4. Fasteners: Stainless-steel rivets.
5. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

B. Plastic Labels for Equipment:

1. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/8 inch thick, and having predrilled holes for attachment hardware.
2. Letter Color: Black.
3. Background Color: Yellow.
4. Maximum Temperature: Able to withstand temperatures up to 160 deg F.
5. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
6. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
7. Fasteners: Stainless-steel rivets.
8. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

C. Label Content: Include equipment's Drawing designation or unique equipment number, Drawing numbers where equipment is indicated (plans, details, and schedules), plus the Specification Section number and title where equipment is specified.

D. Equipment Label Schedule: For each item of equipment to be labeled, on 8-1/2-by-11-inch bond paper. Tabulate equipment identification number and identify Drawing numbers where equipment is indicated (plans, details, and schedules), plus the Specification Section number and title where equipment is specified. Equipment schedule shall be included in operation and maintenance data.

## 2.2 PIPE LABELS

- A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.
- B. Pretensioned Pipe Labels: Precoiled, semirigid plastic formed to cover full circumference of pipe and to attach to pipe without fasteners or adhesive.
- C. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.
- D. Pipe Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings, pipe size, and an arrow indicating flow direction.
  1. Flow-Direction Arrows: Integral with piping system service lettering to accommodate both directions, or as separate unit on each pipe label to indicate flow direction.
  2. Lettering Size: At least 1-1/2 inches high.

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2.3 VALVE TAGS

- A. Valve Tags: Stamped or engraved with 1/4-inch letters for piping system abbreviation and 1/2-inch numbers.
  - 1. Tag Material: Brass, 2 inch diameter, 0.032-inch minimum thickness, and having predrilled or stamped holes for attachment hardware.
  - 2. Fasteners: Brass wire-link or beaded chain; or S-hook.
- B. Valve Schedules: For each piping system, on 8-1/2-by-11-inch bond paper. Tabulate valve number, piping system, system abbreviation (as shown on valve tag), location of valve (room or space), normal-operating position (open, closed, or modulating), and variations for identification. Mark valves for emergency shutoff and similar special uses.
  - 1. Valve-tag schedule shall be included in operation and maintenance data.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

3.2 EQUIPMENT LABEL INSTALLATION

- A. Install or permanently fasten labels on each major item of mechanical equipment.
- B. Locate equipment labels where accessible and visible.

3.3 PIPE LABEL INSTALLATION

- A. Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:
  - 1. Near each valve and control device.
  - 2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
  - 3. Near penetrations through walls, floors, ceilings, and inaccessible enclosures.
  - 4. At access doors, manholes, and similar access points that permit view of concealed piping.
  - 5. Near major equipment items and other points of origination and termination.
  - 6. Spaced at maximum intervals of 15 feet along each run. Reduce intervals to in areas of congested piping and equipment.
  - 7. On piping above removable acoustical ceilings. Omit intermediately spaced labels.



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B. Pipe Label Color Schedule:

1. Match existing colors used in the Jail Cooling Plant.

3.4 VALVE-TAG INSTALLATION

- A. Install tags on valves and control devices in piping systems, except check valves; valves within factory-fabricated equipment units; shutoff valves. List tagged valves in a valve schedule.

END OF SECTION 15077

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SECTION 15082 - PIPING INSULATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Piping insulation.
- B. Jackets and accessories.

1.2 REFERENCES

- A. ASTM C 534 - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form; 2003.
- B. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2004.
- C. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials; 2000.
- D. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials; National Fire Protection Association; 2000.
- E. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Underwriters Laboratories Inc.; 2003.

1.3 SUBMITTALS

- A. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.
- B. Manufacturer's Instructions: Indicate installation procedures that ensure acceptable workmanship and installation standards will be achieved.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified in this section and approved by manufacturer.

1.5 DELIVERY, STORAGE, AND PROTECTION

- A. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.

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1.6 ENVIRONMENTAL REQUIREMENTS

- A. Maintain ambient conditions required by manufacturers of each product.
- B. Maintain temperature before, during, and after installation for minimum of 24 hours.

PART 2 - PRODUCTS

2.1 REQUIREMENTS FOR ALL PRODUCTS OF THIS SECTION

- A. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E 84, NFPA 255, or UL 723.

2.2 GLASS FIBER

- A. Manufacturers:
  - 1. Knauf Fiber Glass.
  - 2. Johns Manville Corporation.
  - 3. Owens Corning Corp.
- B. Insulation: ASTM C 547 and ASTM C 795; rigid molded, noncombustible.
  - 1. 'K' value: ASTM C 177, 0.24 at 75 degrees F.
  - 2. Maximum service temperature: 850 degrees F.
  - 3. Maximum moisture absorption: 0.2 percent by volume.
- C. Vapor Barrier Jacket: White kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapor transmission when tested in accordance with ASTM E 96 of 0.02 perm-inches.

2.3 PIPE JACKETS AND PRE-MOLDED FOR FITTINGS

- A. PVC Jacket: Smoke rating of 25/50 ASTM E 84.
  - 1. Manufactures:
    - a. Proto or equal.
  - 2. Thickness: 0.030 inch.
  - 3. Finish: White.
  - 4. Joining: Longitudinal slip joints and 2 inch laps.
  - 5. Fittings: 0.030 inch thick die shaped fitting covers.
  - 6. Metal Jacket Bands: 3/8 inch wide; 0.010 inch thick stainless steel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that piping has been tested before applying insulation materials.

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- B. Verify that surfaces are clean and dry, with foreign material removed.

3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install in accordance with NAIMA National Insulation Standards.
- C. Exposed Piping: Locate insulation and cover seams in least visible locations.
- D. Insulate pipes conveying fluids above ambient temperature. Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump bodies, heat exchangers, and expansion joints.
- E. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions.

3.3 INSULATION THICKNESS

- A. Chilled Water Piping
  - 1. Minimum Insulation Thickness to be 1-1/2 inch or greater.

END OF SECTION 15082

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SECTION 15127 - METERS AND GAGES FOR HVAC PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Thermometers.
- 2. Gages.
- 3. Test plugs.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated; include performance curves.
- B. Shop Drawings: Schedule for thermometers gages indicating manufacturer's number, scale range, and location for each.

PART 2 - PRODUCTS

2.1 METAL-CASE, LIQUID-IN-GLASS THERMOMETERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- B. Basis-of-Design Product: Subject to compliance with requirements, provide or comparable product by one of the following:
  - 1. Palmer - Wahl Instruments Inc.
  - 2. Trerice, H. O. Co.
  - 3. Weiss Instruments, Inc.
  - 4. Weksler Instruments Operating Unit; Dresser Industries; Instrument Div.
- C. Case: Brass, 7 inches long.
- D. Tube: Red or blue reading, organic-liquid filled, with magnifying lens.
- E. Tube Background: Satin-faced, nonreflective aluminum with permanently etched scale markings.
- F. Window: Glass.
- G. Connector: Adjustable type, 180 degrees in vertical plane, 360 degrees in horizontal plane, with locking device.

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- H. Stem: Copper-plated steel, aluminum, or brass for thermowell installation and of length to suit installation.
- I. Accuracy: Plus or minus 1 percent of range or plus or minus 1 scale division to maximum of 1.5 percent of range.

2.2 THERMOWELLS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- B. Basis-of-Design Product: Subject to compliance with requirements, provide or comparable product by one of the following:
  - 1. AMETEK, Inc.; U.S. Gauge Div.
  - 2. Ashcroft Commercial Instrument Operations; Dresser Industries; Instrument Div.
  - 3. Ernst Gage Co.
  - 4. Marsh Bellofram.
  - 5. Miljoco Corp.
  - 6. NANMAC Corporation.
  - 7. Noshok, Inc.
  - 8. Palmer - Wahl Instruments Inc.
  - 9. REO TEMP Instrument Corporation.
  - 10. Tel-Tru Manufacturing Company.
  - 11. Terrice, H. O. Co.
  - 12. Weiss Instruments, Inc.
  - 13. Weksler Instruments Operating Unit; Dresser Industries; Instrument Div.
  - 14. WIKA Instrument Corporation.
  - 15. Winters Instruments.
- C. Manufacturers: Same as manufacturer of thermometer being used.
- D. Description: Pressure-tight, socket-type metal fitting made for insertion into piping and of type, diameter, and length required to hold thermometer.

2.3 PRESSURE GAGES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- B. Basis-of-Design Product: Subject to compliance with requirements, provide Insert manufacturer's name; product name or designation or comparable product by one of the following:
  - 1. AMETEK, Inc.; U.S. Gauge Div.
  - 2. Ashcroft Commercial Instrument Operations; Dresser Industries; Instrument Div.
  - 3. Ernst Gage Co.
  - 4. Eugene Ernst Products Co.
  - 5. KOBOLD Instruments, Inc.
  - 6. Marsh Bellofram.

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7. Miljoco Corp.
8. Noshok, Inc.
9. Palmer - Wahl Instruments Inc.
10. REO TEMP Instrument Corporation.
11. Trerice, H. O. Co.
12. Weiss Instruments, Inc.
13. Weksler Instruments Operating Unit; Dresser Industries; Instrument Div.
14. WIKA Instrument Corporation.
15. Winters Instruments.

