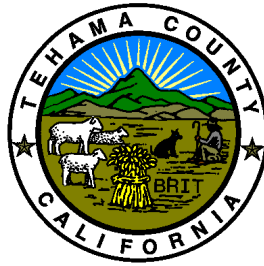


BID PACKET COUNTY OF TEHAMA



MORGUE HVAC UPGRADE PROJECT

BIDS DUE ON OR BEFORE:

3:00 P.M.

Thursday, July 9, 2026

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Board of Supervisors
COUNTY OF TEHAMA

Gabriel Hydrick
Chief Administrator

District 1 – Rob Burroughs
District 2 – Tom Walker
District 3 – Steve Zane
District 4 – Matt Hansen
District 5 – Greg Jones



NOTICE TO CONTRACTORS

NOTICE IS HEREBY GIVEN that the Board of Supervisors of the County of Tehama, will receive bids for the **“MORGUE HVAC UPGRADE PROJECT”**.

Bids shall be submitted on forms included in the Bid Packet. Copies of the Bid Packet and the drawings may be obtained from Tehama County Administration, 727 Oak Street, Red Bluff, CA 96080, (530) 527-4655, Attn: Tom Provine.

Copies are on file and open to public inspection at Tehama County Administration at the above address. Bid documents can also be examined at area Builders Exchanges and on the County website at www.tehama.gov under “Bidding Opportunities”.

Bids must be received at Tehama County Administration, 727 Oak Street, Room #202, Red Bluff, CA 96080 not later than **3:00 P.M. on July 9, 2026**, at which time the Project Coordinator will open said bids. Bids shall be submitted in sealed envelopes and marked in the upper left hand corner, “MORGUE HVAC UPGRADE PROJECT,” together with the name and address of the bidder. The bids will be opened and read publicly and bidders or their agents are invited to be present.

There will be a mandatory pre-bid walk-thru on Thursday, June 25, 2026 at 8:30 a.m., on site, at 22840 Antelope Blvd, Red Bluff, California.

Pursuant to Section 1770 and following of the Labor Code, the Contractor for the work will be required to pay, at least, the general prevailing wage rates as determined by the Director of the Department of Industrial Relations of the State of California. Questions or wage rates pertaining to the general prevailing wage should be directed to the Division of Labor Statistics and Research, P.O. Box 420603, San Francisco, CA 94142-0603 or <http://www.dir.ca.gov/DLSR/PWD/TEH.xls>

Bid bond, labor and material bond and performance bonds are required. The County reserves the right to reject any and all bids and waive any informalities or irregularities in the bidding. Each bidder must be appropriately licensed in the State of California and registered with the Department of Industrial Relations for this project as required by law.

ADMINISTRATIVE SERVICES DIRECTOR,
TOM PROVINE

By Tom Provine

Publish in the Red Bluff Daily News on June 26, 2026, and July 3, 2026. Send proof of publication and invoice to: Tehama County Administration, 727 Oak Street, Red Bluff, CA 96080. Prior to publication, please fax proof to 527-3764, Attn: Arminda Searcy

PROJECT DESCRIPTION MORGUE HVAC UPGRADE PROJECT

All labor and material required to upgrade the morgue HVAC located at the Tehama County Sheriff's Office, 22840 Antelope Blvd, Red Bluff, CA 96080. The scope of work for this project includes new ventilation systems for the morgue at the Tehama County Sheriff's Office. The project includes a 100% outdoor air system for makeup air. An existing exhaust system will remain in operation and be rebalanced to achieve pressure relationships. The project includes new room pressure monitoring controls.

This is only a summary. See entire project documents for full scope of the project.

BIDDING REQUIREMENT SUMMARY

1. PROJECT TITLE: Morgue HVAC Upgrade Project
2. PROJECT LOCATION: 22840 Antelope Blvd
Red Bluff, CA 96080
3. BID OPENING DATE: July 9, 2026, at 3:00 p.m.
4. BID PLACE: Tehama County Administration
727 Oak Street, Room #202
Red Bluff, CA 96080
5. MANDATORY PRE BID MEETING: None
6. BID SECURITY: 10% of maximum amount of bid
7. CONSTRUCTION TIME PERIOD: 10 Working days
8. LICENSE REQUIREMENTS: Class B or C-20
9. LIQUIDATED DAMAGES: \$250 per day
10. LABOR AND MATERIALS PAYMENT BOND: No
11. PERFORMANCE BOND: 100% of the total bid
12. PREVAILING WAGE RATES: Yes
13. BID VALID FOR: 60 Days
14. ESTIMATE OF CONSTRUCTION COSTS: \$180,000
15. BUILDERS EXCHANGES ISSUED CONSTRUCTION DOCUMENTS:

Shasta Builders Exchange
5800 Airport Road
Redding, CA 96002
(530) 221-5556
(530) 221-2140 FAX

Valley Contractors Exchange
951 East 8th Street
Chico, CA 95928
(530) 343-1981
(530) 343-3503 FAX

Sacramento Builders Exchange
1331 T Street
Sacramento, CA 95814
(916) 442-8991
(916) 446-3117 FAX

Reed Construction Data
leah.dearce@cmdgroup.com
(770) 209-3396
(678) 680-0698

INSTRUCTIONS TO BIDDERS
COUNTY OF TEHAMA

Bid Proposal

Each bid shall be made on the proposal form furnished by the County, and shall be in accordance with the Drawings, Specifications, any Addenda issued prior to bid opening, and all other Contract Documents; and shall be accompanied by a certified check, cashier's check or original bidders bond, payable to the County, for a sum of not less than ten (10%) percent of the amount of the bid, as a guarantee that the bidder will enter into the Contract for the work, the full amount of such guarantee to be forfeited to the County should said bidder fail to enter into said Contract. The successful bidder shall be required to furnish a Faithful Performance Bond for the amount of not less than one hundred percent (100%) of the contract price, and a Labor and Materials Bond for the amount of not less than one hundred percent (100%) of the contract price; said bonds to be secured from a surety company authorized to do business in the State of California.

The proposal shall be made on the form bound herein. The bid shall be enclosed in a sealed opaque envelope bearing the name of the bidder and name of project. The proposal shall be delivered by the time and to the place stipulated in the Notice To Contractors. It is the bidder's sole responsibility to see that his proposal is received in proper time. Any proposal received after the scheduled closing time for receipt of proposals will be returned to the bidder unopened. Prior to the time fixed for bid opening the proposal may be withdrawn by the bidder by means of a written request, signed by the bidder or his properly authorized representative. Such written request must be delivered to the place stipulated in the Notice To Contractors for receipt of proposals.

The proposals will be publicly opened and read at the time and place stipulated in the Notice To Contractors.

Unauthorized conditions, limitations, or provisions attached to a proposal will render it informal and may cause its rejection. The completed proposal forms shall be without interlineation, alterations, or erasures. Alternative proposals will not be considered unless called for. Oral, telegraphic, or telephonic proposals or modifications will not be considered.

All items on the bid form shall be filled out; numbers shall be filled out; numbers shall be stated both in writing and in figures; words shall be given priority over figures and the signatures of all individuals shall be in longhand. In the event there is more than one (1) bid item in the bidding schedule, the bidder shall furnish a price for all bid items in the schedule, and failure to do so will render the proposal informal and may cause its rejection. In the event there are unit price bid items in the bidding schedule and the amount indicated for a unit price bid item does not equal the product of the unit price and quantity, the unit price shall govern and the amount will be corrected accordingly. In the event there is more than one (1) bid item in the bidding schedule and the total indicated for the schedule does not agree with the sum of the prices bid on the individual items, the prices bid on the individual items shall govern and the total for the schedule will be corrected accordingly.

In case of refusal or failure to enter into said Contract, the check or bond, as the case may be, shall be forfeited to the County. If the bidder elects to furnish a bid bond as the proposal guarantee, he shall use the bid bond form bound herein.

Before submitting a proposal, the bidder shall carefully examine the Drawings, Specifications, any Addenda issued prior to bid opening, and all other Contract Documents; and he shall visit the site of the Work. It will be assumed that the bidder is familiar with existing site conditions and that he has a clear understanding of the requirements of the Contract regarding the furnishing of materials and performance of work. Should a bidder find discrepancies in, or omissions from, the Drawings, Specifications, or Contract Documents, or should he be in doubt as to their meaning, he should at once notify the Tehama County Administration, who will send written instructions or clarifications to all bidders. The County will not be responsible for any oral instructions.

Every bidder shall, in his bid, set forth the name and location of business of each subcontractor who will perform work, labor or service to the bidder in excess of one-half of one percent (1/2%) of the bidder's total bid. If the bidder fails to specify a subcontractor as stated above, he agrees to perform that portion himself. The successful bidder shall not, without the consent of the County, substitute any person or firm as subcontractor in place of the subcontractor designated in the original bid.

Every bidder shall submit a completed Non-Collusion Affidavit with the bid.

Bid Review

No bid proposal shall be considered as low bidder or apparent low bidder until after all bids have been analyzed by the County. If required by the County, the bidders shall submit any information requested to evaluate the bids, including subcontractors' written bids, bonds, cost breakdowns, financial status, work experience and status of license.

Bid Selection

Contract for work will be executed with a contractor who is licensed in accordance with applicable state law.

A bidder may be relieved of his bid, and his bid security returned, by action of the Board of Supervisors provided he has given the County written notice within five (5) days after the opening of bids of a mistake, or other cause for the request, and specifying in detail the reason for the request.

More than one (1) proposal from an individual, partnership, corporation or association under the same or different names will not be considered. Reasonable grounds for believing that any bidder is interested in more than one (1) proposal for the work contemplated will cause the rejection of all proposals in which such bidder is interested. If there is reason for believing that collusion exists among the bidders, all bids will be rejected and none of the participants in such collusion will be considered in future proposals.

Upon request, the County will return all proposal guarantees to their respective bidder within ten (10) days after award of the Contract, except those accompanying proposals submitted by the three (3) lowest responsible bidders.

Bid Award

Award of a Contract, if awarded, will be made to the lowest responsible bidder whose proposal complies with all the requirements prescribed. Any such award will be made within sixty (60) calendar days after opening of the proposals. The County reserves the right to reject any or all bids, to waive any informality or irregularity in a bid, and to make award in the interests of the County.

The bidder to whom award is made shall execute a written Contract with the County on the form of agreement provided, and shall secure all insurance and bonds required by the Specifications.

Failure or refusal to enter into a contract within ten (10) days as herein provided, or to conform to any of the stipulated requirements in connection therewith, shall be just cause for annulment of the award and the forfeiture of the proposal guarantee. If the successful bidder refuses or fails to execute the Contract, the County may award the Contract to the second lowest responsible bidder. If the second bidder refuses or fails to execute the Contract, the County may award the Contract to the third lowest responsible bidder. On the failure or refusal of such second or third lowest bidder to execute the Contract, such bidder's guarantees shall be likewise forfeited to the County.

Addenda

Any Addenda issued during the time of bidding, or forming a part of the Documents issued to the bidder for the preparation of his bid, shall be covered in the bid and shall be made a part of the Contract. Receipt of all addenda shall be acknowledged on the proposal form in the space provided therefore.

Time of Completion and Liquidated Damages

The contractor shall commence work within ten (10) working days from the date of a written "Notice to Proceed" issued by the County and shall diligently prosecute same to completion before the expiration of ten (10) working days.

It is agreed by the parties to the Contract that in case all the Work called for under the Contract is not completed within the number of days specified, damage will be sustained by the County of Tehama; and that it will be impractical to ascertain actual damages and it is therefore agreed the Contractor will pay to the County the sum set forth herein per day for each working day delay in completing the Work in excess of the number of days prescribed; and the Contractor agrees to pay said liquidated damages and agrees that the County may deduct the amount thereof from money due or that may become due to the Contractor under the Contract.

The Contractor shall pay to the County of Tehama the sum of two hundred fifty dollars (\$250.00) for each and every working days delay in finishing the work in excess of the number of days prescribed above.

Form of Agreement

The form of agreement, which the successful bidder will be required to execute, if awarded the work, is attached hereto and is made a part hereof.

Wages

The attention of the bidder is called to the fact that the schedule of prevailing rates of pay for each craft or type of workman needed to execute the Work shall not be less than the minimum rates of pay as established in pursuance of the provisions of Section 1773 of the Labor Code of the State of California, which Code requires the establishing of such rates for the locality. The Code reads: "Nothing shall prohibit the payment of more than the general prevailing rate of wages to any workman employed on public work".

A copy of the current prevailing wage rates for this locality is available from the Department of Industrial Relations and the Tehama County Department of Public Works.

All bidders shall check the available source of labor supply and obtain information with reference to the working days of various crafts and the rates of wages being paid in the immediate vicinity of the place where the Work contemplated by these Specifications is to be performed.

It is intended that prevailing rates of wages and working hours shall be in accordance with those established by jurisdictional authorities of the vicinity in which the Work is to be performed. If rates established are in excess of those prevailing, the prevailing rates shall govern, but in no instance shall the County be held responsible for rates of wages paid which are below those prevailing.

Withheld Contract Funds/Substitution of Securities

The successful bidder shall be permitted to substitute securities for any moneys withheld by the County to ensure performance under the executed Contract. At the request and expense of the successful bidder, securities equivalent to the amount to be withheld shall be deposited with the County, or with a state or federally chartered bank in California as escrow agent, to ensure performance under the Contract. Upon satisfactory completion of the Contract, unused securities shall be returned to the Contractor.

Alternately, on written request of the successful bidder, the County shall make payments of the retention earnings directly to an escrow agent at the expense of the successful bidder. The successful bidder, at his expense, may direct the investment of the payments into securities and the successful bidder shall receive the interest earned on the investments on the same terms provided for securities deposited by contract. Upon satisfactory completion of the Contract, the successful bidder shall receive from the escrow agent all unused securities, interest and payments received by the escrow agent from the County.

Securities eligible for deposit shall include those listed in Section 16430 of the Government Code, 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 successful bidder and the County. The successful bidder shall be the beneficial owner of any securities substituted for moneys to be withheld, and shall receive any interest accrued upon the unused amount.

If security is deposited with a state or federally chartered bank as Escrow Agent, it is agreed that the successful bidder and the County will enter into an escrow agreement

with the Escrow Agency in form substantially similar to that which is on file with the County and available for review.

Debarment Policy

It shall be the policy of the Tehama County Board of Supervisors to prohibit any party or entity listed in the Excluded Parties System (EPLS), maintained by the General Services Agency of the United States Government, from participating in any contract, agreement, or other business relationship with Tehama County.

Non-resident Contractor

The State of California Franchise Tax Board requires that whenever payments are made to a non-resident, independent contractor in excess of \$1,500 for services rendered, 7.5% of the gross amount must be withheld. A non-resident is anyone who is not a resident of California. A corporation is also subject to the withholding requirements if it is neither incorporated nor qualified to do business in the State of California. Unless the Franchise Tax Board has authorized a reduced rate or waiver of withholding and County is provided evidence of such reduction/waiver, all nonresident contractors will be subject to the withholding. It is the responsibility of the Contractor to submit the Waiver Request (Form 588) to the Franchise Tax Board as soon as possible in order to allow time for the Franchise Tax Board to review the request.

Public Works Contractor Registration Program

No contractor or subcontractor may be listed on a bid proposal or awarded a contract for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 with exceptions from this requirement specified under Labor Code sections 1725.5(f), 1771.1(a) and 1771.1(n).

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

License

The Contractor and all subcontractors must be licensed under the laws of the State of California at the time this Contract is awarded, and for its full duration. The Contractor shall possess a class B or C-20 License.

PROPOSAL BID FORMS

COUNTY OF TEHAMA

Board of Supervisors
County of Tehama
Red Bluff, CA

Board Members:

The undersigned bidder, _____
in accordance with the Notice to Contractors, hereby proposes and agrees to
furnish any and all services necessary to perform all Work required by the
Contract Documents for the:

MORGUE HVAC UPGRADE PROJECT

including, but not limited to, furnishing all required labor, materials, taxes,
permits, insurance, bonds, transportation, scaffolding, equipment, facilities,
utilities, and incidentals.

If awarded the Contract, the undersigned hereby agrees that within ten (10)
working days after receipt of the Contract from the County, he will sign the
Contract in the required form, of which the Notice to Contractors, Instructions to
Bidders, Proposal, Bid Forms, Bonds, General and Supplementary Conditions,
Drawings, Specifications, and all Addenda issued prior to the opening of bids, are
a part.

The undersigned agrees to complete all work required under the Contract within
10 working days and accept in full payment the price named in the Bid Proposal,
which is bound herein and made a part of this proposal.

The undersigned declares that he has carefully checked all of the figures
submitted on the Bid Forms and understands that the County will not be
responsible for errors or omissions on the part of the undersigned in making up
this bid.