C. Direct-Mounting, Dial-Type Pressure Gages: Indicating-dial type complying with ASME B40.100.

1. Case: Liquid-filled type, drawn steel or cast aluminum, 6-inch diameter.
2. Pressure-Element Assembly: Bourdon tube, unless otherwise indicated.
3. Pressure Connection: Brass, NPS 1/4, bottom-outlet type unless back-outlet type is indicated.
4. Movement: Mechanical, with link to pressure element and connection to pointer.
5. Dial: Satin-faced, nonreflective aluminum with permanently etched scale markings.
6. Pointer: Red or other dark-color metal.
7. Window: Glass.
8. Ring: Brass.
9. Accuracy: Grade B, plus or minus 2 percent of middle half scale.
10. Vacuum-Pressure Range: 30-in. Hg of vacuum to 15 psig of pressure.
11. Range for Fluids under Pressure: Two times operating pressure.

D. Pressure-Gage Fittings:

1. Valves: NPS 1/4 brass or stainless-steel needle type.
2. Siphons: NPS 1/4 coil of brass tubing with threaded ends.
3. Snubbers: ASME B40.5, NPS 1/4 brass bushing with corrosion-resistant, porous-metal disc of material suitable for system fluid and working pressure.

2.4 TEST PLUGS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide or comparable product by one of the following:

1. Flow Design, Inc.
2. MG Piping Products Co.
3. National Meter, Inc.
4. Peterson Equipment Co., Inc.
5. Sisco Manufacturing Co.
6. Trerice, H. O. Co.
7. Watts Industries, Inc.; Water Products Div.

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- C. Description: Corrosion-resistant brass or stainless-steel body with core inserts and gasketed and threaded cap, with extended stem for units to be installed in insulated piping.
- D. Minimum Pressure and Temperature Rating: 500 psig at 200 deg F.
- E. Core Inserts: One or two self-sealing rubber valves.
  - 1. Insert material for air, water, oil, or gas service at 20 to 200 deg F shall be CR.
  - 2. Insert material for air or water service at minus 30 to plus 275 deg F shall be EPDM.

PART 3 - EXECUTION

3.1 THERMOMETER APPLICATIONS

- A. Install liquid-in-glass thermometers as shown on drawings.
- B. Provide the following temperature ranges for thermometers:
  - 1. Chilled and Condenser Water: 0 to 100 deg F, with 2-degree scale divisions.

3.2 INSTALLATIONS

- A. Install direct-mounting thermometers and adjust vertical and tilted positions.
- B. Install thermowells with socket extending to center of pipe and in vertical position in piping tees where thermometers are indicated.
- C. Install direct-mounting pressure gages in piping tees with pressure gage located on pipe at most readable position.
- D. Install needle-valve and snubber fitting in piping for each pressure gage for fluids (except steam).
- E. Install test plugs in tees in piping.

END OF SECTION 15127



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SECTION 15181 – PIPING AND VALVES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes pipe and fitting materials, joining methods, special-duty valves, and specialties for the following:
  - 1. Chilled and condenser water piping.
  - 2. Drain and refrigerant vent piping.

1.3 PERFORMANCE REQUIREMENTS

- A. Hydronic piping components and installation shall be capable of withstanding the following minimum working pressure and temperature:
  - 1. Chilled and condenser water piping: 75 psi at 200 deg F.

1.4 SUBMITTALS

- A. Product Data: For each type of the following:
  - 1. Pipe and fittings.
  - 2. Valves.
  - 3. Hydronic specialties.
- B. Welding certificates.
- C. Qualification Data: For Installer.
- D. Field quality-control test reports.
- E. Operation and Maintenance Data: For hydronic specialties and special-duty valves to include in emergency, operation, and maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications:
  - 1. Installers of Pressure-Sealed Joints: Installers shall be certified by the pressure-seal joint manufacturer as having been trained and qualified to join piping with pressure-seal pipe couplings and fittings.

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- B. Steel Support Welding: Qualify processes and operators according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- C. Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX.
  - 1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
  - 2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.
- D. ASME Compliance: Comply with ASME B31.9, "Building Services Piping," for materials, products, and installation.

PART 2 - PRODUCTS

2.1 STEEL PIPE AND FITTINGS

- A. Steel Pipe: ASTM A 53/A 53M, black steel with plain ends.
- B. Steel pipe to be all welded construction.
- C. Wrought-Steel Fittings: ASTM A 234/A 234M, wall thickness to match adjoining pipe.
- D. Wrought Cast- and Forged-Steel Flanges and Flanged Fittings: ASME B16.5, including bolts, nuts, and gaskets of the following material group, end connections, and facings:
  - 1. Material Group: 1.1.
  - 2. End Connections: Butt welding.
  - 3. Facings: Raised face.
- E. Copper Tube: ASTM B 88 (ASTM B 88M), Type K (A), drawn.
  - 1. Fittings: ASME B16.18, cast brass, or ASME B16.22 solder wrought copper.
  - 2. Joints: Solder, lead free, ASTM B 32, HB alloy (95-5 tin-antimony), or tin and silver.

2.2 VALVES

- A. Iron Gate Valves: Class 125, NRS, Iron Gate Valves:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Crane Co.; Crane Valve Group; Crane Valves.
    - b. Crane Co.; Crane Valve Group; Stockham Division.
    - c. Milwaukee Valve Company.
    - d. NIBCO INC.
  - 2. Description:
    - a. Standard: MSS SP-70, Type I.

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- b. NPS 2-1/2 to NPS 12, CWP Rating: 200 psig.
- c. Body Material: ASTM A 126, gray iron with bolted bonnet.
- d. Ends: Flanged.
- e. Trim: Bronze.
- f. Disc: Solid wedge.
- g. Packing and Gasket: Asbestos free.

B. Check Valves:

C. Iron Ball Valves: Class 125, Iron Ball Valves:

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. NIBCO Inc.
- 2. Description:
  - a. Standard: MSS SP-72.
  - b. CWP Rating: 200 psig.
  - c. Body Design: Split body.
  - d. Body Material: ASTM A 126, gray iron.
  - e. Ends: Flanged.
  - f. Seats: PTFE or TFE.
  - g. Stem: Stainless steel.
  - h. Ball: Stainless steel.
  - i. Port: Full.

D. Iron, Single Flange Butterfly Valves: 150 CWP, Iron, Single-Flange Butterfly Valves with EPDM Seat and Aluminum-Bronze Disc:

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. Crane Co.; Crane Valve Group; Stockham Division.
  - b. Milwaukee Valve Company.
  - c. NIBCO INC.
- 2. Description:
  - a. Standard: MSS SP-67, Type I.
  - b. CWP Rating: 150 psig.
  - c. Body Design: Lug type; suitable for bidirectional dead-end service at rated pressure without use of downstream flange.
  - d. Body Material: ASTM A 126, cast iron or ASTM A 536, ductile iron.
  - e. Seat: EPDM.
  - f. Stem: One- or two-piece stainless steel.
  - g. Disc: Aluminum bronze.

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2.3 HYDRONIC PIPING SPECIALTIES

A. Y-Pattern Strainers:

1. Body: ASTM A 126, Class B, cast iron with bolted cover and bottom drain connection.
2. End Connections: Flanged ends for NPS 2-1/2 and larger.
3. Strainer Screen: 40-mesh startup strainer, and perforated stainless-steel basket with 50 percent free area.
4. CWP Rating: 125 psig.

B. Spherical, Rubber, Flexible Connectors:

1. Body: Fiber-reinforced rubber body.
2. End Connections: Steel flanges drilled to align with Classes 150 and 300 steel flanges.
3. Performance: Capable of misalignment.
4. CWP Rating: 150 psig.
5. Maximum Operating Temperature: 250 deg F.

PART 3 - EXECUTION

3.1 PIPING APPLICATIONS

- A. Chilled and condenser water shall be welded steel pipe ASTM A 53/A 53M, schedule 40, black steel.
- B. Drain and refrigerant vent pipe shall be copper tube ASTM B 88 (ASTM B 88M), Type K (A), drawn.

3.2 VALVE APPLICATIONS

- A. Install valves as shown per contract drawings.

3.3 PIPING INSTALLATIONS

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicate piping locations and arrangements if such were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.
- B. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.
- C. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- D. Install piping to permit valve servicing.

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- E. Install piping at indicated slopes.
- F. Install piping free of sags and bends.
- G. Install fittings for changes in direction and branch connections.
- H. Install piping to allow application of insulation.
- I. Select system components with pressure rating equal to or greater than system operating pressure.
- J. Install groups of pipes parallel to each other, spaced to permit applying insulation and servicing of valves.
- K. Install drains, consisting of a tee fitting, NPS 3/4 ball valve, and short NPS 3/4 threaded nipple with cap, at low points in piping system mains and elsewhere as required for system drainage.
- L. Install piping at a uniform grade of 0.2 percent upward in direction of flow.
- M. Reduce pipe sizes using eccentric reducer fitting installed with level side up.
- N. Install branch connections to mains using tee fittings in main pipe, with the branch connected to the bottom of the main pipe. For up-feed risers, connect the branch to the top of the main pipe.
- O. Install flanges in piping, NPS 2-1/2 and larger, at final connections of equipment and elsewhere as indicated.
- P. Install strainers on inlet side of each in-line pump. Install NPS 3/4 nipple and ball valve in blowdown connection of strainers NPS 2 and larger. Match size of strainer blowoff connection for strainers smaller than NPS 2.
- Q. Identify piping as specified in Division 15 Section "Identification for HVAC Piping and Equipment."

3.4 HANGERS AND SUPPORTS

- A. Hanger, support, and anchor devices are specified in Division 15 Section "Hangers and Supports for HVAC Piping and Equipment." Comply with the following requirements for maximum spacing of supports.
- B. See Structural Drawings for further hanger and pipe support details.

3.5 PIPE JOINT CONSTRUCTION

- A. Join pipe and fittings according to the following requirements and Division 15 Sections specifying piping systems.
- B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

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- D. Welded Joints: Construct joints according to AWS D10.12/D10.12M, using qualified processes and welding operators according to Part 1 "Quality Assurance" Article.
- E. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.
- F. Grooved Joints: Assemble joints with coupling and gasket, lubricant, and bolts. Cut or roll grooves in ends of pipe based on pipe and coupling manufacturer's written instructions for pipe wall thickness. Use grooved-end fittings and rigid, grooved-end-pipe couplings.

3.6 FIELD QUALITY CONTROL

- A. Prepare hydronic piping according to ASME B31.9 and as follows:
  - 1. Leave joints, including welds, uninsulated and exposed for examination during test.
  - 2. Flush hydronic piping systems with clean water; then remove and clean or replace strainer screens.
  - 3. Isolate equipment from piping. If a valve is used to isolate equipment, its closure shall be capable of sealing against test pressure without damage to valve. Install blinds in flanged joints to isolate equipment.
  
- B. Perform the following tests on hydronic piping:
  - 1. Use ambient temperature water as a testing medium unless there is risk of damage due to freezing. Another liquid that is safe for workers and compatible with piping may be used.
  - 2. While filling system, use vents installed at high points of system to release air. Use drains installed at low points for complete draining of test liquid.
  - 3. Isolate expansion tanks and determine that hydronic system is full of water.
  - 4. Subject piping system to hydrostatic test pressure that is not less than 1.5 times the system's working pressure. Test pressure shall not exceed maximum pressure for any vessel, pump, valve, or other component in system under test. Verify that stress due to pressure at bottom of vertical runs does not exceed 90 percent of specified minimum yield strength or 1.7 times "SE" value in Appendix A in ASME B31.9, "Building Services Piping."
  - 5. After hydrostatic test pressure has been applied for at least 10 minutes, examine piping, joints, and connections for leakage. Eliminate leaks by tightening, repairing, or replacing components, and repeat hydrostatic test until there are no leaks.
  - 6. Prepare written report of testing.

END OF SECTION 15181

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SECTION 15189 - PIPE CLEANING

PART 1 - GENERAL

1.1 SCOPE

- 1.2 It is the intent to clean the new chilled and condenser water piping. Part -3 Execution outlines one methodology. However, the Contractor is encouraged to provide and submit a better methodology to achieve cleaning of piping systems.

1.3 RELATED SECTIONS

- A. Section 15181 – Piping and Valves.

1.4 SUBMITTALS

- A. Product Data: Provide chemical treatment materials and chemicals.

1.5 REGULATORY REQUIREMENTS

- A. Conform to applicable code for addition of non-potable chemicals to building mechanical systems and to public sewage systems.

PART 2 - PRODUCTS

2.1 CHEMICAL TREATMENT MANUFACTURERS:

- A. Products shall be from NALCO or Equal.

2.2 MATERIALS

A. System Cleaner:

1. Manufacturers:

- a. Products shall be from NALCO.

- B. Liquid alkaline compound with emulsifying agents and detergents to remove grease and petroleum products; sodium tripoly phosphate and sodium molybdate.

- C. Biocide chlorine release agents such as sodium hypochlorite or calcium hypochlorite.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Contractor to provide 7 day advance witnessing notification to the Facility before proceeding with all test and pipe initial treatment. Contractor to log date and time when piping systems are initially tested.

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- B. The existing make-up water systems will be used to provide all make-up water for final fill. Notify and coordinate with Facility selected chemical vendor.
- C. Systems shall be completely installed and hydrostatically tested prior to cleaning.
- D. Use water meter to record capacity in each system.

3.2 CLEANING

- A. Once installation of the piping system is complete, fully leak-test the system before proceeding with cleaning. Repair all leaks, and then retest any repaired areas.
- B. Fill the entire system with clear water and utilize pumps to circulate for a minimum of 2 hours. Ensure that all TCV valves are open.
- C. Drain system, remove, inspect and clean all strainers and filters in the system. Open all valves to inspect and clean.
- D. Refill the system, and circulate for a minimum of 24 hours.
- E. Continue to flush and fill the system with clear water until Total Suspended Solids (TSS) in the system is less than 50 ppm. Samples are to be taken at the low point(s) in the system. During filling and flushing, drain water from the system at the maximum rate possible while maintaining a full system.
- F. During the cleaning process operate the pumps at or near design conditions for pressure and flow.
- G. When Total Suspended Solids is less than 50 ppm, discontinue all draining and begin chemical cleaning.
- H. Feed sufficient quantity of Pre-Startup Cleaner into the system to achieve a minimum pH of 10.5.
- I. Verify pH and TSS at various points throughout the system.
- J. Circulate the system with cleaner in the system and without system draining for a minimum of 24 hours.
- K. At the end of 24 hours of circulation of the total cleaning solution, begin draining the system.
- L. Open makeup water lines so that the temporary pumps can remain running to flush and carry solids out of the system.
- M. Continue filling and flushing until water quality is that of incoming water quality: clarity, pH, and TSS is less than 50 ppm.

3.3 TREATMENT

- A. Operate chilled water pumps and add sufficient quantity of corrosion inhibitor until desired



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chemical residual as specified by chemical treatment vendor is achieved.

END OF SECTION 15189

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SECTION 15615 – EXHAUST FAN

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes: Refrigerant Exhaust Fan.

1.3 PERFORMANCE REQUIREMENTS

- A. Ensure fan operates at specified conditions.

1.4 SUBMITTALS

- A. Product Data: Provide fan curves showing performance characteristics with system operating point plotted. Include electrical characteristics and connection requirements.
- B. Manufacturer's Installation Instructions: Indicate hanging and support requirements and recommendations.
- C. Warranty.

1.5 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Company specializing in manufacture, assembly, and field performance of fans.

1.6 REGULATORY REQUIREMENTS

- A. Products Requiring Electrical Connection: Listed and classified by UL 778 as suitable for the purpose specified and indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
  - 1. Greenheck
  - 2. Or Equal.

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2.2 EXHAUST FAN

- A. Type: Centrifugal belt drive. Aluminum construction.
- B. The fan wheel shall be centrifugal non-overloading backward-inclined, constructed of aluminum and shall include a wheel cone carefully matched to the inlet cone for precise running tolerances. Wheels shall be statically and dynamically balanced in accordance to AMCA Standard 204-05. Motors shall be heavy-duty ball bearing type, carefully matched to the fan load and furnished at the specified voltage, phase and enclosure. Drives shall be sized for a minimum of 150% of driven horsepower. Motors and drives shall be mounted on true vibration isolators, out of the airstream. Fresh air for motor cooling shall be drawn into the motor compartment from an area free of discharge
- C. The fan housing shall consist of the motor cover, shroud, curb cap and lower windband, and shall be constructed of heavy-gauge aluminum. Housing shall have a rigid internal support structure and leakproof design. The fan shroud shall be one piece with a rolled bead for extra strength which directs exhaust air downward. The lower windband shall be one piece with formed edges for added strength and the curb cap shall include prepunched mounting holes to ensure correct attachment. Drive frame assemblies shall be constructed of heavy-gauge steel and mounted on true vibration isolators. Pulleys shall be of the fully machined cast iron-type, keyed and securely attached to the wheel and motor shafts. Motor pulleys shall be adjustable for final system balancing.
- D. Motor:
  - 1. VFD duty rated.
- E. Performance: See Equipment Schedules on Plans.
- F. Electrical Characteristics:
  - 1. 460 volts, three phase, 60 Hz.
  - 2. See Equipment Schedules on Plans for requirements.
  - 3. Motor: 1750 rpm.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Contractor to modify existing curb as necessary to fit new exhaust fan.
- C. Complete installation and startup checks according to manufacturer's written instructions.
- D. Prepare a written startup report that records results of tests and inspections.

END OF SECTION 15615

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SECTION 15815 – LOUVERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes: Stationary Louver.

1.3 SUBMITTALS

- A. Product Data: Size, free area chart, water penetration chart
- B. Color sample for finish.
- C. Manufacturer's Installation Instructions.
- C. Warranty.

1.4 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Company specializing in manufacture, assembly, and field performance of louvers.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
  - 1. Greenheck
  - 2. Or Equal.

2.2 LOUVERS

- A. Type: Aluminum construction. Frame: Heavy gauge extruded 6063-T5 aluminum. 4 in. x 0.081 in. nominal wall thickness. Blades: heavy gauge extruded 6063-T5 aluminum, 0.081 in. nominal wall thickness, positioned at 37° and 45° angles on approximately 4 in. centers.
- B. Insect screen, extended sill.

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- C. Baked enamel finish in color selected by County.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. See Drawings for field work involving air filter and sheet metal blank off plates.