Bidder hereby certifies that the Bidder has reviewed and understands the insurance coverage requirements and bonding requirements, as specified in the General Conditions, Article 5 – Bonds and Insurance. Should the Bidder be awarded the contract for the work, Bidder further certifies that the Bidder can meet the specified requirements for bonding and insurance, including insurance coverage of the subcontractors, and agrees to name the County of Tehama, its elected officials, officers, and employees as additional insured for the work specified. The undersigned agrees to secure the required insurance and bonds and submit them prior to or concurrent with the return of the signed Contract.

Accompanying this proposal is a "Cashier's Check", "Certified Check" or "Bidder's Bond", as the case may be, in an amount equal to at least ten percent (10%) of the total of the bid.

Name (print)

Representing (Firm)

Signature

Title

Business Address

Taxpayer I.D. No. _____

Contractor's License No. _____

Department of Industrial Relations (DIR) Registration No. _____

Receipt of the following Addenda is hereby acknowledged:

Addendum No. _____ Bidder's Initials _____

Addendum No. _____ Bidder's Initials _____

Addendum No. _____ Bidder's Initials _____

PROPOSAL FOR
MORGUE HVAC UPGRADE PROJECT

The undersigned bidder hereby proposes and agrees to furnish any and all services necessary to perform all Work required by the Contract Documents:

Bid:

Furnish all labor, materials, taxes, insurance, bonds, transportation, equipment, facilities, utilities, and incidentals for the "MORGUE HVAC UPGRADE PROJECT" for the sum as listed below.

BID AMOUNT:

_____ dollars
(written numbers)

\$ _____
(figures)

Bidder _____

Date _____

MORGUE HVAC UPGRADE PROJECT

LIST OF SUBCONTRACTORS

Pursuant to Public Contract Code 4104, the undersigned bidder shall list the name and location of business of each Subcontractor who will perform work, labor or service to the bidder under this Contract in excess of one-half of one percent (1/2%) of the total amount shown in the bid, and shall also list the item or portions of the Work which will be done by such Subcontractor for any item or portion of Work to be performed.

LIST OF SUBCONTRACTORS:

All blanks below must be completed for each subcontractor. Failure to do so may cause your bid to be declared nonresponsive:

Subcontractor

Name: _____

Location of place of business: _____

License No. _____

DIR No. _____

Work to be done: _____

Subcontractor

Name: _____

Location of place of business: _____

License No. _____

DIR No. _____

Work to be done: _____

No Contractor may perform work on a public works project with a Subcontractor who is ineligible to perform work on a public works project pursuant to Section 1777.1 or 1777.7 of the Labor Code.

MORGUE HVAC UPGRADE PROJECT

INFORMATION REQUIRED OF BIDDERS

The bidder is required to supply the following information.

1. Firm Name _____

2. Representative _____

3. Title _____

4. Business Address _____

5. Telephone _____ Cell # _____ Fax # _____

6. Email Address _____

7. California Contractors License(s):

No(s). _____ Type(s) _____

8. California Department of Industrial Relations Registration No. _____

**NON-COLLUSION AFFIDAVIT
COUNTY OF TEHAMA**

TO BE EXECUTED BY THE BIDDER AND SUBMITTED WITH THE BID

To: County of Tehama
State of California

_____ deposes and says that he or she is _____ (title) 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; 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, 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.

(The above certificate must be signed and filed with the County along with the bid)

Signed _____ Date _____

BIDDER'S BOND
(Public Contract)

KNOW ALL MEN BY THESE PRESENTS: That as Principal _____ (herein called "Principal") and as surety _____ (hereinafter called "Surety" are held and firmly bound unto the **County of Tehama** (herein called the "Obligee"), in the just and full sum of ten percent (10%) of the total amount of the base bid submitted by Principal for the herein described work of improvement, which sum is Dollars (\$ _____) lawful money of the United States of America, for the payment of which, well and truly to be made, we hereby bind ourselves and our, and each of our, heirs, executors, administrators, successors, and assigns, jointly and severally firmly by these presents.

WHEREAS, Principal is bidding, or is about to bid, for the following described work of improvement, all in accordance with the Notice to Contractors and the Contract Documents for the project entitled:

"MORGUE HVAC UPGRADE PROJECT"

NOW, THEREFORE, THE CONDITION OF THE OBLIGATION IS SUCH THAT, if Obligee shall make an award to Principal for said work of improvement according to the terms of such bid, and Principal shall duly execute, or cause to be executed, and delivered to Obligee the Contract, bonds, and evidence of insurance coverage as, and within the time, required by the Contract Documents for the above-named project, which Contract Documents are incorporated herein by this reference, then this obligation shall be null and void; OTHERWISE, it shall remain in full force and effect, and if Obligee shall make such an award to Principal and Principal shall fail to execute, or caused to be executed and delivered to Obligee said instruments as required by the Contract Documents, then surety will pay Obligee the full sum of the bond.

No extension of time granted to the Principal and no change or alteration in any of the terms of the bid or bid requirement, whether made after notice or not, shall release or otherwise affect the obligations of Surety hereunder, and Surety waives notice of any such extension, change, or alteration. Surety, by the execution of this bond, represents and warrants that this bond has also been duly executed by Principal with proper authority, and Surety hereby waives any defense which it might have by reason of any failure of Principal to execute or properly execute this bond.

In the event suit is brought upon this bond by Obligee and judgment is recovered by Obligee, court costs, including reasonable attorneys' fees, shall be an additional obligation of this bond for which Principal and Surety shall be liable.

Signed and sealed the _____ day of _____, 20__.

PRINCIPAL (Notary Certificate Attached)

SURETY (Notary Certificate Attached)

NOTE TO SURETY COMPANY: The following form of acknowledgment should be used. If any other form of acknowledgment is used, there must be submitted a certified copy of unrevoked resolution of authority for the attorney-in-fact.

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document, to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

NOTARY ACKNOWLEDGMENT

STATE OF _____)

COUNTY OF _____)

On _____, before me, _____, a Notary Public in
Name of Notary Public

and for said State, personally appeared _____,
Name(s) of Signer(s)

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

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

WITNESS my hand and official seal

Signature of Notary Public

(SEAL)

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document, to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

NOTARY ACKNOWLEDGMENT

STATE OF _____)

COUNTY OF _____)

On _____, before me, _____, a Notary Public in
Name of Notary Public

and for said State, personally appeared _____,
Name(s) of Signer(s)

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

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

WITNESS my hand and official seal

Signature of Notary Public

(SEAL)

AGREEMENT FORM

THIS AGREEMENT, entered into as of _____, 20__, is between the **County of Tehama**, a public entity, organized and existing pursuant to the laws of the State of California (hereinafter called the "COUNTY") and _____, (hereinafter called the "Contractor"),

WHEREAS, the Contractor has been awarded the contract for the work hereafter mentioned:

"MORGUE HVAC UPGRADE PROJECT"

WITNESSETH:

That the parties hereto mutually agree to the terms and conditions hereinafter set forth.

I. CONTRACT DOCUMENTS

The Items hereinafter enumerated as the Contract Documents shall form a part of this Contract and the provisions thereof shall be as binding upon the parties hereto as if they were herein fully set forth. Work called for in any one Contract Document and not mentioned in another is to be performed and executed the same as if mentioned in all Contract Documents, the table of contents, titles, and headings contained herein and in said documents are solely to facilitate reference to various provisions of the Contract Documents and in no way affect or limit the interpretations of the provisions to which they refer.

The "Contract Documents", sometimes also referred to as the Contract, consist of the completed Form of Proposal submitted by the Contractor to whom the Contract is awarded, the Instructions to Bidders insofar as they relate to events which will occur or actions to be taken after the submission of the Proposal, this Agreement to which the General Conditions are attached, the General Requirements, the Supplementary Conditions, the Drawings and Specifications and any modifications of any of the foregoing in the form of addenda or otherwise effected in accordance with the terms of the Contract.

The sections of the COUNTY's Specifications and the titles of the Drawings, with their assigned numbers and their date of issue, are listed in the Contract Documents.

II. DEFINITIONS

Unless otherwise specifically provided herein, all words and phrases defined in the General Conditions shall have the same meaning and intent in this Agreement.

III. SCOPE OF THE CONTRACT

The Contractor shall perform, within the time stipulated, the Contract as herein defined, and shall furnish all labor, tools, equipment, apparatus, facilities, labor and material and transportation necessary to perform and complete in a good workmanlike manner to the satisfaction of the COUNTY, all the work called for, and in the manner designated in,

and in strict conformity with, the Contract Documents entitled: "Morgue HVAC Upgrade Project."

IV. CONTRACT PRICE

The COUNTY agrees to pay and the Contractor agrees to accept, in full payment for the work included in the Bid the total sum of:

_____ (\$_____).
(spell out)

V. CONTRACT TIME, COMPLETION, AND CHANGES

A. Notice to Proceed

Within 60 days of the opening of bids the successful low bidder will be authorized by written notice to proceed with the work. The bidder shall have no claim against the COUNTY, or its officers, employees, agents, consultants, project manager or architect because of failure to issue the Notice to Proceed.

B. Commencement and Prosecution of Work

The Contractor shall commence the work on or before 10 days from and after the date specified in the written "Notice to Proceed," and will diligently prosecute the work to final completion. Said Notice to Proceed shall be issued following execution of the Agreement, the filing by the Contractor of the required bonds and proof of insurance. The continuous prosecution of work by the Contractor shall be subject only to delays as defined in this section of this Agreement.

C. Time of Completion

The entire work shall be brought to substantial completion in the manner provided for in the Contract Documents in a period of 30 calendar days from and after the date assigned in the Notice to Proceed. The date, 30 calendar days from and after the date of the Notice to Proceed shall be hereinafter called the "Estimated Completion Date" unless extensions of time are granted in accordance with the Contract Documents for Category A or B Delays as defined in this section of this Agreement. Failure to substantially complete the work within the above times and in the manner provided for by the Contract Documents shall subject the Contractor to liquidated damages as hereinafter stipulated in this Agreement. Time is and shall be of the essence in these Contract Documents.

D. Changes in the Work

Changes in the work made and extensions of time of completion made necessary by reason thereof shall not in any way release any guarantee given by the Contractor pursuant to the provision of the Contract Documents, or the contract let hereunder, nor shall such changes in the work relieve or release the Sureties on bonds executed pursuant to the said provisions. The Sureties, in executing such bonds, shall be deemed to have expressly agreed to any such change in the work and to any extension of time made by reason thereof. The COUNTY agrees that no changes in the

work shall be ordered which will necessitate an extension of the substantial completion time beyond the fixed completion date.

E. Extensions of Time

In the event it is deemed necessary by the COUNTY to extend the time of substantial completion of the work to be done under this contract beyond any required dates of completion herein specified, such extensions shall in no way release any guarantee given by the Contractor pursuant to the provisions of the Contract Documents, or the contract let hereunder, nor shall such extension of time relieve or release the sureties on the bonds executed pursuant to said provisions. The sureties in executing such bonds shall be deemed to have expressly agreed to any such extension of time. The amount of time allowed in any Extension of Time shall be limited to the period of the delay-giving rise to the same as determined by the COUNTY.

F. Prevailing Wages

Pursuant to Section 1770 et seq. of the Labor Code the Contractor for the work will be required to pay, at least, the general prevailing wage rates as determined by the Director of the Department of Industrial Relations of the State of California. Questions pertaining to the general prevailing wage rates should be directed to the Division of Labor Statistics and Research, P.O. Box 603, San Francisco, CA 94101, Ph. (415) 703-4774.

G. Category A Delays

For the purpose of these Contract Documents, the term "Category A Delays" shall mean, and is limited to, delays caused directly by acts of God; acts of the public enemy; fire, riots, insurrections; epidemics; quarantine restrictions; strikes; lockouts; sit-downs; acts of a governmental agency; priorities or privileges established for the manufacture, assembly or allotment of materials necessary in the construction of the work by order, decree or otherwise of the United States or by any department, bureau, commission, committee, agent, or administrator of any legally constituted public authority; changes in the work ordered by the COUNTY insofar as they necessarily require additional time in which to substantially complete the work; the prevention by the COUNTY of the Contractor from commencing or prosecuting the work because of the acts of others, excepting the Contractor's subcontractors; or the prevention of the Contractor from commencing or prosecuting the work because of a city-wide failure of public utility service.

Inclement weather shall not be a prima facie reason for the granting of an extension of time, and the Contractor shall make every effort to continue work under prevailing conditions. The COUNTY may, however, grant an extension of time if an unavoidable delay as a result of inclement weather in fact occurs, and such shall then be classified as a "Category A Delay".

The term "Category A Delay" shall specifically not include (i) any delay which could have been avoided by the exercise of care, prudence, foresight and diligence on the part of the Contractor; (ii) any delay in the prosecution of parts of the work, which may in itself be unavoidable but which does not necessarily prevent or delay the prosecution of other parts of the work, nor substantial completion of the whole work

within the time specified; (iii) any reasonable delay resulting from time required by the COUNTY for review of plans submitted by the Contractor and for the making of surveys, measurements and inspection; and (iv) any delay arising from an interruption in the prosecution of the work on account of the reasonable interference from other contractors employed by the COUNTY which does not necessarily prevent the completion of the whole work within the time specified.

H. Category B Delays

For the purposes of these Contract Documents, the term "Category B Delays" shall mean delays caused directly by loss or damage to the project caused by the perils covered by the Builder's Risk insurance provided for by the Agreement or by any war declared by an enactment of the Congress of the United States of America.

VI LIQUIDATED DAMAGES

The provisions for Liquidated Damages appearing in the General Conditions, Article 12, are incorporated by reference as if fully set forth herein. Liquidated damages of \$250.00 per day will be charged the Contractor for each day of delay beyond the substantial completion date.

VII NOTICE OF DELAY

The Contractor shall promptly notify the COUNTY in writing of any anticipated delay in the prosecution of the work, and, in any event, promptly upon the occurrence of a delay. Said notice shall constitute an application for an extension of contract time only if it is in compliance with the provisions of Article 12. Failure by the Contractor to make a timely request will result in a waiver of the right to such extension. Contractor shall take notice of General Conditions, Article 12, affecting the time period in which to claim an extension of the contract time for physical conditions and limitations set forth in the General Conditions, Article 12. The COUNTY may take steps to prevent the occurrence of continuance of the delay and/or may determine to what extent the completion of the work is delayed thereby.

VIII NO WAIVER OF RIGHTS

Neither the inspection by the COUNTY or its agents, nor any order or certificate for the payment of money, nor any payment for, nor acceptance of the whole or any part of the work by the COUNTY, nor any extensions of time, nor any position taken by the COUNTY or its agents shall operate as a waiver of any provision of this Contract, or of any power herein reserved to the COUNTY or any right to damage herein provided, nor shall any waiver of any breach of this Contract be held to be a waiver of any other or subsequent breach. All remedies provided in this Contract shall be taken and construed as cumulative, that is in addition to each and every other remedy herein provided; and the COUNTY shall have any and all equitable and legal remedies which it would in any case have.

IX AGREEMENT CONTROLS

In the event of a conflict between the Contract Documents, the conflict shall be resolved by giving precedence in the following order: (1) This Agreement Form; (2) the

General Conditions and General Requirements; (3) the Supplementary Conditions; (4) the Notice to Contractors; (5) the Instructions to Bidders; (6) the Technical Specifications text; (7) the Drawings (Plans).

CERTIFICATION

COUNTY:

BY: _____ DATED _____
CHAIR, TEHAMA COUNTY
BOARD OF SUPERVISORS

CONTRACTOR

BY: _____ DATED _____
Contractor

Approved as to form:

County Counsel

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: That, WHEREAS, the COUNTY OF TEHAMA (hereinafter called "County"), has conditionally awarded to (here insert full name and address or legal title of Contractor)

As Principal (hereinafter called "Contractor") a Contract for the "Morgue HVAC Upgrade Project", in the said Tehama County, in accordance with and consisting in part of plans and specifications prepared by the County of Tehama, at 727 Oak Street, Red Bluff, CA 96080 which Contract also consists of all other parts of the Contract Documents for said project, which Contract is made a part hereof by reference, and is hereinafter referred to as the Contract, and WHEREAS said Contractor is required under the terms of said Contract to furnish a bond for the Faithful Performance of said Contract,

NOW, THEREFORE, we the Contractor and (here insert full name and address or legal title of Surety)

as Surety (hereinafter called "Surety") are held and firmly bound unto County of Tehama, California (hereinafter called "County") in the sum of _____ Dollars (\$ _____), in lawful money of the United States, for the payment of which sum well and truly to be made Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, unless the above bounden Contractor, his heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and will and truly keep and perform the covenants, conditions and agreements in additions or alterations 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 County, Architect and their employees and their consultants, and their agents, as therein stipulated, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Contractor agrees not to assign this Contract except upon the written consent and approval of the County or their successor and assigns.

And Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way 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.

The Principal and Surety do hereby represent, warranty and guarantee, that the Surety is an "Admitted surety" as that term is, or may be, defined by California statute, regulation or the Department of Insurance.

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

SIGNED AND SEALED THIS _____ day of _____, 20_____.