END OF SECTION 15815

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SECTION 15900 – CONTROLS

PART 1 - GENERAL

1.1 SCOPE

- A. The County is currently installing a new Alerton DDC system for the Jail Central Plant. The County will provide all final terminations of control wiring to the new Alerton hardware. In addition, the County will provide all programming for the new DDC system.
- B. The Scope of the Contractors work includes the following:
  - 1. Provide and install new cooling tower isolation valve actuators, conduit and wiring from actuators to existing Temperature Control Panel (TCP). Terminate and connect wiring at each actuator for power, open-closed position, and end switches to verify open or closed position. Label all conductors. Leave approx 6 feet coil of wiring at TCP for termination by County.
  - 2. Provide and install new communication cable and conduit from new chillers to TCP. Terminate and connect cable at chiller control panel. Label. Leave approx 6 feet coil of cable at TCP for termination by County. Coordinate all work with chiller manufacture.
  - 3. Provide and install new condenser and chilled water flow switches, conduit and wiring. Terminate wiring at respective chiller controls panel. Coordinate all work with chiller manufacture.
  - 4. Provide and install new conduit and wiring from new chillers to respective condenser and chilled water pump motor starters. Terminate wiring at respective starter coil and at chiller pump start-stop relay. Coordinate all work with chiller manufacture.
  - 5. Provide and install new communication conduit and cable from existing refrigerant alarm panel to TCP. Provide new Bac-Net© software card in alarm panel. Provide and install new conduit and wiring from new VFD to TCP. Terminate and connect wiring at VFD. Label all conductors. Leave approx 6 feet coil of wiring at TCP for termination by County.
  - 6. Provide and install new conduit and wiring from new Automatic Tube Brush (ATB) system Control Panel to new ATB electric actuator. Terminate and connect wiring at each device. Coordinate all ATB control work with ATB Manufacture.
  - 7. Relocate any existing controls conduit that needs to be moved for new chiller installation.

1.2 SEQUENCES OF OPERATION

- A. Sequence to be provided by County.

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1.3 SUBMITTALS

- A. Product Data: Include manufacturer's technical literature for each control device. Indicate dimensions, capacities, performance characteristics, electrical characteristics, finishes for materials, and installation and startup instructions for each type of product indicated.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Automatic control system manufacturer's authorized representative who is trained and approved for installation of system components required for this project.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Comply with ASHRAE 135 for DDC system components.

PART 2 - PRODUCTS

2.1 FLOW SWITCHES

- A. To be provided by chiller manufacture.

2.2 COOLING TOWER ISOLATION VALVE ACTUATORS

- A. Manufactures: Belimo or Equal.
- B. Model Series – SY Series power open and closed. End switches to verify open or closed. Contractor to verify torque requirements.
- C. Provide adapter between existing butterfly valve and new actuator.

2.3 CONDUIT

- A. Interior wiring to be in EMT. Exterior wiring to be in conduit. All exterior conduit fitting to be weather tight for outdoor use.

2.4 LABELS

- A. Each device shall be labeled.
- B. Labels shall be permanently attached and shall be plastic engraved with letters at least 1/4 inches high. ("Dyno" Plastic labels will not be allowed.).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine existing controls conduit that needs to be moved for new chiller installation.

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3.2 INSTALLATION

- A. Install labels and nameplates to identify control components according to Division 15 Section "Identification for HVAC Piping and Equipment."
- B. Install hydronic sensor instrument wells, and other accessories according to Division 15 Section "Piping and Valves."
- C. Fire caulk all wall penetrations with 3M Fire Caulk or Equal.

3.3 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections.
- B. Perform the following field tests and inspections and prepare test reports:
  - 1. Operational Test: After electrical circuitry has been energized, start units to confirm proper unit operation. Remove and replace malfunctioning units and retest.
  - 2. Test each point through its full operating range to verify that safety and operating control set points are as required.
- C. Replace damaged or malfunctioning controls and equipment and repeat testing procedures.

END OF SECTION 15900



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SECTION 15910 – VARIABLE FREQUENCY DRIVES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Variable Frequency Drives.

1.2 REFERENCES

- A. NFPA 70, Article 100 – Electrical Components, Devices, and Accessories.

1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: For each type of VFD.
- C. Shop Drawings: For each VFD.
  - 1. Provide wiring diagrams.
- D. Manufacturer Seismic Qualification Certification: Submit certification that VFD's, accessories, and components will withstand seismic forces defined in Division 16 Section "Electrical Supports and Seismic Restraints".
- E. Field quality-control test reports.
- F. Operation and Maintenance data.
- G. Load-current and overload-relay heater list.
- H. Load-current and list of settings of adjustable overload relays.

PART 2 - PRODUCTS

2.1 VARIABLE FREQUENCY DRIVES

- A. Manufacturer: Schneider Square D. The Jail Facility has standardized on Square D. Model number shown on Drawing Schedules.
- B. The Variable Frequency Drives (VFDs) shall be solid state, with a Pulse Width Modulated (PWM) output waveform utilizing insulated gate bipolar transistors (IGBT's). The VFD package specified herein shall be completely assembled and tested by the manufacturer. The drive efficiency shall be 97% or better at full speed and full load and the fundamental power factor shall be 0.98 at all speeds and loads.
- C. The VFD shall have a bypass in event a VFD failure the refrigerant exhaust fan will continue to operate.

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- D. VFDs and options shall be UL Listed as a complete assembly. Any deviations must be submitted in writing.
- E. All VFDs shall have the following standard features:
1. All VFDs shall have the same customer interface, including digital display, and keypad, regardless of horsepower rating. The keypad is to be used for local control, for setting all parameters, and for stepping through the displays and menus. The keypad shall be removable, capable of remote mounting, and shall have its own non-volatile memory. The keypad shall allow for uploading and downloading of parameter settings as an aid for start-up of multiple VFDs.
  2. The VFDs shall utilize plain English digital display (code numbers and letters are not acceptable). All set-up parameters, indications, faults, warnings and other information must be displayed in words to allow the user to understand what is being displayed without the use of an installation manual or cross-reference table. VFDs utilizing codes are not acceptable.
  3. The keypad shall include Hand-Off-Auto membrane selections. The drive shall incorporate “bumpless transfer” of speed reference when switching between “Auto” and “Hand” modes and vice-versa.
- F. The VFDs shall have integral 3% line reactors to smooth voltage transients and reduce harmonics. Manufacturer shall include in the submittals harmonic distortion analysis (IEEE Standard 519, 5%) for this particular job-site including total voltage distortion with the submittals. Manufacturers exceeding 5% total harmonic voltage distortion shall not be acceptable.
- G. VFDs shall be provided with displays or meters showing :
1. Output frequency
  2. Motor Speed (RPM)
  3. Motor Current
  4. Motor Power (kW)
  5. DC Bus Voltage
  6. Output Voltage
  7. Heat Sink Temperature
  8. Analog Input Values
  9. PID Setpoint Values
  10. Elapsed Time Meter (resettable)

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11. kWh meter (resettable)
  12. Last three faults
- H. The VFDs shall operate with an input voltage range from 380-480VAC 10% [200- 240VAC] without trip.
- I. The VFD shall be capable of starting into a rotating load (forward or reverse) and accelerate or decelerate to setpoint without safety tripping or component damage (flying start). The VFD shall also be capable of DC injection braking at start to stop a reverse spinning motor prior to ramp.
- J. The VFDs shall utilize pre-programmed application macros specifically designed to facilitate start-up. The Application Macros shall provide one command to reprogram all parameters and customer interfaces for a particular application to reduce programming time.
- K. The VFD shall have the ability to automatically restart after an overcurrent, overvoltage, undervoltage, or loss of input signal protective trip. The number of restart attempts, trial time, and time between reset attempts shall be programmable.
- L. The VFD shall be equipped with an automatic extended control power loss ride-through circuit, which will utilize the inertia of the load to keep the drive powered. Minimum power loss ride-through shall be one-cycle, based on full load and no inertia. Typical control power loss ride-through for a fan load shall be 2 seconds minimum. Removing power from the motor is not an acceptable method of increasing power loss ride-through.
- M. The VFD shall be capable of sensing a loss of load (broken belt / no water in pump) and signal the loss of load condition. The drive shall be programmable to signal this condition via a keypad warning, relay output and/or over the serial communications bus. Relay outputs shall include programmable time delays that will allow for drive acceleration from zero speed without signaling a false underload condition.
- N. The customer terminal strip shall be isolated from the line and ground.
- O. The drive shall employ current limit circuits to provide trip free operation:
1. The Slow Current Regulation limit circuit shall be adjustable to 150% (minimum) of the VFDs normal duty current rating. This adjustment shall be made via the keypad, and shall be displayed in actual amps, and not as percent of full load.
  2. The Current Switch-off limit shall be fixed at 350% (minimum, instantaneous) of the VFDs normal duty current rating.
- P. Two (2) programmable critical frequency lockout ranges to prevent the VFD from operating the load continuously at an unstable speed.
- Q. Three (3) programmable digital relay outputs. The relays shall be rated for maximum switching current 8 amps at 24 VDC and 0.4 A at 250 VAC; Maximum voltage 300 VDC and 250 VAC; Continuous current rating 2 amps RMS. Outputs shall be true form C type contacts; open

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collector outputs are not acceptable. Relays shall be capable of programmable on and off delay times.

- R. Two (2) programmable analog inputs (4-20mA or 2-10V), six (6) programmable digital inputs, two (2) programmable analog outputs (4-20mA or 2-10V).
- S. Seven (7) programmable preset speeds.
- T. Two independently adjustable accel and decel ramps. These ramp times shall be adjustable from 1 to 1800 seconds.
- U. The VFD shall Ramp or Coast to a stop, as selected by the user.
- V. Integral metal oxide varistor (MOV) across DC bus or AC line to protect against voltage surges.
- W. Overvoltage controller to increase output frequency during high voltage transients to minimize overvoltage trips.
- X. Auto-restart capability with the ability to catch a spinning load.
- Y. Programmability of drive to optimize for handling location-specific power quality issues.
- Z. LCD display of last three trips to show fault history.
- AA. The unit shall attempt to restart a minimum of five times after tripping on a fault or power failure.
- BB. The VFDs shall have the following field programmable features:
  - 1. If the input reference (4-20mA or 2-10V) is lost, the VFD shall give the user the option of either; (1) stopping and displaying a fault, (2) running at a programmable preset speed, (3) hold the VFD speed based on the last good reference received, or (4) cause a warning to be issued, as selected by the user. The drive shall be programmable to signal this condition via a keypad warning, relay output and/or over the serial communications bus.
  - 2. PID Setpoint controller shall be standard in the drive, allowing a pressure or flow signal to be connected to the VFD, using the microprocessor in the VFD for the closed loop control. The VFD shall have 250 mA of 24 VDC auxiliary power and be capable of loop powering a transmitter supplied by others. The PID setpoint shall be adjustable from the VFD keypad, analog inputs, or over the communication's bus.
  - 3. Control inputs and outputs:
    - a. Isolated
    - b. Five digital inputs
    - c. Two digital outputs
    - d. Two analog inputs

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- e. One analog output
  - f. Fully field programmable
4. Digital outputs shall include field adjustable motor current levels for motor status. Drives not having this feature shall provide and install field adjustable three phase current relays for digital status of motor (proof of flow). Digital outputs must be true, form C type contacts; open collector outputs are not acceptable. Relays shall be capable of programmable on and off delay times.
  5. Analog output capabilities shall include, but not be limited to, frequency, speed, current, voltage, active reference, and kW indications. Manufacturers not having kW output shall provide current transformers and kW transducers for kW output.
  6. The VFD shall have an RS-485 port as standard. The standard protocol shall be Modbus or Bacnet:
  7. The VFD shall be able to communicate with the Central Plant Alerton DDC system, PLC's, DCS's, and DDC's.
    - a. Serial communication capabilities shall include, but not be limited to, run-stop control, speed set adjustment, and PID control adjustments. The drive shall have the capability of allowing the DDC to monitor feedback such as process variable feedback, current (in amps), power (kW), kilowatt-hours (resettable), operating hours (resettable), relay outputs, and diagnostic warning and fault information. Additionally, remote (LAN) VFD fault reset shall be possible. A minimum of 15 field parameters shall be capable of being monitored.
    - b. The VFD shall allow the DDC to control the drive's digital and analog outputs via the serial interface. The serial communications interface shall allow for DO (relay) control and AO (analog) control. In addition, all drive digital and analog inputs shall be capable of being monitored by the DDC system.
- CC. The VFD shall have the following protection circuits. In the case of a protective trip, the drive shall stop, and announce the fault condition in complete words (alphanumeric codes are not acceptable).
- DD. Overcurrent trip 350% instantaneous (170% RMS) of the VFDs variable torque current rating.
- EE. Overvoltage trip 130% of the VFDs rated voltage
- FF. Undervoltage trip 65% of the VFDs rated voltage
- GG. Overtemperature +90° C
- HH. Ground Fault either running or at start
- II. Adaptable Electronic Motor Overload (I2t). The Electronic Motor Overload protection shall protect the motor based on speed, load curve, and external fan parameter. Circuits, which are

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not speed dependant, are unacceptable. The electronic motor overload protection shall be UL Listed for this function.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

END OF SECTION – 15910

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SECTION 15950 – AUTOMATIC TUBE BRUSH SYSTEM (ATB)

PART 1 - GENERAL

1.1 SUMMARY

- A. The Contractor is to supply a complete fully operational Automatic Tube Brush Control system including new electric actuators, control panels, control and power wiring. The Contractor is to demolition existing pneumatic control panels and pneumatic tubing and hardware to prepare for new work. New tube brushes for chillers CH-2 and CH-3 are specified in Section 15625 – Water Cooled Centrifugal Chiller.
- B. The Contractor is to use products provided by the following vendor. There is no equal.  
ATB Systems  
Water Technology Of Pensacola, Inc.  
Watertech@Atbsystems.Com  
Phone: (850) 477-4789, Attention Jo Freeman  
www.atbsystems.com
- C. As a minimum the Contractor is to employ ATB Systems personnel for change out of the existing pneumatic actuators to new electric and for startup services and verification of proper operation for the new ATB system.

1.2 SEQUENCES OF OPERATION

- A. Refer to ATB manuals for sequence of operations.

1.3 SUBMITTALS

- A. Product Data: Include manufacturer's technical literature for each device. Indicate dimensions, capacities, performance characteristics, electrical characteristics, finishes for materials, and installation and startup instructions for each type of product indicated.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of system components required for this project.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

PART 2 - PRODUCTS

2.1 ELECTRIC ACTUATOR

- A. Manufactures: Auma Actuators Inc. Provided by ATB Systems.

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- B. 2 hp, 460 volt, with end switches and other devices as provided by ATB Systems.

2.2 CONTROLS PANEL

- A. Manufactures: ATB Systems.
- B. Complete control panel with timers, indicating lights, relays, actuator starter, and low voltage 115 volt controls transformer.
- C. Panel voltage to be 460 volt.

2.3 WIRING

- A. All control wiring shall be installed surface mounted EMT.

2.4 LABELS

- A. Each device shall be labeled.
- B. Labels shall be permanently attached and shall be plastic engraved with letters at least 1/4 inches high. ("Dyno" Plastic labels will not be allowed.).

PART 3 - EXECUTION

3.1 INSTALLATION

- A. As a minimum the Contractor is to employ ATB Systems personnel for change out of the existing pneumatic actuators to new electric and for startup services and verification of proper operation for the new ATB system.
- B. Using ATB personnel demonstrate to the County that the system is fully functionable and operational for chillers CH-1, CH-2 and CH-3.

END OF SECTION 15950



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SECTION 15960 - TESTING, ADJUSTING, AND BALANCING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes TAB to produce design objectives for the following:
  - 1. Measure condenser and chilled water flow at new chillers.
  - 2. Provide testing and balancing services for louver air flows, chiller room pressure calibration and new exhaust fan REF-A.
  - 3. Reporting results of activities and procedures specified in this Section.

1.3 DEFINITIONS

- A. Balance: To proportion flows within the distribution system, including submains, branches, and terminals, according to indicated quantities.
- B. Procedure: An approach to and execution of a sequence of work operations to yield repeatable results.
- C. Report Forms: Test data sheets for recording test data in logical order.
- D. Static Head: The pressure due to the weight of the fluid above the point of measurement. In a closed system, static head is equal on both sides of the pump.
- E. Suction Head: The height of fluid surface above the centerline of the pump on the suction side.
- F. System Effect: A phenomenon that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system.
- G. System Effect Factors: Allowances used to calculate a reduction of the performance ratings of a fan when installed under conditions different from those presented when the fan was performance tested.
- H. TAB: Testing, adjusting, and balancing.
- I. Test: A procedure to determine quantitative performance of systems or equipment.
- J. Testing, Adjusting, and Balancing (TAB) Firm: The entity responsible for performing and reporting TAB procedures.

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1.4 SUBMITTALS

- A. Qualification Data: Within 30 days from Contractor's Notice to Proceed, submit 4 copies of evidence that TAB firm and this Project's TAB team members meet the qualifications specified in "Quality Assurance" Article.
- B. Certified TAB Reports: Submit two copies of reports prepared, as specified in this Section, on approved forms certified by TAB firm.
- C. Sample Report Forms: Submit two sets of sample TAB report forms.
- D. Warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. TAB Firm Qualifications: Engage a TAB firm certified by AABC.
- B. Certification of TAB Reports: Certify TAB field data reports. This certification includes the following:
  - 1. Review field data reports to validate accuracy of data and to prepare certified TAB reports.
  - 2. Certify that TAB team complied with approved TAB plan and the procedures specified and referenced in this Specification.
- C. TAB Report Forms: Use standard forms from AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems."
- D. Instrumentation Type, Quantity, and Accuracy: As described in AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems."
- E. Instrumentation Calibration: Calibrate instruments at least every six months or more frequently if required by instrument manufacturer.
  - 1. Keep an updated record of instrument calibration that indicates date of calibration and the name of party performing instrument calibration.

1.6 PROJECT CONDITIONS

- A. Full Owner Occupancy: Owner will occupy the site and existing building during entire TAB period. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations.

1.7 COORDINATION

- A. Coordinate the efforts of factory-authorized service representatives for systems and equipment, HVAC controls installers, and other mechanics to operate HVAC systems and equipment to support and assist TAB activities.

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- B. Notice: Provide seven days' advance notice for each test. Include scheduled test dates and times.
- C. Perform TAB after leakage and pressure tests on water distribution systems have been satisfactorily completed.

1.8 WARRANTY

- A. National Project Performance Guarantee: Provide a guarantee on AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems" forms stating that AABC will assist in completing requirements of the Contract Documents if TAB firm fails to comply with the Contract Documents. Guarantee includes the following provisions:
  - 1. The certified TAB firm has tested and balanced systems according to the Contract Documents.
  - 2. Systems are balanced to optimum performance capabilities within design and installation limits.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems' designs that may preclude proper TAB of systems and equipment.
  - 1. Contract Documents are defined in the General and Supplementary Conditions of Contract.
- B. Examine approved submittal data of HVAC systems and equipment.
- C. Examine Project Record Documents described in Division 1 Section "Project Record Documents."
- D. Examine design data, including HVAC system descriptions, statements of design assumptions for environmental conditions and systems' output, and statements of philosophies and assumptions about HVAC system and equipment controls.
- E. Examine equipment performance data including pump curves. Relate performance data to Project conditions and requirements, including system effects that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system.
- F. Examine system and equipment installations to verify that they are complete and that testing, cleaning, adjusting, and commissioning specified in individual Sections have been performed.
- G. Examine system and equipment test reports.
- H. Examine HVAC system and equipment installations to verify that indicated balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and

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fittings are properly installed, and that their locations are accessible and appropriate for effective balancing and for efficient system and equipment operation.