Print name of Contractor

By _____
Signature

Title of Signer

Surety Name

By _____
Attorney-in-Fact
(Acknowledgment by Notary Public required)

Title

(SURETY SEAL)

NOTE TO SURETY COMPANY:

The following form of acknowledgment shall be used. If any other form of acknowledgment is used, there must be submitted a certified copy of unrevoked resolution of authority for the attorney-in-fact for each bond issued.

LABOR AND MATERIAL PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That WHEREAS, the COUNTY of TEHAMA has awarded to (here insert the full name and address or legal title of Contractor)

hereinafter called "Contractor") a Contract for "Morgue HVAC Upgrade Project", in the said Tehama County, in accordance with and consisting in part of plans and specifications prepared by the County of Tehama, at 727 Oak Street, Red Bluff, CA 96080, which Contract also consists of all other parts of the Contract Documents for said project, which Contract is made a part hereof by reference, and is hereinafter referred to as the Contract, and WHEREAS said Contractor is required under the terms of said Contract to furnish a bond in connection with said contract, providing that if said Contractor, or any of his subcontractors, shall fail to pay for any materials, provisions, pro vendor or other supplies, or equipment used, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to such work or labor, then the Surety on this Bond will pay for the same in an amount not exceeding the sum specified in this Bond, and also, in case suit is brought upon the Bond, a reasonable attorney's fee to be fixed by the Court.

NOW, THEREFORE, we the Contractor and (here insert full name and address or legal title of Surety)

as Surety (hereinafter called "Surety") are held and firmly bound unto the County of Tehama, California (hereinafter called "County") in the sum of _____ Dollars (\$ _____), in lawful money of the United States, for the payment of which sum, well and truly to be made, Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if said Contractor, his heirs, executors, administrators, successors or assigns, or his subcontractors, shall fail to pay for any materials, provisions, provender or other supplies, or equipment used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or shall fail to pay any other amount due to any person named in Section 9100 of the Civil Code, or shall fail to pay any amounts due under the Unemployment Insurance Act with respect to such work or labor performed by any such person, or for any amounts required to be deducted, withheld, and paid over to the Franchise Tax Board from the wages of employees of the Contractor and his/her subcontractors pursuant to Section 18664 of the Revenue and Taxation Code, with respect to such work and labor, then the Surety on this Bond will pay for the same, in an amount not exceeding the sum specified in this Bond, and also, in case suit is brought upon this Bond, a reasonable attorney's fee to be fixed by the Court.

This Bond shall insure to the benefit of any and all persons, companies, corporations, political subdivisions and State agencies, entitled to file claims under the provisions of Section 9100 of the Civil Code of the State of California, as now in effect and as the same may be amended or superseded from time to time, so as to give a right of action to them, or their assigns, if any suit is brought upon this Bond.

And the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be

performed thereunder or the specifications accompanying the same shall in any way 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.

The Principal and Surety do hereby represent, warranty and guarantee, the Surety is an "Admitted Surety" as that term is, or may be defined by California statute, regulation or the Department of Insurance.

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

SIGNED AND SEALED THIS _____ day of _____, 20_____

Print name of Contractor

By _____
Signature

Title of Signer

Surety Name

By _____
Attorney-in-Fact
(Acknowledgment by Notary Public required)

Title

(SURETY SEAL)

NOTE TO SURETY COMPANY:

The following form of acknowledgment shall be used. If any other form of acknowledgment is used, there must be submitted a certified copy of unrevoked resolution of authority for the attorney-in-fact for each bond issued.

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ARTICLE 1 - DEFINITIONS

Whenever used in these General Conditions or in the other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

- 1.1 Agreement - The written and signed contract between the County and the General Contractor that is entitled "Agreement."
- 1.2 Application for Payment - The form furnished by the County to be used by the Contractor in requesting progress payment. This includes the schedule of values and an affidavit of Contractor that progress payments received on account of the work have been applied by Contractor to discharge in full all of the Contractor's obligations as reflected in prior Applications for Payment and otherwise.
- 1.3 Architect - The person licensed by the State of California (architect or engineer) who is fully responsible for the Contract Drawings and Project Manual, Addenda and modifications.
- 1.4 Bid - The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the work to be performed.
- 1.5 Bidder - Any person, firm or corporation, licensed in the State of California, submitting a bid for the work.
- 1.6 Bonds - Bid, performance, and *labor and material* payment bonds and other instruments of security, including lien and stop-notice bonds, furnished by the Contractor and his Surety in accordance with the Contract Documents.
- 1.7 Calendar Day (or "Day") - A day of twenty-four hours measured from one midnight to the next midnight, Pacific time. Unless otherwise indicated, a "day" shall mean a calendar day.
- 1.8 Change Order - A written order, issued by the Project Manager to Contractor, signed by the Project Manager, Architect and County authorizing an addition, deletion or revision in the work, or an adjustment in the contract price or the contract time.
- 1.9 Contract Completion Date - The date established in the Contract Documents for the completion of the construction phase of the project, namely, the Estimated Completion Date and Fixed Completion Date.
- 1.10 Contractor - The person, firm or corporation with whom County has executed the Agreement and who is fully responsible for the performance of the work.
- 1.11 Contract Documents - The Agreement, Addenda, Contractor's Bid, the Bonds, and Notice of Award, these General Conditions, Supplementary Conditions, Specifications, Plans, Drawings and Modifications. The Contract Documents form the Contract for Construction. This Contract represents the entire and integrated agreement between the parties and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract may be modified or amended only by a Modification as defined in these General Conditions.
- 1.12 Contract Price - The total amount stated in the Agreement as payable to Contractor for the performance of the work under the Contract Documents, including authorized adjustments thereto.
- 1.13 Contract Time - The total amount stated in the Agreement for the completion of the work.
- 1.14 County - County of Tehama, a public entity organized and existing pursuant to the laws of the State of California and the Owner of the Project.

- 1.15 Drawings - The drawings and/or plans which show the character and scope of the work to be performed, and which have been prepared or approved by the Architect and are referred to in the Contract Documents.
- 1.16 Field Order - A written order issued by the Project Manager which clarifies or interprets the Contract Documents in accordance with paragraph 9.2, or orders minor changes in the work in accordance with paragraph 11.3.
- 1.17 Furnish - To “supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations.”
- 1.18 General Conditions - That part of the Contract Documents which sets forth many of the rights, responsibilities and relationships of the parties involved or of the contract.
- 1.19 General Requirements - The General Requirements are contained in Division 1 of the Specifications in these Contract Documents. The General Requirements are the administrative functions which the Contractor is bound to perform by the Contract.
- 1.20 Inspector - An authorized representative of the Tehama County who is assigned to make a detailed inspection of any or all portions of the work or materials thereof.
- 1.21 Install - Describes operations at project site including the actual “unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.”
- 1.22 Instructions to Bidders - That part of the Bidding Requirements which contain the format of the bid, and the availability of the Contract Documents.
- 1.23 Notice of Award - The written notification to the Contractor, from the Owner, of the Owner's intent to execute the Contract.
- 1.24 Notice to Bidders - A notice contained in the Bidding Requirements informing prospective bidders of the opportunity to submit bids on a project and setting forth the procedures for doing so.
- 1.25 Notice to Proceed - The written notice given by the County to Contractor fixing the date on which Contractor shall start to perform his obligations under the Contract Documents.
- 1.26 O.P.C.I. - Owner purchased/Contractor receives, stores, and installs.
- 1.27 Per - In accordance with or in compliance with.
- 1.28 Progress Payment - Payment for work completed by measuring the work in place and applying the percentage complete of the measured amount to a previously agreed unit cost to determine the total payment.
- 1.29 Project - The entire work to be performed as provided in the Contract Documents.
- 1.30 Project Manager - The authorized representative of Tehama County.
- 1.31 Project Manual - A part of the Contract Documents containing Introductory Information, Bidding Requirements, Contracting Requirements, Specifications, and Opening and Room Finish Schedules bound in one or more volumes.
- 1.32 Project Work Schedule - A diagram showing proposed times of starting and completing various elements of the work.

- 1.33 Provide - "To furnish and install, complete and ready for the intended use."
- 1.34 Punch List - A list, made near the completion of work, indicating items to be furnished or work to be performed by the Contractor or Subcontractor in order to complete the work as specified in the Contract Documents.
- 1.35 Schedule of Values - A statement furnished by the Contractor to the Project Manager reflecting the portions of the contract sum allotted for the various parts of the work.
- 1.36 Shop Drawings - All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, a subcontractor, manufacturer, supplier or distributor and which illustrate in detail the equipment, material or some portion of the work.
- 1.37 Specifications - The portion of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the work.
- 1.38 Subcontractor - An individual, firm or corporation having a direct contract with the Contractor, or with any other subcontractor, for the performance of a part of the work.
- 1.39 Substantial Completion, Date of - The date as certified by the County in a Notice of Completion pursuant to paragraph 14.8 of these General Conditions.
- 1.40 Work - The completed construction in the manner required by the Contract Documents. This includes without limitation all labor, services, and supervision necessary or appropriate to produce such construction, all materials, supplies and equipment incorporated or to be incorporated in such construction, and all obligations, duties and responsibilities with respect to such construction set forth in the Contract Documents.
- 1.41 Working Day - Any day not a legal holiday, Saturday or Sunday.

ARTICLE 2 - PRELIMINARY MATTERS

2.1 Execution of Agreement:

2.1.1 The Agreement and such other Contract Documents as designated by the County, shall be executed in three counterparts and delivered by the Contractor to the County within fifteen (15) days of the Notice of Award. County will execute and deliver one counterpart to Contractor within ten (10) days of receipt of the executed Agreement from Contractor.

2.2 Delivery of Bonds:

2.2.1 Prior to execution of the Agreements by the Contractor, Contractor shall deliver to County such Bonds as he is required to furnish in accordance with the Contract Documents.

2.3 Copies of Documents:

2.3.1 County shall furnish to Contractor 5 copies of the Contract Documents for the execution of the work. Additional copies will be furnished at cost of reproduction upon request.

2.4 Contractor's Pre-Start Representations:

2.4.1 Contractor represents that he has familiarized himself with, and assumes full responsibility for having familiarized himself with, the nature and extent of the Contract Documents, work, locality and with all local conditions including federal, state and local laws, ordinances, rules and regulations that

may in any manner affect performance of the work, and represents that he has correlated his study and observations with the requirements of the Contract Documents.

2.4.2 Contractor also represents that he has familiarized himself with all surveys and investigation reports of surface and latent physical and that he has correlated the results of all such data with the requirements of the Contract Documents.

2.5 Commencement of Time; Starting the Project

2.5.1 The contract time will commence on the date fixed by the Notice to Proceed. The Contractor shall start to perform the work under the Contract Documents on or before the tenth working day after the date assigned in the Notice to Proceed.

2.5.2 The provisions set forth in Section VI of the Agreement are incorporated by reference as if fully set forth herein.

2.6 Before Starting Construction:

2.6.1 The Contractor shall carefully study and compare the Contract Documents; check and verify pertinent figures shown thereon; and verify all applicable field measurements prior to undertaking each part of the work. He shall at once report in writing to the Project Manager any conflict, error or discrepancy which he may discover. Contractor shall be responsible for exercising reasonable care and skill in reviewing the Contract Documents to determine whether there is any conflict, error or discrepancy therein, and shall be responsible for notifying the Project Manager. No claim for additional compensation shall be made by the Contractor for extra work created by Contract Document conflicts, errors or discrepancies which a reasonable Contractor would have discovered prior to commencing work.

2.6.2 Contractor shall submit the required Schedule of Values and activity cost information in accordance with the General Requirements of these specifications.

2.6.3 The Contractor shall furnish the County all certificates of insurance required by the Contract Documents after the "Notice of Conditional Award" and prior to the "Notice to Proceed," in types and amounts set forth in Article 5.

ARTICLE 3 - CORRELATION, INTERPRETATION, AND INTENT OF CONTRACT DOCUMENTS

3.1 It is the intent of the Contract Documents to describe a complete project to be constructed. As stated in paragraph 1.11, the Contract Documents comprise the entire contract between County and Contractor. They may be altered only by a Modification, as defined in paragraph 1.11.

3.2 The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all. Work not specifically covered in the Contract Documents shall nonetheless be required if it is consistent therewith and is reasonably inferable therefrom as being necessary or appropriate to produce the intended results. Should the Contractor discover a conflict, error, or discrepancy in the Contract Documents, he (she) shall immediately call it to the attention of the County in writing before proceeding with the work affected. Contractor agrees that proceeding with work without first giving such notice shall constitute a waiver by Contractor of any claim for additional time or money. Where there is a conflict, the Contract Documents, Specifications shall govern over the drawings; figure dimensions and drawings shall govern over scale drawings. Words and abbreviations that have technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings.

ARTICLE 4 - AVAILABILITY OF LANDS, PHYSICAL CONDITIONS, AND REFERENCE POINTS

4.1 Availability of Lands:

4.1.1 County shall furnish the lands upon which the work is to be done, right-of-way for access thereto, and other such lands which are designated in the Contract Documents for the use of the Contractor. Contractor shall provide all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.2 Physical Conditions:

4.2.1 The Contractor shall immediately, and before any such conditions are disturbed, notify the Project Manager in writing of subsurface or latent physical conditions at the site differing materially from those indicated in the Contract Documents; or unknown and unforeseen physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents. The Project Manager shall promptly investigate the conditions, and if he finds that such conditions do materially so differ to cause an increase or decrease in the time required for performance of the work, an appropriate adjustment in Contract Time may be made in accordance with Article 12 of these General Conditions. The Contract Documents may be modified by Change Order accordingly. In no event shall Contractor be entitled to increased compensation for such differing conditions, unless provided for in such Change Order.

4.2.2 No increase of time under paragraph 4.2 shall be allowed unless the Contractor shall have given the written notice described in paragraph 4.2.1 not later than 24 hours after such conditions are discovered, and before such conditions are disturbed. Contractor shall not proceed with the work affected by such conditions until directed in writing by Project Manager. Furthermore, no increase shall be given unless it is shown that Contractor's own investigation was done competently and did not disclose the error or condition. Failure of Contractor to give written notice and providing an opportunity for the Project Manager to investigate shall constitute a waiver by Contractor of any claim for additional time or money.

4.2.3 Groundwater, in whatever amount or condition, shall be deemed usual and ordinarily encountered and generally recognized as inherent in the work of the character provided for in the Contract Documents. Dewatering is the responsibility of the Contractor. No claim for a Modification of Contract time or price will be allowed for such conditions.

4.3 Reference Points:

4.3.1 County shall provide engineering reference points as shown on the plans for construction. Contractor shall be responsible for surveying and laying out work unless otherwise provided in the Contract Documents, and shall protect and preserve the established reference points and shall not change or relocate them without the prior written approval of Project Manager. Contractor shall report to Project Manager whenever any reference point is lost or destroyed or requires relocation because of changes in grades or locations. The cost of replacing and accurately relocating all reference points so lost, destroyed or moved shall be borne by the Contractor.

ARTICLE 5 - BONDS AND INSURANCE

5.1 Contractor's Liability Insurance

5.1.1: Contractor shall obtain and maintain continuously comprehensive general liability insurance and/or other insurance necessary to protect the public with limits of liability of not less than \$1,000,000 combined single limit bodily injury and property damage per occurrence with a \$1,000,000 combined single limit annual aggregate with appropriate coverage endorsements to include broad-form contractual, broad form property damage, contractor's protective, product/completed operations, auto and non-owned auto, personal injury, and fire-legal liability where applicable. The general aggregate

limit shall apply separately to this project, or Contractor shall provide insurance with a general aggregate limit of \$2,000,000.

5.1.2 The Contractor, upon notification of receipt by the County of any cancellation notice shall file with the County a replacement certificate with another insurance company meeting the financial requirements of the County and the coverage requirements. Failure to maintain any of the above required insurance shall require the immediate discontinuation of work until replacement insurance is furnished to the County. All payments due or that become due will be withheld until notice of replacement is received. Any failure to maintain insurance will be sufficient cause for termination of the contract.

5.1.3 Automobile Liability Insurance: Contractor shall carry Bodily injury and Property Damage liability including coverage for owned, hired and non-owned automobiles. The limits of liability shall be not less than \$1,000,000 Bodily Injury, \$300,000 Property Damage or \$1,000,000 Combined Single Limit Bodily Injury and Property Damage

5.1.4 As evidence of the insurance required by this agreement, certificates of workers compensation, general liability and automobile liability shall be furnished to the County before any work is commenced by the Contractor.

5.1.5 General Liability and Automobile Liability insurance shall include "County of Tehama, its elected officials, officers, and employees as an additional insured", and shall not be reduced or canceled without 30 days written prior-notice certain to the County. Contractor shall provide the County a certificate of insurance and an additional insured endorsement as evidence of insurance protection provided which lists "County of Tehama" as the certificate holder. Insurance certificates provided by any insurance company or underwriter shall not contain the language "endeavor to" and "but failure to mail such notice shall impose no obligation or liability of any kind upon the company", or similar language. If Contractor has employees, he/she shall obtain and maintain continuously workers' compensation insurance to cover Contractor and Contractor's employees and partners.