- I. Examine systems for functional deficiencies that cannot be corrected by adjusting and balancing.
- J. Examine strainers for clean screens and proper perforations.
- K. Examine system pumps to ensure absence of entrained air in the suction piping.
- L. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

3.2 GENERAL PROCEDURES FOR TESTING AND BALANCING

- A. Perform testing and balancing procedures on each system according to the procedures contained in AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems" and this Section.
- B. Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary to allow adequate performance of procedures. After testing and balancing, close probe holes and patch insulation with new materials identical to those removed. Restore vapor barrier and finish according to insulation Specifications for this Project.
- C. Mark equipment and balancing device settings with paint or other suitable, permanent identification material, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, to show final settings.
- D. Take and report testing and balancing measurements in inch-pound (IP) units.

3.3 FINAL REPORT

- A. General: Typewritten, or computer printout in letter-quality font, on standard bond paper, in three-ring binder, tabulated and divided into sections by tested and balanced systems.
- B. Include a certification sheet in front of binder signed and sealed by the certified testing and balancing engineer.
  - 1. Include a list of instruments used for procedures, along with proof of calibration.
- C. Final Report Contents: In addition to certified field report data, include the following:
  - 1. Manufacturers' test data.
  - 2. Field test reports prepared by system and equipment installers.
  - 3. Other information relative to equipment performance, but do not include Shop Drawings and Product Data.
- D. General Report Data: In addition to form titles and entries, include the following data in the final report, as applicable:

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1. Title page.
2. Name and address of TAB firm.
3. Project name.
4. Project location.
5. Architect's name and address.
6. Engineer's name and address.
7. Contractor's name and address.
8. Report date.
9. Signature of TAB firm who certifies the report.
10. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
11. Summary of contents including the following:
  - a. Indicated versus final performance.
  - b. Notable characteristics of systems.
  - c. Description of system operation sequence if it varies from the Contract Documents.
12. Nomenclature sheets for each item of equipment.
13. Data for terminal units, including manufacturer, type size, and fittings.
14. Notes to explain why certain final data in the body of reports varies from indicated values.

END OF SECTION 15950

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SECTION 16050-ELECTRICAL BASIC MATERIAL & METHODS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Furnish and install all electrical systems as shown and specified, including wiring and connections to certain equipment furnished by others and any work not specifically noted but that can be reasonably inferred or is necessary to provide a complete functional system.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Furnishing of motors, fans compressors, heaters and control included under Mechanical Work, Division 15.
- B. 16075 – ELECTRICAL IDENTIFICATION
- C. 16120 – CONDUITORS AND CABLES
- D. 16130 – RACEWAYS AND BOXES
- E. 16410 – ENCLOSED SWITCHES AND CIRCUIT BREAKERS

1.03 PRODUCT HANDLING

- A. Contractor shall be responsible for delivery, storage, protection and placing of all equipment and materials.
- B. Protection: Contractor shall protect from damage during construction, work and materials of other trades as well as electrical work and material. Electrical equipment stored and installed on job site shall be protected from dust, water, or any other damage.

1.04 RULES AND REGULATIONS

- A. All work and materials shall be in full accordance with the latest rules and regulations of California Code of Regulation, Title 24 California Building Standards Code, California Electrical Code, Local City and County Code, applicable regulations of local utility companies, EUSERC Standards, and General Order 95 of the Public Utilities Commission, and any other applicable laws or regulations.
- B. Nothing in these drawings or specifications is to be construed to permit work not conforming to the above codes.
- C. Drawings and/or specifications shall take precedence when work and material called for exceed code requirements.

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1.05 PERMITS, FEES AND INSPECTIONS

- A. Refer to General and Special Conditions for all permits and permit fee requirements. Inspections required by any local ordinances during construction shall be arranged by the Contractor. On completion of the work, furnish Engineer with certificates of inspections.

1.06 DRAWINGS AND SPECIFICATIONS

- A. Information presented in the specifications and on the drawings are as exact as could be secured but their extreme accuracy is not guaranteed. The Drawings and Specifications are for the assistance and guidance of the Contractor, and exact locations, distances, levels, etc., will be governed by the site and building, and the Contractor shall accept same with this understanding.
- B. The drawings indicate schematically the layouts of equipment, accessories and wiring systems and shall be followed as closely as possible. Other drawings and actual field conditions shall be examined, noting all conditions that may affect this work. Report conflicting conditions to the Engineer for adjustment before proceeding with work.
- C. Minor changes may be made, providing change is ordered before equipment and wiring systems or work directly connected to same is installed and no extra materials are required.

1.07 STRUCTURAL REQUIREMENTS

- A. Installation under this section shall comply with the Uniform Building Code. Obtain the Structural Engineer's approval before performing any cutting or patching of concrete, masonry, or wood structure in the building.

1.08 EXAMINATION OF SITE

- A. The Contractor shall be held to have visited the site, checked existing conditions, and satisfied himself as to the conditions under which the work is to be performed before submitting his bid. No allowances shall be made in his behalf for any extra expense to which he may be put due to failure or neglect to discover conditions affecting his work.

1.09 MATERIAL AND EQUIPMENT

- A. Unless otherwise noted, all material and equipment shall be new, of the type, capacity and quality specified and free from defects. Material shall bear the label of, or be listed by the Underwriters' Laboratories unless of a type for which label or listing service is not provided.
- B. Materials shall be of the same brand or manufacture throughout for each class of material or equipment wherever possible.

1.10 MATERIAL SUBSTITUTIONS

- A. Specific brand names mentioned shall establish standards of performance and quality and the phrase "or approved equal" shall be implied unless otherwise noted.

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- B. Substitute materials shall be equal in quality and utility to those specified. Approval of substitute material shall be regarded as general only and shall not relieve the Contractor from complying with the requirements of the Drawings and Specifications; the Contractor shall be responsible, at his own expense, for any damage caused by proposed substitutions which affect other parts of his own work or the work of other contractors.
- C. Only one proposed substitution will be considered for each item. No consideration will be given to substitutions past 35 day limit. Should the original submittal of a proposed substitution be rejected, the specified item shall be furnished.

1.11 SHOP DRAWINGS AND SUBMITTALS

- A. Within 15 calendar days, or per Division 1 schedule, if more restrictive, after award of the Contract, and before fabrication and installation of any material, submit for approval six copies of complete submittal data containing complete information and catalog cuts, shop drawings, and other data on all systems and equipment, including equipment which is to be furnished as specified. The submittal data shall be complete for the project and submitted at one time.
- B. Individual groups of submittal types must include a cover sheet with table of contents, identifying each item by the name or symbol used in the construction documents, if applicable; the manufacturer; and complete catalog number. Any item which is a substitute being submitted for consideration, shall be clearly marked as a substitute.
- C. All submittals shall be checked by the Contractor for conformance to the requirements of the Construction Documents before forwarding for approval. Contractor shall be responsible for all quantities and errors and omissions of submittals. Submittals for materials shall be accompanied with samples when requested.

1.12 WORKMANSHIP

- A. Good workmanship shall be evidenced in the installation of all electrical materials and equipment. Equipment shall be level, plumb and true with the structure and other equipment. All materials shall be firmly secured in place and adequately supported and permanent. The requirements of the codes are minimum standards. The recommendations of the National Electrical Contractors Association Standard of Installation shall be followed except where otherwise specifically directed.

1.13 CLEANING

- A. After all other work such as plastering, painting, etc., has been accomplished, lighting fixtures, panelboards, switchboards, and all other electrical equipment shall be cleaned of all dirt, grease, plaster, paint or other marks.

1.14 ELECTRICAL WORK FOR EQUIPMENT PROVIDED BY OTHERS



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- A. Provide all necessary electrical connections to all equipment provided by others. Obtain specific power and control wiring requirements and connection points from others to perform electrical work. Contractor shall assist in testing equipment but responsibility is limited to correctly installing electrical wiring and connections.
- B. All control wiring for mechanical space conditioning and ventilation equipment, both line and low voltage, shall be provided in the mechanical work, except for line voltage control wiring for exhaust fan switches which shall be in the electrical work. All disconnect switches shall be provided by electrical contractor. All motor starters not provided by mechanical contractor shall be furnished and installed by electrical contractor.

1.15 MANUFACTURER'S DIRECTIONS

- A. Follow manufacturer's directions where these directions cover points not included on the Drawings or in the Specifications.

1.16 MISCELLANEOUS EQUIPMENT

- A. This Contractor shall provide all conduit, conductors, disconnects, and connections for power and controls for equipment requiring electrical services.

1.17 MANUALS

- A. In addition to the catalog data and shop drawing submitted for review as required hereinbefore, the Contractor shall furnish to the Engineer three (3) final corrected sets of all data applicable to the equipment furnished.
  - 1. Each set of data per system shall be bound in one or more volumes. A top quality three-ring binder with vinyl or hard cover will be acceptable in lieu of binding; however, all insert data must be properly punched and reinforced.
  - 2. Identification information shall include the building name, address and location, system or systems included and titled "Maintenance Manual".
  - 3. All data shall be assembled in an orderly sequence with tabbed dividers to correspond with the table of contents.
  - 4. Manufacturer's catalog data, shop drawings, etc., shall be marked clearly to identify the items applicable only to this project.
  - 5. Make and model numbers of each items installed shall be marked clearly in catalog data and identified with symbols used on the Drawings. Complete data shall be provided on all major items to include: panelboards, switchboards, transformers, lighting fixtures, generators, transfer switches, day tanks, and fire and security alarm system.
  - 6. Provide a certification letter. All electronically controlled equipment shall be certified by the manufacturer to be year 2000 compliant.
  - 7. Submit copy to Engineer for review before delivery to Owner.

1.18 GUARANTEE

- A. Guarantee all electrical work and equipment to be free from defects in workmanship and material for a period of one (1) year from date of final completion. Promptly replace or

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repair such defects and any damage to property done during repair work at no expense to the Owner. Any warranties, or certificates available for equipment installed, shall be filed at date of acceptance and delivered to Engineer.

1.19 RECORD DRAWINGS

- A. The Contractor shall furnish one set of clean "record" marked blue line prints to the Engineer at completion showing clearly any changes made during construction. Prints shall be kept at the job-site by the contractor and shall be updated daily. Prints kept for this purpose shall not be used for any other purpose.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Unless otherwise noted, all material and equipment shall be new, of the type, capacity and quality specified and free from defects. Material shall bear the label of, or be listed by, the Underwriters' Laboratories unless of a type for which label or listing service is not provided.
- B. Materials shall be of the same brand or manufacture throughout for each class of material or equipment wherever possible.
- C. Equipment shall be the product of a manufacturer who has, for a period of not less than five (5) years, been in successful manufacture of the equipment and who has a nationally distributed catalog covering ratings and specifications of said equipment.

2.02 FINISH MATERIAL

- A. Plates: Shall be "Smooth Line" 0.040" satin stainless steel for flush wall devices, weatherproof series for damp and outdoor locations and zinc-plated steel for surface installation.
- B. Wall Switches: Heavy duty, quiet type, rated 20 amperes at 277 volts AC. Gray or color selected by Engineer.

<u>Manufacturer</u>	<u>Single Pole</u>	<u>3-Way</u>
Pass & Seymour	20AC1	20AC3
General Electric	5951	5953
Hubbell	1221	1223
Leviton	1221	1223

- C. Pilot Light: General Electric #GE4218-0 or #GE4219-0, Arrow Hart #1710-Red or #1722-Red, mounted alongside switch with common two gang plate.
- D. Receptacles: Rated 20 amperes at 125 volts, double sided contact, back side wired. Gray, or color as selected by Engineer.

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<u>Manufacturer</u>	<u>Duplex 3-Wire Grounding</u>
Pass & Seymour	5362
Hubbell	5352
Leviton	5362

- E. Refer to drawings for special outlets.

2.03 DISCONNECT SWITCHES

- A. Refer to Section 16410.
- B. Provide auxiliary contacts for disconnect switches where required.
1. Provide auxiliary contacts for all disconnect switches fed from a variable frequency drive or adjustable frequency drive. The auxiliary switch shall be arranged to operate before the main switch contacts and shall be connected to the VFD controls to shut down the VFD before the switch opens. Provide ½”C, 2#12 between disconnect unit and VFD unit.

2.04 MANUAL MOTOR STARTERS

- A. Manual Motor Starter, Cutler Hammer MD Series or GE CR Series with adjustable overload protection, pilot light and enclosure. For use with fractional motor sizes, ¾” HP and smaller for non-automated, manual applications only.
- B. Manual/Auto Starters, Cutler Hammer Freedom Series or GE CR Series NEMA rated contactors with overload protection, three position “Hand-Off-Auto” switch, one (1) N.O. and one (1) N.C. auxiliary contacts, pilot light and enclosure.
- C. Overload size and class of trip, 10, 20 or 30, shall be as specified by the motor manufacture and/or as required by the application.

2.05 FIRE STOPPING

- A. Fire stopping shall be: Nelson; MCT, MPS, EMCT, FSP putty, CLK sealant, CMP compound, PLW pillow, or equivalent products by Chase Technology and Dow Corning.

2.06 FUSES

- A. Current limiting non-renewal rejection type, Buss or Gould Shawmut fuses as indicated on Drawings, or as recommended by Equipment Manufacturer of equipment being protected. Provide 100 percent spare fuses, for each size and class of fuse to Owner.

2.07 CONTACTORS, RELAYS, TIME SWITCHES, PHOTOCELLS, AND EQUIPMENT MODIFICATIONS.

- A. Shall be as shown on Drawings.

### PART 3 - EXECUTION

#### 3.01 COOPERATION

- A. Coordinate work with that of all contractors on the job for an efficient and effective completion of the project. Refer to the contract documents of other trades for construction details.

#### 3.02 WORKING SPACE

- A. Adequate working space shall be provided around electrical equipment in strict compliance with the Electrical Safety Orders. In general provide six and one-half feet (6'-6") of headroom and thirty-six inches (36") minimum clear work space in front of panelboards and controls for 120/208 volt equipment, and forty two inches (42") for 277/480 volt equipment.

#### 3.03 FLASHING AND SEALING

- A. Flash and counterflash roof and wall penetrations with galvanized sheet metal roof jacks with lead collars and lead counterflashing and as approved by the Engineer. Conduits, ducts, etc., passing through finished walls shall be fitted with steel escutcheon plates, chrome or paint finish as directed. Conduits which penetrate floor slabs and concrete or masonry walls shall be grouted and sealed watertight at penetration.

#### 3.04 FIRE STOPPING AND FIRE RATED PENETRATION

- A. Maintain fire rating of all fire rated walls, ceilings, floors, roof, etc. Use UL listed product, suitable for the application. Installation shall also maintain watertight integrity through all penetrations where water may be present. Install in accordance with manufacturer's recommendations and within UL Listing installation requirements.

#### 3.05 GROUNDING AND BONDING

- A. Provide grounding and bonding for all electrical equipment in accordance with the applicable codes, rules and regulations. Permanently and effectively ground all raceway systems, supports, cabinets, panels, motor frames, lighting fixtures, grounding type receptacles and utilization apparatus. Obtain good contact between conduit, tubing and fittings, cabinets, outlet boxes, and equipment.
- B. Provide bonding conductor inside flexible metal conduit. All non-metallic raceways exclusive of telephone shall contain a bonding conductor properly bonded to equipment at either end and to metallic portions of the same raceway.

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3.06 TESTS

- A. Test all wiring and connections for continuity and grounds before any fixtures or equipment are connected and where such tests indicate faulty insulation or other defects, they shall be located, repaired and tested again at the Contractor's expense. Electrical loads shall be balanced at the panelboards and motors shall be checked for correct rotation.

3.07 EQUIPMENT MOUNTING

- A. Equipment, straps, boxes, etc., when anchored to masonry and concrete surfaces, shall be anchored with wedge type anchors, Red Head, Wej-It, or equal, in accordance with Structural Engineer's approval or supplementary instructions. Submit and obtain Structural Engineer's approval for mounting of RACEWAY, EQUIPMENT, or SYSTEMS over 40 pounds.

END OF SECTION

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SECTION 16075 - ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
  - 1. Identification for conductors and communication and control cable.
  - 2. Warning labels and signs.
  - 3. Equipment identification labels.

1.2 SUBMITTALS

- A. Product Data: For each electrical identification product indicated.

1.3 QUALITY ASSURANCE

- A. Comply with ANSI A13.1.

1.4 COORDINATION

- A. Coordinate identification names, abbreviations, colors, and other features with requirements in the Contract Documents, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual, and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

PART 2 - PRODUCTS

2.1 CONDUCTOR AND COMMUNICATION- AND CONTROL-CABLE IDENTIFICATION MATERIALS

- A. Marker Tape: Vinyl or vinyl -cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

2.2 WARNING LABELS AND SIGNS

- A. Comply with NFPA 70 and 29 CFR 1910.145.
- B. Self-Adhesive Warning Labels: Factory printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment, unless otherwise indicated.
- C. Baked-Enamel Warning Signs: Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application. 1/4-inch grommets in corners for mounting. Nominal size, 7 by 10 inches.

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- D. Metal-Backed, Butyrate Warning Signs: Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized-steel backing; and with colors, legend, and size required for application. 1/4-inch grommets in corners for mounting. Nominal size, 10 by 14 inches.
- E. Fasteners for Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.
- F. Warning label and sign shall include, but are not limited to, the following legends:
  - 1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
  - 2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

### 2.3 EQUIPMENT IDENTIFICATION LABELS

- A. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and ultraviolet-resistant seal for label.
- B. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

## PART 3 - EXECUTION

### 3.1 APPLICATION

- A. Auxiliary Electrical Systems Conductor and Cable Identification: Use marker tape to identify field-installed alarm, control, signal, sound, intercommunications, voice, and data wiring connections.
  - 1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and cable pull points. Identify by system and circuit designation.
  - 2. Use system of designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
- B. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Comply with 29 CFR 1910.145 and apply self-adhesive warning labels. Identify system voltage with black letters on an orange background. Apply to exterior of door, cover, or other access.
  - 1. Equipment with Multiple Power or Control Sources: Apply to door or cover of equipment including, but not limited to, the following:
    - a. Power transfer switches.
    - b. Controls with external control power connections.
  - 2. Equipment Requiring Workspace Clearance According to NFPA 70: Unless otherwise indicated, apply to door or cover of equipment but not on flush panelboards and similar equipment in finished spaces.