5.1.6 Contractor shall require and verify that all subcontractors of any tier maintain insurance meeting all the requirements stated herein, and Contractor shall ensure that "County of Tehama, its elected officials, officers, and employees" is an additional insured on insurance required from subcontractors; provided, however, that the minimum limit by subcontractors for general aggregate under their comprehensive general liability shall be \$1,000,000 on all subcontracts other than major subcontracts and \$3,000,000 on major subcontracts (subcontracts in excess of \$1,000,000 and such other subcontracts identified in the Contract Documents as "major subcontracts"). Contractor shall maintain certificates of insurance from all subcontractors demonstrating compliance with the requirements of this section and make them available to the County upon request.

5.2 Builders Risk Insurance

The Contractor will not be required to obtain Builder's Risk Insurance. The Contractor will be responsible for building materials not installed and for the Contractor's tools, other equipment or supplies. The Contractor shall also be required to protect the construction project as stipulated elsewhere in this contract.

5.3 Performance, Payment, and Other Bonds

5.3.1 Prior to the commencement of any work, Contractor shall furnish performance and payment bonds as security for the faithful performance and payment of all Contractors' obligations under the contract documents. These bonds shall be in amounts at least equal to the contract price and in a form satisfactory to County. Surety company providing said bonds shall have a Best financial rating of at least A-: VII and be licensed in the State of California.

5.3.2 If at any time the Surety on any bond furnished by Contractor is adjudicated bankrupt, commences any proceeding under the Bankruptcy law of the United States, becomes insolvent, makes a general assignment for the benefit of creditors or has its right to do business terminated in California, or for any other reason is unable or unwilling to continue in business, Contractor shall within five calendar days thereafter substitute another bond in a Surety who meets the County's financial rating requirement.

5.4 Responsibility for Damage:

5.4.1 Approval of the Contractor's insurance by the Owner shall not decrease the extent to which the Contractor or any subcontractor may be held responsible for payment of any and all damages resulting from Contractor's operations.

5.4.2 The Contractor shall assume the defense of and indemnity and save harmless Tehama County, its elected officials, officers and employees, as well as the Project Manager, Architect and the officers, agents and employees of each of them, from any and all loss, liability or damage including attorney's fees and from all suits, actions, damages or claims of every nature and description to which they may be subjected or put by reasons of injury to persons or property arising out of, in connection with, or incident to the execution of the work or resulting from the active or passive negligence or carelessness on the part of the Contractor, Contractor's employees or agents in the delivery of materials and supplies by its employees or agents, including any failure to fulfill the terms of all laws and regulations which apply to this Contract together with any infringement or alleged infringement of the patent rights of any person or persons, firm or corporation in consequence of the use in or about the said work of any article or materials; and the County shall have the right to estimate the amount of such damage and to cause the Contractor to pay same, and the amount to be paid for such damage shall be deducted from the money due to the Contractor under this Contract; or the whole or so much of the money due or to become due to the Contractor under this Contract, as may be considered necessary by the County, shall be retained by the County until such suits or claims for damages shall have been settled or otherwise disposed of and satisfactory evidence to that effect furnished to the County. Contractor shall assume the defense of and indemnity and save harmless Tehama County, its elected officials, officers and employees, as well as the Architect, Project Manager and the officers, agents and employees of each of them in respect to any mechanics lien, foreclosure actions filed by any subcontractor or material man relative to the construction.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.1 Supervision and Superintendent:

6.1.1 Contractor shall supervise and direct the work effectively, efficiently and with his best skill and attention. He shall have sole responsibility for the means, methods, techniques, sequences, procedures of construction, and for coordinating all portions of his work under the Contract Documents. Contractor shall be responsible for the finished work complying accurately with the Contract Documents.

6.1.2 The Contractor shall designate in writing, before starting work, the name, qualifications and experience of his proposed representative who must be approved by the Project Manager. Said representative shall have authority to represent and to act for the Contractor. Said authorized representative shall be present at the site of work at all times while work is in progress. Arrangements for responsible supervision, acceptable to Project Manager, shall be made for emergency work required during periods when work is suspended.

6.1.3 The Contractor shall notify the Project Manager, in writing, when he desires to change his representative. He shall provide all necessary information regarding his new representative when

submitting request for approval. Any substitute representative shall require the approval of the Project Manager, which may not be unreasonably withheld.

6.1.4 In emergencies when the Contractor or his authorized representative is not present on any particular part of the work, directions will be given by the Project Manager and obeyed by the superintendent or foreman in charge of the particular work. Such directions will be confirmed in writing to the Contractor's authorized representative.

6.1.5 The Contractor shall identify, in writing, the individuals who are authorized to sign Change Orders to the Contract.

6.1.6 The Contractor shall remove his representative from the work and propose a substitute if Project Manager reasonably concludes that such representative is unable or unwilling to properly supervise the work in such a manner as to ensure its timely and successful completion in accordance with Contract Documents.

6.1.7 The Contractor shall maintain daily job site activity logs which record: location and number of all manpower on the site by his own and subcontractors' forces; all work being performed and whether such work is part of the base contract or change order; all construction equipment in use, and not in use, and reasons why not in use; weather and site conditions; and delays or obstructions to the work. The Contractor shall sign the log representing that the information contained therein is true, accurate and complete.

6.2 Verified Reports

6.2.1 The Contractor shall completely fill out, sign and date the appropriate Verified Reports, as required by Sections 4-214, 4-240 and 4-249 of Title 24, Part I, California Code of Regulations. Copies of these reports shall be sent to the County.

6.3 Labor, Materials and Equipment

6.3.1 Contractor shall provide competent, suitable qualified personnel to survey and lay out the work and perform construction as required by the Contract Documents. Contractor shall at all times enforce strict discipline and good order on the project. He shall not employ on the work any unfit person or anyone not skilled in the task assigned to him.

6.3.2 Contractor shall furnish all materials, equipment, labor, transportation, and machinery, tools, appliances, other facilities and incidentals necessary for the execution, testing, initial operation and completion of work.

6.3.3 All materials and equipment incorporated in the work shall be new, except as otherwise provided in the Contract Documents. If required by Architect or Project Manager, Contractor shall furnish satisfactory evidence as to the kind, quality, source and purchase of materials and equipment.

6.3.4 All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instruction of the applicable manufacturer, fabricator or processors.

6.4 Substitute Materials or Equipment:

6.4.1 The Specifications may permit Contractor to furnish or use a substitute that is equal to any material or equipment specified. Unless otherwise expressly provided in the Specifications, in accordance with Public Contract Code section 3400, whenever the contract documents refer to a named manufacturer or named product, the named manufacturer or named product shall be deemed to be followed by the words "or equal" so that bidders may furnish any equal material, product, thing, or

service in accordance with the procedures set forth herein. If the Contractor wishes to furnish or use a proposed substitute, he shall, promptly and within 5 days of the Notice to Proceed, make written application to the Architect for approval of such substitute, certifying and warranting in writing that the proposed substitute will perform the functions called for by the Contract Documents, be of the same quality as that specified and be suited to the same use. Contractor shall state whether or not its incorporation in or use in connection with the project is subject to payment of any license fee or royalty and also shall identify all variations of the proposed substitute from that specified and indicate available maintenance service. No substitute shall be ordered or installed without the written approval of the Architect whose decision as to substitutions shall be final and conclusive. Architect may require Contractor to furnish other such data about the proposed substitute that Architect considers pertinent.

6.4.2 No substitution shall be ordered or installed without such supplemental performance guarantee and bonds as County may require, all of which shall be furnished at Contractor's expense. Contractor shall be responsible for determining the required delivery date for incorporation into the work and shall certify that this date has been confirmed with the supplier of the substituted item.

6.5 Subcontractors:

6.5.1 Contractor shall investigate and assure himself and the County of the experience and skill of all subcontractors performing work specified by the Contract Documents as well as the financial stability of such subcontractors. Contractor shall not recommend any subcontractor or other person or firm, whether initially or as a substitution against whom County, at County's sole discretion, may have reasonable objection. If County who has no duty to investigate, but has the right to do so, after due investigation, has a reasonable objection to any subcontractor, supplier or material man proposed by Contractor, Contractor shall propose an acceptable substitute.

6.5.2 Contractor shall be fully responsible for all acts and omissions of his subcontractors, and of persons and organizations directly or indirectly employed by them and of persons and organizations for whose acts any of them may be liable to the same extent that he is responsible for the acts and omissions of persons directly employed by him. Nothing in the Contract Documents shall create any contractual relationship between the County, Project Manager or Architect and any subcontractor, or other person or organization having a direct contact with the Contractor, nor shall it create any obligation on the part of County, Project Manager or Architect to pay or see to the payment of any monies due any subcontractor or other persons or organizations.

6.5.3 The divisions and sections of the Specifications and the identifications of any Drawings shall not control the Contractor in dividing the work among subcontractors or delineating the work to be performed by any specific trade. Neither the Architect, nor Project Manager, nor County will act as arbiter to determine subcontract limits.

6.5.4 Contractor agrees to bind specifically every subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of the County including, but not limited to, all time and notification requirements.

6.5.5 All work performed for Contractor by a subcontractor shall be pursuant to an appropriate agreement between Contractor and subcontractor which shall contain provisions for the waiver of all rights the contracting parties may have against one another for damages caused by fire or other perils covered by insurance. Contractor shall pay each subcontractor a just share of any such insurance moneys received by Contractor.

6.6 Patent Fees and Royalties

6.6.1 Contractor shall pay license fees and royalties and assume all costs incident to the use, in the performance of the work, of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, device or product is

specified in the Contract Documents for use in the performance of the work, and to the actual knowledge of County and Architect its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by County in the Contract Documents. Contractor shall indemnify and hold harmless County, Project Manager, their employees, officers and agents, and Architect, his consultants, and anyone directly or indirectly employed by either of them from and against consultants' and other experts' fees and expenses arising out of any infringement of patent rights incident to the use in the performance of the work or resulting from the incorporation in the work of any invention, design, process, product or device not specified in the Contract Documents, and shall defend all such claims in connection with alleged infringement of such rights.

6.7 Permits & Utility Costs:

6.7.1 Permits: Contractor shall be responsible to obtain all building permits, construction permits, fugitive dust permits, fees and licenses necessary for the prosecution of the work. The County will make payment of permit fees directly to the permitting agency. The Contractor shall be responsible for all delays in obtaining all permits, licenses, and utility connection agreements. No delay claim may be made by Contractor for any delay in obtaining any permit, license or utility connection agreement.

6.7.2 Utility Costs: Contractor shall be permitted reasonable use of the existing utilities available at the project site without charge. In the event that any additional temporary utilities are necessary, Contractor shall be responsible for obtaining and paying for such temporary utilities at Contractor's expense.

6.8 Laws and Regulations:

6.8.1 Contractor shall give notices and comply with all laws, ordinances, rules and regulations applicable to the work. Contractor shall use reasonable care and skill in determining whether or not the Specifications or Drawings are at variance therewith, and, if he observes such variance, he shall give the Project Manager and Architect prompt written notice thereof. If Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Project Manager and Architect, he shall bear all costs arising therefrom.

6.9 Taxes:

6.9.1 Contractor shall pay all sales, consumer use and other similar taxes required to be paid by him in accordance with the law of the place where the work is to be performed.

6.10 Use of the Premises:

6.10.1 Contractor shall confine his equipment, the storage of materials and equipment and the operations of his workmen to areas permitted by law, ordinance, permits or the requirements of the County and of the Contract Documents, and shall not unreasonably encumber the premises with materials or equipment.

6.10.2 Contractor shall not load nor permit any part of any structure to be loaded with weight that will endanger the structure, nor shall he subject any part of the work to stresses or pressure that will endanger it.

6.11 Record Drawings:

6.11.1 Contractor shall keep one current record copy of all Specifications, Drawings, Addenda, Modifications, and Shop Drawings at the site in good order and annotated to show all changes made during the construction process. These shall be available to the Architect and Project Manager at all times, and shall be reviewed monthly concurrent with the Progress Payment Request. Upon

completion of the project the Contractor shall deliver the record documents to the Project Manager for review and approval. These record documents shall be prepared in accordance with Section 01720 of the Specifications.

6.12 Safety and Protection:

6.12.1 Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work. He shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss:

6.12.1.1 All employees on the work and other persons who may be affected thereby:

6.12.1.2 All the work and all materials or equipment to be incorporated therein, whether in storage on or off the site; and

6.12.1.3 Other property at the site or adjacent thereto, including trees, shrubs, lawns, pavements, roadway, structures and utilities not designated for removal, relocation or replacement in the course of construction.

6.12.1.4 The Contractor represents that he has read and is thoroughly familiar with the California State Occupational Safety and Health Act, and regulations for construction promulgated thereunder, and agrees to comply with the Act and all such regulations applicable to the performance of the work. The Contractor accepts the duty of enforcing those regulations by federal, state or County Safety and Health Inspectors at the Contractor's work place at the job site or any area within the limits of construction and of the outcome of any such inspections. Contractor assumes exclusive responsibility for, and agrees to defend, indemnify and hold harmless Tehama County, Project Manager, Architect, and their elected officials, officers, agents, employees, consultants and representatives against all consequences of any violations of those regulations by the Contractor, including the payment of any fine, penalty and interest assessed in connection therewith, any court costs, undertakings, interest, and attorneys', accountants' consultants' and experts' expenses and fees incurred by the County.

6.12.2 Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. He shall erect and maintain, as required by the conditions and progress of the work, all necessary safeguards for its safety and protection. He shall notify owners of adjacent utilities when prosecution of the work might affect them. All damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by Contractor, and/or subcontractor, or anyone employed by them shall be remedied by Contractor at his own expense. Contractor's duties continue until such time as all the work is completed and Project Manager has issued a notice in accordance with paragraph 14.9 that work is acceptable.

6.12.3 Contractor shall designate a responsible member of his organization, at the site, satisfactory to the Project Manager, whose duty shall be the prevention of accidents. This person shall be Contractor's superintendent unless otherwise designated in writing by Contractor to Project Manager.

6.13 Shop Drawings, Product Data, and Samples:

6.13.1 Shop drawings, product data, and/or samples are required by the Specifications for certain portions of the work. These shall be submitted according to a schedule of submittals to be accepted by the Project Manager and Architect. Where a shop drawing, product data, or sample submittal is required by the Specifications, no related work shall be commenced until the submittal has been reviewed by the Architect. A copy of each reviewed shop drawing and each approved sample shall be kept in good order by Contractor at the site and shall be available to the Project Manager, Architect and Inspector.

6.13.2 The Contractor may submit a request for substitutions. The Contractor shall propose for approval all samples as specified or directed by the Architect. The provisions of subparagraph 6.4 shall apply in such case.

6.13.3 Contractor shall check and verify all field measurements and submit shop or setting coordination drawings in 1/4"=1'0" scale to verify clearances for various trades, and schedules required for the work of the various trades, with such promptness as to cause no delay to the work.

6.13.4 Samples: Unless otherwise specified, submit samples in triplicate and of adequate size to show the quality, type and finish. Label each sample with the manufacturer's name, material name and quality, the Contractor's name, the project name and other pertinent data. Submit, with samples in triplicate a transmittal letter requesting approval. Prepay transportation charges to the Architect's office on samples forwarded.

6.13.5 Contractor shall not order materials until receipt of written approval of shop drawings, product data, and samples.

6.13.6 Project Manager's or Architect's review of shop drawings and samples shall not relieve Contractor from his responsibility for any deviation from the requirements of the Contract Documents. Nor shall any action by Architect relieve Contractor from any responsibility for errors or omissions in the shop drawings.

6.14 Cleaning:

6.14.1 Contractor shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the work, and at the completion of the work he shall remove all waste materials, rubbish and debris from and about the premises, as well as all tools, construction equipment and machinery, and surplus materials. He shall leave the site clean and ready for occupancy by County. Contractor shall restore to original condition those portions of the site not designated for alteration by the Contract Documents.

6.15 Indemnification:

6.15.1 Contractor shall indemnify and hold harmless to the fullest extent permitted by law, Tehama County, Architect, Project Manager and their elected officials, officers, consultants, agents and employees, from and against all claims, damages, losses and expenses, including attorneys', accountants', consultants', and experts' fees and expenses, arising out of or resulting from the performance of the work attributable to bodily injury, sickness or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom, and caused in whole or in part by any negligent or other act or omission of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether indemnification shall extend to claims, demands, or liability for injuries occurring after completion of the project as well as during the work's progress. Such obligation shall not be construed to negate, abridge or otherwise reduce any other obligation of indemnity which otherwise exists under the Contract Documents or at law as to any party or person described in this paragraph or otherwise.

6.15.2 In any and all claims against Tehama County, Architect, Project Manager, their elected officials, officers, employees, consultants or agents by an employee of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under subparagraph 6.15.1 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or any subcontractor under workmen's compensation acts, disability acts or other employee benefit acts.