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- C. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.
1. Labeling Instructions:
    - a. Indoor Equipment: Adhesive film label with clear protective overlay. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where 2 lines of text are required, use labels 2 inches high.
    - b. Outdoor Equipment: Engraved, laminated acrylic or melamine label, drilled for screw attachment.
    - c. Elevated Components: Increase sizes of labels and legend to those appropriate for viewing from the floor.
  2. Equipment to Be Labeled:
    - a. Panelboards, electrical cabinets, and enclosures.
    - b. Electrical switchgear and switchboards.
    - c. Transformers.
    - d. Motor-control centers.
    - e. Disconnect switches.
    - f. Enclosed circuit breakers.
    - g. Motor starters.
    - h. Push-button stations.
    - i. Power transfer equipment.
    - j. Contactors.

### 3.2 INSTALLATION

- A. Verify identity of each item before installing identification products.
- B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- C. Apply identification devices to surfaces that require finish after completing finish work.
- D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
- E. Attach nonadhesive signs and plastic labels with screws and auxiliary hardware appropriate to the location and substrate.
- F. Color-Coding for Phase and Voltage Level Identification, 600 V and Less: Use the colors listed below for ungrounded branch-circuit service, feeder, and branch-circuit conductors.
  1. Color shall be factory applied.
  2. Colors for 208/120-V Circuits:



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- a. Phase A: Black.
  - b. Phase B: Red.
  - c. Phase C: Blue.
3. Colors for 480/277-V Circuits:
- a. Phase A: Brown.
  - b. Phase B: Orange.
  - c. Phase C: Yellow.

END OF SECTION 16075

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SECTION 16120 - CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
  - 1. Building wires and cables rated 600 V and less.
  - 2. Connectors, splices, and terminations rated 600 V and less.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field quality-control test reports.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

- A. Copper Conductors: Comply with NEMA WC 70.
- B. Conductor Insulation: Comply with NEMA WC 70 for Types THHN-THWN.

2.2 CONNECTORS AND SPLICES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. AFC Cable Systems, Inc.
  - 2. Hubbell Power Systems, Inc.
  - 3. O-Z/Gedney; EGS Electrical Group LLC.
  - 4. 3M; Electrical Products Division.
  - 5. Tyco Electronics Corp.
- C. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

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2.3 SLEEVES FOR CABLES

- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.
- B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
- C. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 7 Section "Through-Penetration Firestop Systems."

2.4 SLEEVE SEALS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- C. Basis-of-Design Product: Subject to compliance with requirements, provide or a comparable product by one of the following:
  - 1. Advance Products & Systems, Inc.
  - 2. Calpico, Inc.
  - 3. Metraflex Co.
  - 4. Pipeline Seal and Insulator, Inc.
- D. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and cable.
  - 1. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
  - 2. Pressure Plates: Plastic. Include two for each sealing element.
  - 3. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper. Stranded for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Branch Circuits: Copper. Stranded for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

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3.2 INSTALLATION OF CONDUCTORS AND CABLES

- A. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- B. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.
- C. Identify and color-code conductors and cables according to Division 16 Section "Electrical Identification."
- D. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
- E. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
  - 1. Use oxide inhibitor in each splice and tap conductor for aluminum conductors.

END OF SECTION 16120

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SECTION 16130 - RACEWAYS AND BOXES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

1.2 SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
- B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, details, and attachments to other work.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

- A. Rigid Steel Conduit: ANSI C80.1.
- B. IMC: ANSI C80.6.
- C. EMT: ANSI C80.3.
- D. FMC: Zinc-coated steel.
- E. LFMC: Flexible steel conduit with PVC jacket.
- F. Fittings for Conduit (Including all Types and Flexible and Liquidtight) and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.
  - 1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886.

2.2 BOXES, ENCLOSURES, AND CABINETS

- A. Sheet Metal Outlet and Device Boxes: NEMA OS 1.
- B. Cast-Metal Outlet and Device Boxes: NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.

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- C. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- D. Cast-Metal Access, Pull, and Junction Boxes: NEMA FB 1, cast aluminum with gasketed cover.
- E. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous-hinge cover with flush latch, unless otherwise indicated.
  - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
- F. Cabinets:
  - 1. NEMA 250, Type 1, galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
  - 2. Hinged door in front cover with flush latch and concealed hinge.
  - 3. Key latch to match panelboards.
  - 4. Metal barriers to separate wiring of different systems and voltage.
  - 5. Accessory feet where required for freestanding equipment.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Comply with the following indoor applications, unless otherwise indicated:
  - 1. Basement and exterior Areas: Rigid steel conduit.
  - 2. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated. Compression fittings are not acceptable

3.2 INSTALLATION

- A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.
- B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- C. Complete raceway installation before starting conductor installation.
- D. Support raceways.
- E. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.
- F. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:
  - 1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.

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2. Where otherwise required by NFPA 70.
- G. Flexible Conduit Connections: Use maximum of 72 inches of flexible conduit for equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
1. Use LFMC in damp or wet locations subject to severe physical damage.
  2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.

END OF SECTION 16130

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SECTION 16410 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following individually mounted, enclosed switches and circuit breakers:
  - 1. Fusible switches.
  - 2. Nonfusible switches.
  - 3. Molded-case circuit breakers.
  - 4. Enclosures.

1.2 SUBMITTALS

- A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated.
- B. Shop Drawings: Diagram power, signal, and control wiring.
- C. Field quality-control test reports.
- D. Operation and maintenance data.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to:
    - a. Square D
    - b. Cutler Hammer (Eaton)
    - c. General Electric



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2.2 FUSIBLE AND NONFUSIBLE SWITCHES

- A. Manufacturers:
1. Eaton Corporation; Cutler-Hammer Products.
  2. General Electric Co.; Electrical Distribution & Control Division.
  3. Siemens Energy & Automation, Inc.
  4. Square D/Group Schneider.
- B. Fusible Switch, 600A and Smaller: NEMA KS 1, Type HD, with clips or bolt pads to accommodate specified fuses, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position. Fuse per equipment nameplate and equipment manufacturers recommendations.
- C. Fusible Switch, 800A and Larger: NEMA KS 1, Type HD, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position. With clips or bolt pads to accommodate specified fuses GE Series TC 72367-NEMA 12, Eaton Series DH 367 FDK or Equal.
- D. Accessories:
1. Equipment Ground Kit: Internally mounted and labeled for copper ground conductors.
  2. Neutral Kit: Internally mounted; insulated, capable of being grounded, and bonded; and labeled for copper and aluminum neutral conductors.
  3. Auxiliary Contact Kit: Auxiliary set of contacts arranged to open before switch blades open, where required by variable frequency drive application, or other control requirements.

2.3 MOLDED-CASE CIRCUIT BREAKERS AND SWITCHES

- A. Manufacturers:
1. Square D/Group Schneider.
  2. Eaton Corporation; Cutler-Hammer Products.
  3. General Electric Co.; Electrical Distribution & Control Division.
- B. Molded-Case Circuit Breaker: NEMA AB 1, with interrupting capacity to meet available fault currents.
1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
  2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
  3. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller and let-through ratings less than NEMA FU 1, RK-5.
  4. GFCI Circuit Breakers: Single- and two-pole configurations with 5-mA trip sensitivity.

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C. Molded-Case Circuit-Breaker Features and Accessories:

1. Standard frame sizes, trip ratings, and number of poles.
2. Lugs: Mechanical style with compression lug kits suitable for number, size, trip ratings, and conductor material.
3. Application Listing: Type SWD for switching fluorescent lighting loads; Type HACR for heating, air-conditioning, and refrigerating equipment.
4. Ground-Fault Protection: Integrally mounted trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
5. Shunt Trip: 120-V trip coil energized from separate circuit.

2.4 ENCLOSURES

A. NEMA AB 1 and NEMA KS 1 to meet environmental conditions of installed location.

1. Outdoor Locations: NEMA 250, Type 3R.
2. Kitchen Areas: NEMA 250, Type 4X, stainless steel.
3. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Coordinate size and location of concrete bases. Verify structural requirements with structural engineer.
- B. Concrete base is specified in Division 16 Section "Basic Electrical Materials and Methods Electrical Supports and Seismic Restraints," and concrete materials and installation requirements are specified in Division 3.
- C. Comply with applicable portions of NECA 1, NEMA PB 1.1, and NEMA PB 2.1 for installation of enclosed switches and circuit breakers.
- D. Mount individual wall-mounting switches and circuit breakers with tops at uniform height, unless otherwise indicated. Anchor floor-mounting switches to concrete base.
- E. Comply with mounting and anchoring requirements specified in Division 16 Section "Seismic Controls for Electrical Work Electrical Supports and Seismic Restraints."
- F. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.
- G. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 16 Section "Electrical Identification."

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3.2 FIELD QUALITY CONTROL

A. Prepare for acceptance testing as follows:

1. Inspect mechanical and electrical connections.
2. Verify switch and relay type and labeling verification.
3. Verify rating of installed fuses.

B. Perform the following field tests and inspections and prepare test reports:

1. Perform each electrical test and visual and mechanical inspection stated in NETA ATS, Section 7.5 for switches and Section 7.6 for molded-case circuit breakers. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

END OF SECTION 16410