6.16 Books and Records:

6.16.1 Contractor shall maintain books, records, documents and other evidence pertinent to the work in accordance with generally accepted accounting principles and practices. Such books, records,

documents and other evidence shall be maintained for at least three years after the date of completion of the project. Access to the aforementioned books, records, documents and other evidence shall be available to the County or the Board, or any authorized representative of either, during the course of construction and for at least three years after completion of the project. Suitable facilities shall be provided for said access, and for the inspection and copying thereof.

ARTICLE 7 - WORK BY OTHERS

7.1 County may perform additional work related to the project or it may award other direct contracts therefore. Contractor shall afford the other persons or contractors who are parties to such direct contracts reasonable opportunity for the storage of materials and equipment and the execution of work. He shall properly connect and coordinate his work with theirs. No claim for time extension will be made by the Contractor due to any alleged problems or difficulties suffered due to work performed by others unless written notice within twenty-four hours of the commencement of said alleged delaying activities is given to the County.

7.2 If any part of Contractor's work depends, for proper execution or results, upon the work of any other such person or contractor, Contractor shall inspect and promptly report to Project Manager and Architect in writing any defects or deficiencies in such work that render it unsuitable for such proper execution and results. His failure so to report shall constitute an acceptance of the other work as fit and proper for the relationship of his work, except as to defects and deficiencies which may appear in the other work after the execution of his work.

7.3 Contractor shall do all cutting, fitting, and patching of his work that may be required to make the several parts come together properly and fit to receive or be received by such other work. Contractor shall not endanger any work of others by cutting, excavating or otherwise altering their work, and will only cut or alter their work with the written consent of the County and of the other contractors whose work will be affected.

7.4 If the performance of additional work by other persons or contractors is not noted in the Contract Documents prior to the execution of the Agreement, written notice thereof shall be given to Contractor prior to starting any such additional work.

ARTICLE 8 - COUNTY'S RESPONSIBILITIES

8.1 Communications: County will forward all instructions and decisions to Contractor through the Project Manager.

8.2 Right to Stop Work: The County has the right to stop or suspend work, and to award other work.

8.3 Project Manager

8.3.1 The County will designate a Project Manager and assistants to enable it to carry out its responsibilities at the site. The Project Manager is the County's agent and shall act as directed by and under the supervision of the County Administrator.

8.3.2 The Project Manager will be the County's sole authorized representative for the project. All correspondence to Architect from Contractor will be copied to the Project Manager.

8.4 Disputes Resolution

8.4.1 A dispute, or claim, or other matter in question arising out of or relating to the Contract Documents which is not disposed of by agreement shall be decided by the Project Manager promptly and in writing as provided in the Contract Documents. The decision of the Project Manager shall be

final and conclusive on the Contractor unless, within 5 days from the receipt of such decision, Contractor submits to Project Manager a written claims submission and documentation as defined in paragraph 8.6 below.

8.5 Disputed Work

8.5.1 Should Contractor object to any decision, order, directive, notice, action, or omission of Project Manager, Contractor may, within 5 days after receipt or occurrence of the same, or before commencing with the disputed work, whichever occurs first, furnish to Project Manager a written notice stating such objections.

8.5.2 Contractor shall furnish to Project Manager, beginning with the first day and at the end of each day detailed hourly records for labor, construction equipment, and services; and itemized records of materials and equipment used that day in performance of the disputed work. Such records shall be of a form approved by Project Manager. Such records shall be signed by Contractor and verified by Project Manager.

8.5.3 Failure by Contractor to furnish such written notice and records specified in 8.5.1 and 8.5.2 shall constitute a waiver of Contractor's right to furnish a claim for the disputed work.

8.6 Claims Submission and Documentation

8.6.1 Contractor may furnish a claim concerning a matter noticed in accordance with 8.5 to Tehama County Administrative Office, 727 Oak Street, Red Bluff CA 96080.

8.6.2 Contractor shall furnish 3 certified copies of claim documentation. The claim documentation shall be complete when furnished. The evaluation of the Contractor's claim will be based on County's records and the Contractor's furnished claim documentation.

8.6.3 Claim documentation shall conform to generally accepted auditing standards and shall be in the following format:

1. General Introduction
2. General Background
3. Issues
 - a) Index of Issues
 - b) For each Issue
 - 1) Background
 - 2) Chronology
 - 3) Contractor's Position (reason for County's potential liability)
 - 4) Supporting Documentation of Merit
 - 5) Supporting Documentation of Damages
4. Critical Path Method Schedules, As-Planned and As-Built
5. Productivity Exhibits
6. Summary of Issues and Damages

8.6.4 Supporting documentation of merit for each issue shall be cited by reference, photocopied, or explained. Supporting documentation may include, but not be limited to general conditions, technical specifications, drawings, correspondence, conference notes, shop drawing, survey books, inspection reports, delivery schedules, test reports, daily reports, subcontracts, fragmentary critical path method schedules, photographs, technical reports, requests for information, field instructions, and other related records.

8.6.5 Supporting documentation of damages for each issue shall be cited, photocopied, or explained. Supporting documentation may include but not be limited to certified detailed labor, materials, equipment, and construction equipment and services costs; purchase orders; invoices; project as-planned and as-built costs; subcontractor payment releases; quantity reports; other related records; general ledger and any other accounting materials.

8.6.6 Each copy of claim documentation shall include the following certification:

1. I certify under penalty of perjury, according to the laws of the State of California that this claim is made in good faith, that the supporting documentation is accurate and complete to the best of my knowledge and belief; and that the amount requested accurately reflects the contract adjustments for which County is responsible.

2. Certification shall be signed in the same manner as the proposal was signed.

8.6.7 Should Contractor be unable to support any part of the claim and it is determined that such inability is attributable to falsity of such certification or misrepresentation of fact or fraud on the part of Contractor, Contractor shall be liable to County for three times the amount of damages which the County sustains, plus the cost of civil action and may be liable to the County for a civil penalty of up to ten thousand dollars for each false claim.

8.7 Decisions on Claims

8.7.1 Claims of Contractor arising under and by virtue of the contract will be decided by the County Steering Committee consisting of the County Administrator, County Counsel, the Architect and the Project Manager who will furnish the decisions to Contractor in writing.

8.8 Release of Undecided Claims

8.8.1 Undecided claims furnished to County Steering Committee before execution of the final release of claims provided in 8.6 and not excepted therefrom shall be deemed released by Contractor upon execution of such release and will not be further considered by County.

8.9 Exhaustion

8.9.1 Contractor must exhaust all remedies and comply with all dispute resolution procedures set forth in paragraph 8.4 prior to filing suit which names the County, Architect, Project Manager or any officer, employee, agent or affiliate thereof.

ARTICLE 9 - ARCHITECT'S STATUS DURING CONSTRUCTION

9.1 Visits to Site:

9.1.1 Progress and quality of the executed work and to determine if the work is proceeding in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site observations to check quality or quantity of the work. On the basis of on site observations as an Architect, the Architect will keep the Project Manager informed of progress of the work, and will endeavor to guard the County against defects and deficiencies in the work.

9.1.2 Architect and his representatives will have access to the work at all times for the observation of the building operations, including the right to accept or reject materials and/or workmanship. The Architect and his representatives shall perform their duties in accordance with Section 4-213 and 4-217, Title 24, California Code and Regulations.

9.1.3 In cases of emergency the Architect may give directions to the Contractor, his authorized representative, or if neither are available, to the superintendent or foreman in charge of the particular

work concerning which directions are given. Such directions will be confirmed in writing by the Project Manager.

9.2 Clarifications and Interpretations:

9.2.1 Architect will issue with reasonable promptness through the Project Manager such written Field Orders, which will clarify or interpret the design intent of the Contract Documents as he may determine to be necessary. These Field Orders shall not entitle Contractor to any adjustment to the contract price or time.

9.3 Rejecting Defective Work:

9.3.1 Architect and/or the Project Manager will have authority to disapprove or reject work which is "defective" (which term includes without limitation work that is unsatisfactory, faulty, does not conform to the requirements of the Contract Documents, does not meet the requirements of any inspection, test or approval referred to in paragraph 13.2, or has been damaged prior to approval of final payment). He will also have authority to recommend to the Project Manager that he require special inspection or testing of the work as provided in paragraph 13.4, whether or not the work is fabricated, installed or completed.

9.4 Shop Drawings and Samples:

9.4.1 The Architect is responsible for the review of samples. (See paragraph 6.13)

9.4.2 The Contractor shall submit for review, with reasonable promptness, all samples as specified or directed by the Architect. The Architect shall review samples, with reasonable promptness, only for conformance with the design concept of the project and for compliance with information given in the Contract Documents. The work shall be in accordance with reviewed samples.

9.5 Shop Drawings

9.5.1 The Architect shall review, with reasonable promptness, schedules and drawings for conformance with the design concept of the project and compliance with the Contract Documents. The Architect's review of such drawings or schedules shall not relieve the Contractor from responsibility for deviations from Drawings and Specifications, nor shall it relieve him from responsibility for errors in shop drawings or schedules.

9.5.2 Architect shall be permitted a reasonable time to review such drawings and no claim for time extension or damages will be allowed for this time.

9.5.3 Satisfactory shop drawings shall be so identified by Architect, dated, and a reproducible copy returned to the Contractor.

9.5.4 Should shop drawings be rejected, one reproducible copy set will be returned to the Contractor with indicated corrections and changes to be made. After making such corrections and changes, Contractor shall resubmit shop drawings, in numbers of copies required, until approval is obtained. Any corrections or changes indicated on the shop drawings shall not be considered as an extra work order.

9.6 Architect will be the interpreter of the design and technical requirements of the Contract Documents and the compliance by the Contractor therewith. Neither the Project Manager, Architect, nor County will be liable to the Contractor for the result of any interpretation or decision rendered in good faith. Disputes with respect to interpretations will be processed and resolved as provided for in paragraph 8.4.

9.7 Limitations on Architect's Responsibilities

9.7.1 Neither Architect's authority to act under this Article 9 or elsewhere in the Contract Documents, nor any finding or decision made by him in good faith, shall give rise to any duty or responsibility of Architect to Contractor, any subcontractor, any material man, fabricator, supplier or any of their agents or employees or any other person performing any of the work.

9.7.2 Architect will not be responsible for Contractor's means, methods, techniques, sequences, division and allocation of the work or procedures of construction, or the safety precautions and programs incident thereto, and he will not be responsible for Contractor's failure to perform the work in accordance with the Contract Documents.

9.7.3 Architect will not be responsible for the acts or omissions of Contractor, or any subcontractors, or any of his or their agents or employees, or any other persons at the site or otherwise performing any of the work.

9.7.4 Nothing in these General Conditions or in the Contract Documents shall be deemed to establish a contractual relationship, direct or otherwise, between Architect and Contractor.

ARTICLE 10 - CHANGES IN THE WORK:

10.1 The County may at any time or from time to time order additions, deletions or revisions in the general scope of the work without invalidating the Contract Documents and without notice to the sureties.

10.2 Changes will be authorized by a Change Order. Upon receipt of a Change Order, Contractor shall immediately proceed with the work involved. All such work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the contract price or any extension or shortening of the contract time, an adjustment will be made as provided in Articles 11 and 12, on the basis of a claim made by either Contractor or County.

10.3 Changes, Omissions, or Additions shall be made only through a standard written order of the Architect and approved by the Owner. Change Orders will be issued only before or at the time of change, and the expense or responsibility for any change or damage without said order shall rest entirely with the Contractor.

10.4 County may order minor changes or alterations in the work not involving extra costs or extension of time, and not inconsistent with the overall intent of the Contract Documents. Such changes may be ordered by a Field Order.

10.5 When necessary, in order to avoid delay to the work, the Project Manager may authorize the Contractor to proceed with the work pending completion of a change order. This prior authorization may be verbal; however, it must be confirmed in writing as soon as possible by the authorizing individual. Whenever work is to proceed on the basis of such prior authorization, the Contractor must be notified in writing to proceed with the work pending approval of the change order. In the case of a change order requested by the Contractor, the County must have positive assurance that he will execute the change order before allowing work to proceed. Preparation and final approval of change orders for work covered under prior authorization must be actively pursued. Prior authorization does not include authority to make payment for the work.

10.6 No claims for adjustment of contract price or time for delays or costs due to material shortage, transportation difficulties, labor shortage, or dewatering, will be paid by County except as defined in subparagraphs 12.1.2 and 12.1.3.

10.7 Additional work performed by Contractor without authorization of a change order shall be at his own expense. Contractor shall not be entitled to an increase in the contract price or an extension of the contract time, except in the case of an emergency as provided in subparagraphs 6.1.4 or 9.1.3, for such work performed without a change order.

10.8 The County may order changes in the work. Notwithstanding any dispute or controversy that may arise in connection with a claim for adjustment of contract price, in the event of such changes Contractor shall proceed with the work promptly and diligently upon written order from Project Manager. The contract price may be changed pursuant to Article 11 without notice to the Surety.

10.9 In the event that there is any dispute between County and Contractor with relation to any payment to be made under this contract, whether by reason of change order; progress payment; or otherwise, Contractor shall submit a claim pursuant to Articles 11 and 12 but will not be entitled to walk off the job or stop work in any manner and is under a full obligation to complete each and every term and condition of the contract.

10.10 Dispute resolutions provisions of paragraphs 8.5 and 8.6 are applicable to changes in the work except as in Articles 11 and 12.

ARTICLE 11 - CHANGE OF CONTRACT PRICE

11.1 Contract Price:

11.1.1 The Contract Price constitutes the total amount payable to Contractor for performing the work under the Contract Documents. All duties, responsibilities and obligations assigned to or undertaken by Contractor in respect to work under the Contract Documents shall be at his expense without change of the Contract Price.

11.1.2 If Contractor wishes to make a claim for an increase to the contract price, he shall give Project Manager written notice thereof not later than five (5) days after the occurrence of the event giving rise to such claim. Within ten (10) days thereafter, Contractor shall supply all supporting documents for such claim, including but not limited to time slips for labor and time slips for equipment. Failure to provide all supporting documents shall constitute a waiver of such claim by Contractor.

11.1.3 The written notice shall set forth the reasons for which the Contractor believes additional compensation is due, the nature of the costs involved and the amount thereof. The notice must be given to the Project Manager prior to Contractor's performing the work-giving rise to the claim for additional compensation.

11.1.4 Differences between the parties arising under and by virtue of the contract shall be brought to the attention of the respective parties at the earliest possible time in order that such matters may be promptly settled. The Contractor hereby agrees that he shall have no right to additional compensation for any claim for which written notice was not filed in strict compliance with this paragraph.

11.2 The cost or credit to the County resulting from a change in the work, from a prior authorization, or from any claim for an increase or decrease in the contract price shall be determined by the Project Manager in one of the following ways:

11.2.1 By a lump sum properly itemized, and showing direct cost and markup, and supported by such substantiating data as may be required by the Project Manager to permit evaluation; allowable markup shall not in any case exceed the amount set forth below:

1. For work performed by the Contractor's own forces, for changes up to \$30,000.00, an additional 10% for overhead and 5% for profit may be added;

2. For changes in excess of \$30,000, the sums in excess of \$30,000 are allowed an additional 8% for overhead and 5% for profit;
3. For work performed by subcontractors, the subcontractors' billings shall be limited to the markups as described for the Contractor, except the Contractor may add 10% to the gross amount as set forth by the subcontractor, as his fee for coordinating and implementing such changed work by the subcontractor;
4. Overhead includes, but is not limited to, the costs of bonds, insurance, supervision, office expense, management, transportation and small tools allowance.

11.2.2 Where the work involved is related to unit prices, by application of unit prices to quantities involved; or

11.2.3 On the basis of force account as provided for in paragraph 11.3 which shall be employed only at the Project Manager's sole discretion, which shall not be an election of the Contractor.

11.2.4 All work undertaken by prior authorization shall be on the basis of force account, until and unless a lump sum is agreed upon.

11.3 Force Account Payment - When extra work is to be paid for on a force account basis, the labor, materials, and equipment used in the performance of such work shall be subject to the approval of the Project Manager and compensation will be determined as follows:

11.3.1 Work Performed by Contractor - The Contractor will be paid the direct costs for labor, materials and equipment used in performing the work determined as hereinafter provided in Sections "Labor," "Materials" and "Equipment Rental," except where agreement has been reached to pay in accordance with Section "Work Performed by Special Forces or Other Special Services."

11.3.2 To the total direct costs computed as provided in Sections "Labor," "Materials," and "Equipment Rental," there will be added a markup as defined in paragraph 11.2.1.

11.3.3 The above markups shall constitute full compensation for all overhead costs which shall be deemed to include all items of expense not specifically designated as cost or equipment rental in Sections "Labor," "Materials," and "Equipment Rental." The total payment made as provided above shall be deemed to be the actual cost of such work and shall constitute full compensation therefore.

11.3.4 When extra work paid for on a force account basis is performed by forces other than the Contractor's organization, the Contractor shall reach agreement with such other forces as to the distribution of the payment made by the Owner of such work. No additional payment therefore will be made by the Owner by reason of the performance of the work by a subcontractor or other forces.

11.3.4.1 Labor - The Contractor will be paid the cost of labor for the workmen (including foremen when authorized by the Project Manager) used in the actual and direct performance of the work. The cost of labor, whether the employer is the Contractor, subcontractor, or other forces, will be the sum of the following:

11.3.4.2 Actual Wages - The actual wages paid shall include any employer payments to or on behalf of the workmen for health and welfare, pension, vacation, and similar purposes.

11.3.4.3 Labor Surcharge - To the actual wages, as defined in Section 11.4.2 will be added a labor surcharge set forth in the Department of Transportation publication entitled Labor Surcharge and Equipment Rental Rates, which is in effect on the date upon which the work is accomplished and which is part of the contract. Said labor surcharge shall constitute full compensation for all payments imposed by State and Federal laws, specifically worker's compensation, social security, Medicare, Federal

unemployment insurance, State unemployment insurance and State training taxes, and for all other payments made to, or on behalf of, the workmen, other than actual wages as defined in Section 11.4.2 and subsistence and travel allowance as specified in Section 11.3.4.4.

11.3.4.4 Subsistence and Travel Allowance - The actual subsistence and travel allowance paid to such workmen.

11.3.4.5 Materials - The Owner reserves the right to furnish such materials as it deems advisable, and the Contractor shall have no claims for costs and markup on such materials.

Only materials furnished by the Contractor and necessarily used in the performance of the work will be paid for. The cost of such materials will be the cost to the purchaser, whether Contractor, subcontractor, or other forces, from the supplier thereof, except as the following are applicable:

11.3.4.6 If materials are procured by the purchaser by any method which is not a direct purchase from and a direct billing by the actual supplier to such purchaser, the cost of such materials shall be deemed to be the price paid to the actual supplier as determined by the Project Manager plus the actual costs, if any, incurred in the handling of such materials.

11.3.4.7 If the materials are obtained from a supply or a source owned wholly or in part by the purchaser, the cost of such materials shall not exceed the price paid by the purchaser for similar materials furnished from said source on contract items or the current wholesale price for such materials delivered to the job site, whichever price is lower.

11.3.4.8 If the cost of such materials is, in the opinion of the Project Manager, excessive, then the cost of such materials shall be deemed to be the lowest current wholesale price at which such materials are available in the quantities concerned delivered to the job site, less any discounts as provided in Section 11.4.1.

11.3.4.10 Equipment Rental - The Contractor will be paid for the use of equipment at the rental rates listed for such equipment in the Department of Transportation publication entitled Labor Surcharge and Equipment Rental Rates, which is in effect on the date upon which the work is accomplished and which is a part of the contract, regardless of ownership and any rental or other agreement, if such may exist, for the use of such equipment entered into by the Contractor. If it is deemed necessary by the Project Manager to use equipment not listed in the said publication, a suitable rental rate for such equipment will be established by the Project Manager. The Contractor may furnish any cost data, which might assist the Project Manager in establishment of such rental rates.

The rental rates paid as above provided shall include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs, and maintenance of any kind, depreciation, storage, insurance, and all incidentals.

Operators of rented equipment will be paid for as provided in Section 11.4.1(1) "Labor."

All equipment shall, in the opinion of the Project Manager, be in good working condition and suitable for the purpose for which the equipment is to be used.

Unless otherwise specified, manufacturer's ratings and manufacturer's approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment that has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer.

Individual pieces of equipment or tools not listed in said publication and having a replacement value of \$150 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefore.

Rental time will not be allowed while equipment is inoperative due to breakdowns.

11.3.4.11 Equipment on the Work - The rental time to be paid for equipment on the work shall be the time the equipment is in operation on the extra work being performed, and in addition, shall include the time required to move the equipment to the location of the extra work and return it to the original location or to another location requiring no more time than that required to return it to its original location, except that moving time will not be paid for if the equipment is used at the site of the extra work on other than such extra work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power, except that no payment will be made if equipment is used at the site of the extra work on other than such extra work.

The following shall be used in computing the rental time of equipment on the work:

- (1) When hourly rates are listed, less than 30 minutes of operation shall be considered to be ½ hour of operation.
- (2) When daily rates are listed, less than 4 hours of operation shall be considered to be ½ day of operation.

11.3.4.12 Equipment Not on the Work - For the use of equipment moved in on the work and used exclusively for extra work paid for on a force account basis, the Contractor will be paid the rental rates listed in the Department of Transportation publication entitled Labor Surcharge and Equipment Rental Rates, which is in effect on the date upon which the work is accomplished and which is a part of the contract, and for the cost of transporting the equipment to the location of the work and its return to its original location, all in accordance with the following provisions:

- (1) The original location of the equipment to be hauled to the location of the work shall be agreed to by the Project Manager in advance.
- (2) The Owner will pay the costs of loading and unloading such equipment.
- (3) The cost of transporting equipment in low bed trailers shall not exceed the hourly rates charged by established haulers.
- (4) The cost of transporting equipment shall not exceed the applicable minimum established rates of the Public Utilities Commission.
- (5) The rental period shall begin at the time the equipment is unloaded at the site of the extra work, shall include each day that the equipment is at the site of the extra work, excluding Saturdays, Sundays, and legal holidays unless the equipment is used to perform the extra work on such days, and shall terminate at the end of the day on which the Project Manager directs the Contractor to discontinue the use of such equipment. The rental time to be paid per day will be in accordance with the following:

<u>Hours Equipment is in Operation</u>	<u>Hours to be Paid</u>
0	4
0.5	4.25
1	4.5
1.5	4.75
2	5
2.5	5.25
3	5.5
3.5	5.75
4	6
4.5	6.25
5	6.5

5.5	6.75
6	7
6.5	7.25
7	7.5
7.5	7.75
8	8

Over 8 Hours in operation

The hours to be paid for equipment which is operated less than 8 hours due to breakdowns, shall not exceed 8 less the number of hours the equipment is inoperative due to breakdowns.

When hourly rates are listed, less than 30 minutes of operation shall be considered to be ½ hour of operation.

When daily rates are listed, payment for ½ day will be made if the equipment is not used. If the equipment is used, payment will be made for one day.

(6) Should the Contractor desire the return of the equipment to a location other than its original location, the Owner will pay the cost of transportation in accordance with the above provisions, provided such payment shall not exceed the cost of moving the equipment to the work.

(7) Payment for transporting and loading and unloading equipment, as above provided will not be made if the equipment is used on the work in any other way than upon extra work paid for on a force account basis.

When extra work, other than work specifically designated as extra work in the plans and specifications, is to be paid for on a force account basis, and the Project Manager determines that such extra work required the Contractor to move on to the work equipment which could not reasonably have been expected to be needed in the performance of the contract, the Project Manager may authorize payment for the use of such equipment at equipment rental rates in excess of those listed as applicable for the use of such equipment subject to the following additional conditions:

(a) The Project Manager shall specifically approve the necessity for the use of particular equipment on such work.

(b) The Contractor shall establish to the satisfaction of the Project Manager that such equipment cannot be obtained from his normal equipment source or sources and those of his subcontractors.

(c) The Contractor shall establish to the satisfaction of the Project Manager that the proposed equipment rental rate for such equipment from his proposed source is reasonable and appropriate for the expected period of use.

(d) The Project Manager shall approve the equipment source and the equipment rental rate to be paid by the County before the Contractor begins work involving the use of said equipment.

11.3.4.13 Owner-Operated Equipment - When owner-operated equipment is used to perform extra work to be paid for on a force account basis, the Contractor will be paid for the equipment and operator, as follows:

Payment for the equipment will be made in accordance with the provisions in Section 11.3.4.10, "Equipment Rental."

Payment for the cost of labor and subsistence or travel allowance will be made at the rates paid by the Contractor to other workmen operating similar equipment already on the project, or in the absence of such workmen, at the rates for such labor established by collective bargaining agreements for the type of workman and location of the work, whether or not the owner-operator will be added to the cost of labor described herein, in accordance with provision in Section 11.3.4.3 "Labor Surcharge."

To the direct cost of equipment rental and labor, computed as provided herein, will be added the markups for equipment rental and labor as provided for in Section 11.3.1 "Work Performed by Contractor."

11.4.1 Work Performed by Special Forces or Other Special Services - When the Project Manager and the Contractor, by agreement, determine that a special service for an item of extra work cannot be performed by the forces of the Contractor or those of any of his subcontractors, such services or extra work item may be performed by a specialist. Invoices for such service or item of extra work on the basis of the current market price thereof may be accepted without complete itemization of labor, material and equipment rental costs when it is impractical and not in accordance with the established practice of the special service industry to provide such complete itemization.

In those instances wherein a Contractor is required to perform extra work necessitating a fabrication or machining process in a fabrication or machine shop facility away from the job site, the charges for that portion of the extra work performed in such facility, may, by agreement, be accepted as a specialty billing.

To the specialist invoice price, less a credit to the County for any cash or trade discount offered or available, whether or not such discount may have been taken, will be added 15 percent in lieu of the percentages provided in Section 11.3.1 "Work Performed by Contractor."

11.4.2 Records - The Contractor shall maintain his records in such a manner as to provide a clear distinction between the direct costs of extra work paid for on a force account basis and the costs of other operations.

11.5 The amount of credit to be allowed to County for any change which results in a net decrease in cost of the work, will be the amount of the actual net decrease as determined by the Project Manager. When both additions and credits are involved in any one change, any Contractor's fee under paragraph 11.3.3 shall be calculated on the basis of the net increase, if any.

11.6 Whenever the cost of any work is to be determined pursuant to paragraph 11.3, Contractor will submit in form prescribed by County an itemized cost breakdown together with supporting data.

11.7 Disputes, claims and matters in question arising out of or relating to the interpretation of implementation of Article 11 shall be submitted and resolved in accordance with paragraph 8.5.

11.8 Cash Allowances - NOT APPLICABLE

Contract Change Order Form

11.9 All parties agree that the following form shall be used for all change orders:

CONTRACT CHANGE ORDER NO. _____

Date _____

Sheet _____ of _____

_____. You are hereby directed to make the herein-described changes from the plans and specifications, or do the following described work in accordance with applicable provisions of the Contract Documents. Work described herein shall include furnishing of all materials, equipment, labor and services necessary for its completion.

This Change Order constitutes a full accord and satisfaction as to claims for all additional costs and extensions of the contract time relating to the portion of the work described under the term "Item." The execution of this Change Order is a waiver of any rights or claims by the Contractor to any additional compensation for the "Item" work or extensions of the contract time for that work.

ITEM:

The above changes result in the following adjustments to the Contract Price:

Add/Deduct \$ _____.

Contract Time is increased/decreased/unchanged _____ working days by this Change Order.

I, the undersigned Contractor, have given careful consideration to the change proposed and hereby agree to do the work above specified and will accept as full payment therefore the prices shown above.

By _____
CONTRACTOR

By _____
Title

Date _____

Date _____

Distribution:
District (Master)
Contractor (Master)
Architect (Copy)
Project Manager (Copy)

SUBMITTED BY:

ARCHITECT

RECOMMENDED FOR APPROVAL:

By _____
PROJECT MANAGER

Date _____

APPROVED BY:

COUNTY APPROVAL:

By _____
CHIEF ADMINISTRATOR

Date _____

CONTRACT CHANGE ORDER NO. _____
PROJECT _____
Date: _____

The Contract is changed as follows:

CCO #	COR #	DESCRIPTION		AMOUNT
		Requested by: Reason:	ADD	
		Requested by: Reason:	ADD	
		Requested by: Reason:	ADD	
		Requested by: Reason:	ADD	
		Requested by: Reason:		
		TOTAL CHANGE ORDER NO. ____	ADD	\$0.00

The original Contract Sum	\$0
Net Change by previously authorized Change Orders	\$0
The Contract Sum prior to this Change Order	\$0
The Contract Sum will be increased by this Change Order in the amount of	\$0
The New Contract Sum including this Change Order will be	\$0
The Contract Time will be extended	(-0-) work days

ARTICLE 12 - CHANGE OF THE CONTRACT TIME

12.1 Contract Time

12.1.1 The County may extend, reduce or adjust the contract time without invalidating the Contract Documents and without notice to the Surety. The contract time may only be changed by a change order. Any claim for an extension in the contract time shall be based on written notice to Project Manager within five (5) days of commencement of the event giving rise to the claim. The notice shall set forth the reasons for the delay, the date of its commencement, the extent of the delay, together with such supporting data as may be required by Project Manager. Change in the contract time shall be incorporated in a change order. Failure to present notice of claim in writing within the stated five days constitutes a waiver for any delay claim.

12.1.2 In the event it is deemed necessary to extend the time for completion of the work, such extensions shall in no way release any guarantee given by the Contractor pursuant to the provisions of the Contract Documents, or the contract let hereunder, nor shall such extension of time relieve or release the Sureties on the bonds executed pursuant to said provision. The Sureties in executing such bonds shall be deemed to have expressly agreed to any such extension of time. The amount of time allowed in any extension of time shall be limited to the period of the delay giving rise to the same as determined by the County.

12.1.3 The amount of time extension, if any, to which the Contractor is entitled shall be determined by the Project Manager. No damages of any sort shall be paid to Contractor for delay, disruption, halting, cessation or temporary abandonment, no matter from what cause. Parties acknowledge that on this project, revisions to the plans and specifications will be needed, and Contractor waives, by entering into the Agreement with County, any damages caused by such revision or any other source during the term of this contract. Notwithstanding any dispute which may arise in connection with a claim for adjustment of the contract time, Contractor shall proceed with the work promptly and directly.

12.2 Liquidated Damages

12.2.1 The work prescribed by the Contract Documents must be completed within the time set forth in the Agreement, or damage will be sustained by the County. Any delay could cause delay to operations of the County depriving the County of the scheduled beginning of the use of the facility under construction. The parties hereto recognize that, because of the foregoing special circumstances, it is impractical and extremely difficult to fix the actual damages.

12.2.2 Accordingly, the parties hereto agree, and by execution of the Agreement the Contractor acknowledges that he understands, has ascertained and agrees, that the Contractor shall pay to the County, as liquidated damages, and not as a penalty or forfeiture, the amounts herein set forth for the failure of the Contractor to substantially complete the entire work within the time specified.

12.2.3 Time is therefore of the essence in these Contract Documents and it is imperative that the work included in these Contract Documents be substantially completed within the specified time.

12.2.4 Since it is impossible or extremely impractical, presently, to determine the actual amount of damages which the County will sustain by reason of such delay, it is, therefore, agreed that the Contractor will pay to the County liquidated damages in the amount as set forth in subparagraph 12.2.6, for each and every calendar day beyond the time set forth in the Agreement, as adjusted, until the time of completion as determined in paragraph 14.5. The Contractor agrees to promptly pay such liquidated damages as are herein provided. In case the same are not so paid, Contractor agrees that the County may deduct the amount thereof from any money due or that may become due the Contractor under the contract.

12.2.5 The parties have endeavored to estimate the actual damages likely to be suffered by the County in the event of a delay in completion beyond the time set forth in the Agreement, and agree that the amount is a reasonable estimate of the County's actual damages and are just and reasonable sums under the circumstances presently existing.

12.2.6 It is agreed that the amount of liquidated damages to be paid by the Contractor to the County for failure to complete the entire work specified by the Contract Completion Date or to meet any deadline set forth in the Agreement for the completion of specified work (as extended, if applicable) is two hundred fifty dollars and no/cents (\$250.00) for each calendar day, continuing after the Substantial Completion Date, as indicated in the Agreement, to the date of actual substantial completion, or until the time of completion of the work necessary to meet such a deadline, as the case may be.

12.2.7 In the event the Contractor shall become liable for liquidated damages under this Section, the County in addition to all other remedies provided by law, shall have the right to require the Project Manager to withhold any and all retained percentages of payments, subject to the requirements of Sections 10263 and 22300 of the Public Contracts Code, which would otherwise be or become due the Contractor until the liability of the Contractor under this Section has been finally determined. The County shall have the right to use and apply such retained percentages, in whole or in part, to reimburse the County for all liquidated damages due or to become due to the County. Any remaining balance of such retained percentages shall be paid to the Contractor only after discharge in full of all liability incurred by the Contractor under this Section or otherwise. If the retained percentage is not sufficient to discharge all such liabilities of the Contractor, the Contractor shall continue to remain liable to the County until all such liabilities are satisfied in full.

12.2.8 Such amount will be in each case the actual cash value agreed upon as the loss to the County resulting from the Contractor's default.

12.2.9 Disputes, claims and matters in question arising out of or relating to the interpretation or implementation of Article 12 shall be submitted and resolved in accordance with paragraph 8.4.

ARTICLE 13 - WARRANTY AND GUARANTEE; TEST AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.1 Warranty and Guarantee

13.1.2 Contractor warrants and guarantees to County that all materials and equipment will be unless otherwise specified, all work will be of good quality, free from faults or defects, in accordance with the requirements of the Contract Documents and of any inspections, tests or approvals referred to in paragraph 13.2. All unsatisfactory work, all faulty or defective work, and all work not conforming to the requirements of the Contract Documents at the time of acceptance thereof or of such inspections, tests or approvals shall be considered defective. All defective work, whether or not in place, may be rejected, corrected or accepted as the County may direct.

13.2 Tests and Inspections

13.2.1 If laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any work to be specifically inspected, tested or approved by some public body, Contractor shall assume full responsibility therefore, pay all costs in connection therewith, and furnish the Project Manager with the required certificates of inspection, testing or approval. All other inspections, tests and approvals required by the Contract Documents shall be performed by County and the costs be paid by County unless otherwise specified.

13.2.2 Contractor shall give Project Manager and Architect timely notice of readiness of the work for all inspections, tests or approvals. If any such work required so to be inspected, tested or approved is

covered before such inspections, tests, or approvals are made, without written approval of the Project Manager, it must, if requested by the Project Manager or Architect, be uncovered for observation, and such uncovering and replacement shall be at Contractor's expense.

13.2.3 Neither observations by Project Manager and Architect nor inspections, tests or approvals shall relieve Contractor from his obligations to perform the work in accordance with the requirements of the Contract Documents.

13.2.4 Any defective work, which may be discovered before final acceptance of the work, shall be corrected immediately by the Contractor, and any unsatisfactory materials shall be rejected, notwithstanding that they may have been overlooked by an inspector. The inspection of the work shall not relieve the Contractor of any of his obligations to perform satisfactory work as herein prescribed.

13.2.5 Failure or neglect on the part of the County or any of its authorized agents to condemn or reject bad or inferior work or materials shall not be construed to imply an acceptance of such work or materials if it becomes evident at any time prior to final acceptance of the work; neither shall it be construed as barring the County at any subsequent time from recovery of damages or of such a sum of money as may be needed to build all portions of the work in which fraud was practiced or improper materials used whenever found.

13.3 Access to Work

13.3.1 The County and its representative and the Architect and his representatives will at all times have access to the work. Contractor shall provide proper and safe facilities for such access and observation of the work and also for any inspection or testing thereof by others.

13.4 Uncovering the Work

13.4.1 Work, which is supposed to be tested prior to covering or inspecting, and which has been covered prior to testing or inspection must, if requested by Project Manager or Architect, be uncovered for observation and replaced at Contractor's expense.

13.4.2 The Project Manager may request any work to be uncovered and inspected and tested. If such work is found to be defective, Contractor shall bear the expense of uncovering, exposure, inspection, testing, correction and recovering. If the work is not found to be defective, Contractor shall be allowed an increase in contract price and, if necessary, an extension of time to cover all-time and cost expended. Such increase and extension shall be granted pursuant to Articles 10, 11, and 12.

13.5 County May Stop the Work

13.5.1 If the work is defective, or Contractor fails to supply sufficient skilled workmen or suitable materials or equipment, or if Contractor fails to make prompt payments to subcontractors or for labor, materials or equipment, County may order Contractor to stop the work, or any portion thereof, until the cause for such order has been eliminated. This right of County to stop the work shall not give rise to any duty on the part of County to exercise this right for the benefit of Contractor or any other party.

13.6 Correction or Removal of Defective Work

13.6.1 The Project Manager may require the Contractor, prior to approval of final payment, without cost to County and as specified by Project Manager, to either correct any defective work, whether or not fabricated, installed or completed, or, if the work has been rejected by Project Manager or Architect, remove it from the site and replace it with nondefective work. If Contractor does not correct such defective work or remove and replace such rejected work within a reasonable time, all as specified in a written notice from Project Manager, County may have the deficiency corrected or the rejected work removed and replaced by other persons. All direct or indirect costs of such correction or removal and

replacement, including compensation for additional professional services, shall be paid by Contractor. Contractor shall also bear the expenses of making good all work of others destroyed or damaged by his correction, removal or replacement of his defective work.

13.6.2 The Contractor shall remove from the site within 48 hours, when so directed by the Project Manager, any materials which are not in conformance with the Contract Documents.

13.7 One Year Correction Period

13.7.1 If, after the approval of final payment and prior to the expiration of one year after the date of Notice of Completion or such longer periods of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any work is found to be defective, Contractor shall promptly, without cost to County and in accordance with County's written instructions, either correct such defective work, or, if it has been rejected by County, remove it from the site and replace it with nondefective work. If Contractor does not promptly comply with the terms of such instructions, County may have the defective work corrected or the rejected work removed and replaced by other persons and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, shall be paid by Contractor. The requirements of this paragraph shall be cumulative with such other indemnification, warranties and guarantees as provided by the Contract Documents, at law and in equity, and shall not be deemed a limitation of any sort on the rights and remedies of the County against the Contractor

13.7.1.1 The warranties, extended warranties and guarantees in these General Conditions and in the Specification shall be cumulative with such other indemnification, warranties and guarantees as provided by the Contract Documents, or at law or in equity, and shall be deemed a limitation of any sort on the rights and remedies of the County against the Contractor.

13.8 Acceptance of Defective Work

13.8.1 If, instead of requiring correction or removal and replacement of defective work, County prefers to accept it, it may do so. In such case, if acceptance occurs prior to approval of final payment, a change order shall be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the contract price; or, if the acceptance occurs after approval of final payment, an appropriate amount shall be paid by Contractor to County.

13.9 Work Neglected by Contractor

13.9.1 If Contractor fails to prosecute the work in accordance with the Contract Documents, including any requirements of the construction schedule, County may give Contractor written notice. Contractor shall respond to County within 24 hours' receipt of said notice, and conform to said notice within 7 days. County may, without prejudice to any other remedy it may have, make good deficiencies, and the cost thereof (including compensation for additional professional services) shall be charged against Contractor. If the payments then or thereafter due Contractor are not sufficient to cover such amount, Contractor shall pay the difference to County.

ARTICLE 14 - PAYMENTS AND COMPLETION

14.1 Schedules:

14.1.1 Work Schedule and activity cost data developed in connection therewith as described in the General Requirements. No progress payment will be made until after the Schedule has been updated as of the date of application. The activity cost data will be incorporated into the form of Application for Payment furnished by the County.

14.2 Application for Progress Payment:

14.2.1 Once a month Contractor shall submit to Project Manager and Architect for review an Application for Payment filled out and signed by Contractor covering the work completed as of the date of the application and accompanied by such data, vouchers and schedules as may reasonably be required. No payment shall be made for any work or material not specifically incorporated in the project, except equipment purchased by Contractor, delivered to and stored in a bonded warehouse acceptable to the Owner. Payment for 95% of the invoiced value of such equipment may be made, subject to the inspection by and approval of the Owner. Equipment that qualified for such payment while not incorporated into the work, is limited to: special order transformers, generators, pumps, valves, and motors. Items which are "stock" or "off the shelf" which are readily available are not, under any circumstances, eligible for payment under this provision.

14.2.2 Mobilization, bonds, and insurance premiums will be paid as part of the first progress payment if these costs are identified as part of the cost allocation required under General Requirements, Section 01310. Each subsequent Application for Payment shall include an affidavit of Contractor stating that all previous progress payments received on account of the work have been applied to discharge in full all of Contractor's obligations reflected in prior Applications for Payment and otherwise. Failure to submit any data and affidavits as may be required by this paragraph shall be grounds for rejection of the Application for Payment. This payment will be made pursuant to paragraph 14.11

14.3 Contractor's Warranty of Title:

14.3.1 Contractor warrants and guarantees that title to all work, materials and equipment covered by any Application for Payment, whether incorporated in the project or not, will pass to County at the time of payment, free and clear of all liens, claims, security interests and encumbrances (hereinafter in these General Conditions referred to as "liens"). The County may, at any time, require the Contractor to post, at Contractor's expense, a lien release bond as to any lien filed against the project.

14.4 Approval of Payments:

14.4.1 The Project Manager will, within fifteen days after receipt of each Application for Payment, either indicate in writing his approval for payment or return the application to Contractor indicating his reasons for refusing to approve payment. County shall, within 30 days of presentation to it of an approved Application for Payment, review said application and if found acceptable in form and amount, pay Contractor the amount approved.

14.4.2 The County will pay 95% of the amount due the Contractor as progress payments. The remaining monies will be paid pursuant to paragraph 14.9.1.

14.4.3 The Contractor may elect to receive 100% of payments due under the contract from time to time, without retention of any portion of the payment by the public agency, by depositing securities of equivalent value with the public agency in accordance with the provisions of Section 4590 of the Government Code. Such securities, if deposited by the Contractor, shall be valued by the public agency's Finance Director (Treasurer), whose decision on valuation of the securities shall be final.

14.4.4 The granting of any progress payment, or the receipt thereof by the Contractor, shall not constitute acceptance of the work or any portion thereof, and shall in no way lessen the liability of the Contractor to replace unsatisfactory work or material, though the unsatisfactory character of such work or material may not have been apparent or detected at the time such payment was made.

14.4.5 It is mutually understood and agreed that when under any provision of this contract the County shall charge any sum of money against the Contractor, the amount of such charge shall be deducted and retained by the County from the amount of the next succeeding progress estimate, or from any other moneys due or that may become due the Contractor on account of the contract. If on completion

or termination of the contract such moneys due the Contractor are found insufficient to cover the County's charges against him the County shall have the right to recover the balance from the Contractor or his sureties.

14.4.6 The County may withhold up to 125% of the estimated cost of remedial work from payments otherwise due the Contractor, if in the judgment of the Project Manager or Architect the Contractor has failed to make satisfactory progress on the completion of remedial work, or is otherwise in violation of any requirement, duty, obligation or covenant contained in the Contract Documents. Such withholding is supplementary to the retention amount required by these Contract Documents.

14.4.7 County may refuse to approve the whole or any part of any payment because of subsequently discovered evidence, change in circumstances or the results of subsequent inspections or tests, and may nullify any such payments previously approved to such extent as may be necessary in their opinion to protect County from loss, because:

14.4.7.1 the work is defective, or completed work has been damaged requiring correction or replacement;

14.4.7.2 claims or liens have been filed, or there is reasonable cause to believe such may be filed;

14.4.7.3 the contract price has been reduced because of modification;

14.4.7.4 County has been required to correct defective work or complete the work;

14.4.7.5 of unsatisfactory prosecution of the work including failure to furnish acceptable submittals; or

14.4.7.6 the Contractor has failed to comply with the Contract Documents, direction of County or with the requirements of the law.

14.5 Notice of Completion:

14.5.1 Contractor will certify in writing to County, prior to final payment, that the entire project is substantially complete and request that County issue a Notice of Completion. Within a reasonable time thereafter, Project Manager, Contractor, and Architect shall make a review of completeness. If Project Manager does not consider the project substantially complete, Project Manager will notify Contractor in writing giving his reasons. If Project Manager considers the project substantially complete, Project Manager will prepare a provisional Notice of Completion which shall fix the tentative date of Substantial Completion and the responsibilities for maintenance and utilities. There shall be attached to the provisional certificate a list of items to be completed or corrected before final payment, and the provisional certificate shall fix the time within which such items be completed or corrected, said time to be within the contract time. Section 01700 shall apply to this paragraph.

14.5.2 Contractor shall have seven days after receipt of the provisional certificate during which he may make written objection to Project Manager as to any provisions of the provisional certificate or attached list. If, after considering such objection, Project Manager concludes that the project is not substantially complete, Project Manager will within seven days after submission of the objection notify Contractor thereof in writing stating the reasons. Upon Contractor's completion of the items listed on the provisional certificate, and upon satisfaction of the terms and conditions of the provisional certificate, the Project Manager shall issue a final Notice of Completion, which shall fix date as may be necessary or appropriate. Project Manager's determination of the date of Substantial Completion and other items under this paragraph shall be final and conclusive on Contractor. Section 01700 shall apply to this paragraph.

14.5.3 Project Manager shall have the right to exclude Contractor from the project site after the date of Substantial Completion, but Project Manager shall allow Contractor reasonable access to complete punch list items or perform correction and warranty work.

14.6 Partial Utilization:

14.6.1 Prior to final payment, Project Manager may request Contractor in writing to permit County to use a specified part of the project which it believes it may use without significant interference with construction of the other parts of the project. If Contractor agrees, it will certify to Project Manager and Architect that said part of the project is substantially complete and request Project Manager to issue a certificate of Substantial Completion for that part of the project. Within a reasonable time thereafter Project Manager, Contractor and Architect shall make an inspection of that part of the project to determine its status of completion. If Project Manager determines that such part is substantially complete, Project Manager shall issue a Certificate of Substantial Completion. If Project Manager does not consider that it is substantially complete, Project Manager will notify Contractor thereof in writing, giving its reasons. In case of partial utilization by the County, the provisions of General Requirements Section 01700 will govern with respect to the responsibilities of Contractor and County.

14.6.2 Partial utilization shall not limit any warranty or guarantee by the Contractor, nor shall it constitute a waiver of any right of the County, its successors or assigns.

14.7 Final Inspection:

14.7.1 The Contractor shall give written notice that the project is complete. Project Manager and Architect will make a final review of completeness with Contractor, and will notify Contractor in writing of all particulars in which this review reveals that the work is incomplete or defective. Contractor shall immediately take such measures as are necessary to remedy such deficiencies.

14.8 Final Application for Payment:

14.8.1 The Contractor shall complete all such corrections to the satisfaction of the Project Manager and deliver all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection and other documents required by the Contract Documents or by the Project Manager. He may then make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by such data as the Project Manager may reasonably require, together with complete releases - waivers of liens in a form satisfactory to the Project Manager. Contractor shall also be required to furnish receipts or releases in full; and affidavit that the releases and receipts include all labor, all payrolls, material and equipment for which a lien could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the work for which County or his property might in any way be responsible, have been paid or otherwise satisfied; and consent of the Surety to final payment. If any subcontractor, material man, fabricator or supplier fails to furnish a release or receipt in full, Contractor may be required at Project Manager's sole discretion to furnish a bond or other collateral satisfactory to Project Manager to indemnify County against any lien, stop notice, or any other loss or liability. This payment is made pursuant to paragraph 14.11 and Section 01700.

14.9 Approval of Final Payment:

14.9.1 If, on the basis of observation and review of the work during construction, final inspection and review of the final Application for Payment, as required by the Contract Documents, Project Manager is satisfied that the work has been fully and satisfactorily completed and that Contractor has fulfilled all his obligations under the Contract Documents, Project Manager will file a Notice of Completion and, within fifteen days after receipt of the final Application for Payment, approved by Project Manager, indicate in writing its approval for payment.

14.9.2 If, on the basis of observation and review of the work during construction, final inspection and review of the final Application for Payment, as required by the Contract Documents, Project Manager is not satisfied that the work has been fully and satisfactorily completed, and that Contractor has not fulfilled all his obligations under the Contract Documents, Project Manager will, within fifteen days after receipt of the final Application for Payment, indicate in writing his disapproval for payment. Thereupon Project Manager will give written notice to Contractor indicating in writing the reasons for refusing to approve final payment, in which case Contractor shall make the necessary corrections and resubmit the Application.

14.9.3 County shall make payment, including retention, to Contractor, pursuant to an approved final application for Payment, within 15 days of its approval, or on the 30th day following the recording of the Notice of Completion, whichever date is later. The approval and payment procedures described in paragraphs 14.10, 14.11, and 11.4 shall apply to this paragraph.

14.9.4 The Contractor and each assignee under any assignment in effect at the time of final payment shall, if required by the Project Manager, execute and deliver at the time of final payment and as a condition precedent to final payment, a release in form and substance satisfactory to and containing such exemptions as may be found appropriate by the County, discharging the County, Project Manager, and their elected officials, officers, agents, and employees of and from all liabilities, obligations and claims arising under this contract.

14.10 Contractor's Continuing Obligation:

14.10.1 Contractor's obligation to perform the work and complete the project in accordance with the Contract Documents shall be absolute. Neither approval of any progress or final payment by County, nor the issuance of a Notice of Completion, nor any payment by County to Contractor under the Contract Documents, nor any use or occupancy of the project by County shall constitute an acceptance of work not in accordance with the Contract Documents.

14.11 Waiver of Claims:

14.11.1 The making and acceptance of each progress payment and of final payment shall constitute a waiver of all prior claims by Contractor against County which have not been brought to the notice of the County as provided in the Contract Documents.

14.11.2 If any claim or lien or stop-notice or any other demand for payment or security therefore, including claims or demands upon the performance and payment bond sureties, is made or filed with or against County, the project or the premises by any person claiming that Contractor or any subcontractor or other person under it has failed to perform its contractual obligations or to make payment for any labor, services, materials equipment, taxes or other items or obligations furnished or incurred for or in connection with the work, or if at any time there shall be evidence of such non-performance or non-payment or of any claim or lien or stop-notice or other demand for which, if established, County might become liable and which is chargeable to Contractor; or if Contractor or any subcontractor or other person under it causes damage to the work or to any other work on the project; or if the Contractor fails to perform or is otherwise in default under any of the terms or provisions of the Contract Documents, the Project Manager shall have the right to retain from any payment then due or thereafter to become due an amount which in his sole discretion he deems sufficient to:

14.11.2.1 satisfy, discharge and defend against any such claim or lien or stop-notice or other demand, or any action which may be brought or judgment which may be recovered thereon;

14.11.2.2 make good any such non-payment, nonperformance, damage, failure or default; and

14.11.2.3 compensate County for and indemnify it against any and all losses, liability, damages, costs and expenses (including attorneys', accountants', consultants' and experts' fees and costs) which may be sustained or incurred in connection therewith.

14.11.3 County shall have the right to apply and charge against Contractor as much of the amount retained as may be required for the foregoing purposes. If the amount retained is insufficient therefore, Contractor shall be liable for the difference and upon written demand immediately pay the same to the County. The provisions of this paragraph are in addition to such other rights and entitlements as the County may enjoy against Contractor as elsewhere provided in the Contract Documents, and at law and in equity.

14.11.4 Should any subcontractor, material man, supplier or other such person file or maintain any action on or respecting a claim of mechanic's lien, stop-notice, against payment or performance bond, Contractor shall immediately and at his own expense procure, furnish and record appropriate release bonds in accordance with California Civil Code Section 8000 et. seq., and California Code of Civil Procedure Sections 405 through 405.24, inclusive. Upon Contractor's failure immediately to procure, furnish and record such release bonds, County shall have right to procure and record such release bonds, and to retain from Contractor's payment the cost thereof. The provisions of this paragraph are in addition to such other rights and entitlements as enjoyed by the County against Contractor as elsewhere provided in the Contract Documents, and at law and in equity.

14.12 Price Reduction For Defective Cost or Pricing Data

14.12.1 If the Owner determines that any price (including profit) negotiated in connection with the contract, or any cost reimbursable under this contract, was increased by any significant sums because the Contractor, or any subcontractor furnished incomplete or inaccurate cost or pricing data or data not current, then such price or cost or profit shall be reduced accordingly and the contract shall be modified in writing to reflect such reduction. Failure to agree on a reduction shall be subject to the Disputes Resolution clause of this contract.

14.12.2 Since the contract is subject to reduction under this clause by reason of defective cost or pricing data submitted in connection with certain subcontracts, the Contractor may wish to include a clause in each such subcontract requiring the subcontractor to appropriately indemnify the Contractor. It is also expected that any subcontractor subject to such indemnification will generally require substantially similar indemnification for defective cost or pricing data required to be submitted by his lower tier subcontractors.

14.13 Covenant Against Contingent Fees

14.13.1 The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty the County shall have the right to annul this contract without liability or in its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

14.14 Gratuities

14.14.1 If the Owner finds, after notice and hearing, that the Contractor or any of the Contractor's agents or representatives offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of the Owner in an attempt to secure a contract or favorable treatment in the awarding, amending, or making any determinations related to the performance of this contract, the County may, by written notice to the Contractor, terminate the right of the Contractor to proceed under this contract. The County may also pursue other rights and remedies that the law or this contract

provides. However, the existence of the facts upon which the County makes such findings shall be in issue and may be reviewed in proceedings under the remedy clause of this contract.

14.14.2 In the event this contract is terminated as provided in this clause, the County shall be entitled (1) to pursue the same remedies against the Contractor as it could pursue in the event of a breach of the contract by the Contractor, and (2) as a penalty in addition to any other damages to which it may be entitled by law, to exemplary damages in an amount (as determined by the County) which shall be not less than 3 nor more than 10 times the costs the Contractor incurs in providing any such gratuities to any such officer or employee.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.1 County May Suspend Work

15.1.1 The County may, at any time and without cause, suspend the work or any portion thereof by notice in writing to Contractor. Contractor shall resume the work when so ordered in writing by County.

15.2 County May Terminate

15.2.1 The County may, without prejudice to any other right or remedy and after giving Contractor and his Surety seven calendar days written notice, terminate the services of Contractor and take possession of the project and of all materials, equipment, tools, construction equipment and machinery thereon owned by Contractor, and finish the work by whatever method it may deem expedient, if the Contractor is adjudged as bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for Contractor or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or similar laws, or if he fails to supply sufficient skilled workmen or suitable materials or equipment, or if he fails to make prompt payments to subcontractors or for labor, materials or equipment or if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction, or if he disregards the authority of Project Manager, or if he otherwise violates any provisions of the Contract Documents. In such case Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price exceeds the direct and indirect costs of completing the project, including compensation for additional professional services, such excess shall be paid to Contractor. If the costs exceed such balance, Contractor shall pay the difference to County.

15.2.2 The termination of the Contractor's services by the County shall not affect any rights of the County against the Contractor then existing or which thereafter accrue. The retention of any payment of money by County due Contractor will not release the Contractor from liability.

15.2.3 The County may, after seven calendar days' written notice to Contractor, without cause and without prejudice to any other right or remedy, elect to abandon the project and terminate the agreement. In such case, Contractor shall be paid for all work then executed, any expense sustained, plus a reasonable profit.

15.2.4 The Contractor may not, under any condition, terminate or stop work because of a dispute, claim or any matter in controversy under the Contract Documents, then under submission, or previously resolved by a final and conclusive decision under paragraph 8.4.

ARTICLE 16 - MISCELLANEOUS

16.1 Giving Notice

16.1.1 Notice shall be deemed to have been validly given if delivered in writing to the individual or member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to him who gives the notice. Notice shall be effective as of the date of personal service or mailing.

16.2 General

16.2.1 All moneys not paid when due hereunder shall bear interest at the rate of 7% annually.

16.2.2 All specifications, drawings, and copies thereof furnished by the Architect shall be the property of County. They shall not be used on another project, and, with the exception of those sets that have been signed in connection with the execution of the Agreement, shall be returned to the County on request upon completion of the project.

16.2.3 The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon Contractor by the General Conditions and the rights and remedies available to County and Project Manager thereunder, shall be in addition to, and shall not be construed in any other way as a limitation of, any rights and remedies available to them which are otherwise imposed or available by law, by special guarantee or by other provisions of the Contract Documents.

16.2.4 Should County or Contractor suffer injury or damage to his person or property because of any error, omission or act of the other or any of his employees or agents or others for whose acts he is legally liable, notice of said injury shall be made in writing to the County within five days of the first observance of such injury or damage.

16.2.5 The Contract Documents shall be governed by the laws of the State of California. In case any provision of the Contract Documents, including without limitation these General Conditions, shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any other way be affected or impaired.

16.2.6 No waiver by County of any provision of the Contract Documents, including without limitations these General Conditions, shall constitute a waiver of any other provision thereof.

16.2.7 The waiver of any instance is not a waiver in the second instance.

ARTICLE 17 - EQUAL OPPORTUNITY

17.1 The Contractor shall maintain policies of employment as follows:

17.1.2 The Contractor and all subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to race, religion, color, sex or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

17.2 See also Federal, State and County requirements in - SUPPLEMENTARY CONDITIONS.

SUPPLEMENTARY CONDITIONS

1. Statements and Payrolls

1.1 The Contractor and each subcontractor shall preserve his payroll records for a period of three years from the date of completion of this contract.

1.2 The Contractor shall submit weekly a copy of all payrolls to the Project Manager. The copy shall be accompanied by a statement signed by the employer or his agent indicating that the payrolls are correct and complete and that the wage rates contained therein are not less than those determined by the Department of Industrial Relations. The Contractor and subcontractor may use standard forms furnished by the Project Manager or any other form approved by the Project Manager. The Contractor shall be responsible for the submission of copies of payrolls of all subcontractors.

1.3 The payrolls and payroll records shall contain the full name, address and social security number of each employee, his correct classification, rate of pay, daily and weekly number of hours worked, itemized deductions made and actual wages paid. They shall also indicate apprentices and ratio of apprentices to journeymen. The employees' address and social security number need only appear on the first payroll on which his name appears.

1.4 If, on or before the 20th of the month, the Contractor has not submitted satisfactory payrolls for all work performed during the monthly period ending on or before the 6th of that month, the Owner will retain an amount equal to 5 percent of the estimated value of the work performed during the month from the next monthly estimate, except that such retention shall not exceed \$10,000 nor be less than \$1,000. Retention for failure to submit satisfactory payrolls shall be additional to all other retention's provided for in this contract. The retention for failure to submit payrolls for any monthly period will be released for payment on the monthly estimate for partial payments next following the date that all the satisfactory payrolls for which the retention was made are submitted.

2. Accident Prevention

2.1 Precautions shall be exercised at all times for protection of persons (including employees) and property. These shall include, but not be limited to, installation of adequate safety guards and protective devices for all equipment and machinery, whether used in the performance of work or permanently installed as part of the work. Contractor shall comply with all applicable laws relating to safety precautions, including safety regulations of CAL-OSHA.

2.2 Where conditions of the work present unreasonable risk or death to persons, or property damage, in the judgment of the Owner, it may direct Contractor at his sole expense, to close down the work and not commence work again until the hazardous condition is eliminated.

2.3 Nothing herein shall be deemed to allow use of shoring, sloping or protective system less effective than that required by the Construction Safety Orders of CAL-OSHA.

3. Air Pollution - State Requirements

3.1 In connection with Public Contracts Code Section 10231, Contractor and his subcontractors shall comply with all air pollution control rules, regulations, ordinances, and statutes which apply to any work performed pursuant to the contract, including any air pollution control rules, regulations, ordinances, and statutes specified in Government Code Section 11017. Fugitive Dust Permit and construction emission dust/control plan will be required by the Tehama County Air Pollution Control District (TCAPCD). They advised that open burning without a permit is restricted.

4. Anti-Trust Claims

4.1 By execution of this contract, Contractor agrees to and does hereby assign to awarding body all right, title, and interest in and to all causes of action it may have under the Clayton Act (15 U.S.C. Sec. 15) Section 4 or under the Cartwright Act (Business and Professions Code) Section 16700 et. seq., arising from purchases of goods, services, or materials made in performance of this contract. The parties shall deem this assignment effective at the time of the tender of final payment to Contractor without further acknowledgment. Contractor shall include, or cause to be included, similar provision in any subcontract entered into for any part of the work of this contract.

5. Anti-Kick Back

5.1 The Contractor must comply with the provisions in the Copeland "Anti-Kick Back Act" (18 USC 874) as supplemented in Department of Labor Regulations (29 CFR, Part 3). This Act provides that each contractor shall be prohibited from inducing, by any means, any person employed in the construction, completion or repair of public work, to give up any part of the compensation to which he is otherwise entitled.

6. Equal Opportunity - Federal Requirements

6.1 Selection of Labor: During the performance of this contract, the Contractor shall not discriminate against labor from any other State, possession or territory of the United States.

6.2 Employment Practices: During the performance of this contract, Contractor agrees as follows:

a. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contract will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoffs or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Owner setting forth the provisions of this nondiscrimination clause.

b. The Contractor will, in all solicitation or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive

considerations for employment without regard to race, color, religion, sex or national origin.

c. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided by the Owner advising the said labor union or workers' representative of the Contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

d. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations (41 CFR, Part 60) and relevant orders of the Secretary of Labor.

e. The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations and order of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

f. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations or orders, this contract may be canceled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts of Federally-assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.

g. The Contractor will include the provisions of this Section in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor.

No otherwise qualified handicapped individual in the United States as defined in Section 7 (5) of the Rehabilitation Act of 1973 (P.L. 93-112) shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under this contract.

6.3 Air Pollution - Federal Requirements: The Contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act of 1970.

6.4 Assurance of Minority Business Enterprise Participation

6.4.1 The bidder's execution of the signature portion of this proposal shall also constitute execution of this assurance.

6.4.2 The bidder hereby gives assurance pursuant to the requirements of the code of federal regulations, that bidder has made a reasonable effort to employ Minority Business Enterprises. Bidder further gives assurance that bidder will submit the documentation listing Minority

Business Enterprises with which the bidder will subcontract if the contract is awarded to bidder and if bidder is unable to obtain MBE participation, of the steps bidder has taken to obtain MBE participation.

7. Fair Employment Practices - State Requirements

7.1 In connection with the performance of work under this contract, Contractor agrees as follows:

- a. Contractor will not willfully discriminate against any employee or applicant for employment because of race, color, religious creed, physical handicap, medical condition, marital status, ancestry, sex or national origin. Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, ancestry, sex or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the awarding authority setting forth the provision of this Fair Employment Practices section.
- b. Contractor will send to each labor union or representative of workers with which he has collective bargaining agreement or other contract or understanding, a notice, to be provided by awarding authority, advising said labor union or workers' representative of Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- c. Contractor will permit access to his records of employment, employment advertisements, application forms and other pertinent data and records by the Fair Employment and Housing Commission, awarding authority or any other appropriate agency of the State of California designated by awarding authority for purposes of investigation to ascertain compliance with Fair Employment Practices section of this contract.
- d. A finding of willful violation of the Fair Employment Practices section of this contract or of the Fair Employment and Housing Act shall be regarded by awarding authority as a basis for determining Contractor to be not a "responsible bidder" as to future contracts for which such Contractor may submit bids, for revoking the Contractor's prequalification rating, if any, and for refusing to establish, re-establish or re prequalification rating for the Contractor.

Contractor shall immediately notify Awarding Authority if it the Fair Employment and Housing Commission has determined that a complaint alleging that Contractor has violated the Fair Employment and Housing Act is valid. Contractor shall immediately provide to Awarding Authority any agreement Contractor entered into under Government Code section 12964 and immediately notify Awarding Authority of any civil action brought against Contractor pursuant to Government Code section 12964.

Awarding authority shall deem a finding of willful violation of the Fair Employment and Housing Act to have occurred upon receipt of notice any such notice from Contractor, the Fair Employment and Housing Commission, and or Superior or Federal Court.

Upon receipt of such written notice, Awarding authority shall notify Contractor that unless he demonstrates to the satisfaction of Awarding authority within a stated period that the violation has been corrected, his prequalification rating will be revoked at the expiration of such period.

e. Contractor agrees, that should the awarding authority determine the Contractor has not complied with the Fair Employment Practices section of this contract, then pursuant to Labor Code Sections 1735 and 1775, Contractor shall, as a penalty to the awarding authority, forfeit, for each calendar day, or portion thereof, for each person who was denied employment as a result of such non-compliance, the penalties provided in the Labor Code for violation of prevailing wage rates. Such moneys may be recovered from Contractor. Awarding authority may deduct any such damages from any moneys due Contractor from the State of California.

f. Nothing contained in this Fair Employment Practices Section shall be construed in any manner or fashion so as to prevent awarding authority of the State of California from pursuing other remedies that may be available at law.

Nothing contained in this Fair Employment Practices section shall be construed in any manner or fashion so as to require or permit hiring of an employee not permitted by the National Labor Relations Act.

g. Prior to award of the contract, Contractor shall certify to awarding authority that he has or will meet the following standards for affirmative compliance, which shall be evaluated in each case by awarding authority:

(1) Contractor shall provide evidence, as required by the awarding authority, that he has notified all supervisors, foremen, and other personnel officers in writing of the content of the anti-discrimination clause and their responsibilities under it.

(2) Contractor shall provide evidence, as required by awarding authority, that he has notified all sources of employee referrals (including unions, employment agencies, advertisements, Department of Employment Development) of the content of the anti-discrimination clause.

(3) Personally, or through his representative, Contractor shall, through negotiations with unions with whom he has agreements, attempt to develop an agreement, which will:

(a) Spell out responsibilities for non-discrimination in hiring, referral, upgrading and training.

(b) Otherwise implement an affirmative anti-discrimination program in terms of the unions' specific areas of skill and geography, to the end that qualified minority workers will be available and given equal opportunity for employment.

(4) Contractor shall notify contracting agency of opposition to the anti-discrimination clause by individuals, firms or organizations during the period of its prequalification.

h. Contractor shall include the provisions of the foregoing paragraphs (a) through (g) in every first tier subcontract, so that such provisions will be binding upon each such subcontractor.

8. Additional Division of Labor Standards Enforcement Requirements

8.1 On each job site that is subject to compliance monitoring and enforcement by the Department of Industrial Relations, the prime contractor is required to post job site notices prescribed by regulation (See 8 Calif. Code Reg. §16451(d).

8.2 All contractors and subcontractors must furnish electronic certified payroll records directly to the Labor Commissioner (AKA Division of Labor Standards Enforcement) in compliance with California Labor Code Section 1776, with exceptions as specified in Labor Code section 1771.4(a)(4).

DIVISION 01 – GENERAL REQUIREMENTS

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Division 1 - General Requirements

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SECTION 01090
REFERENCE STANDARDS
.....
.....

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Quality assurance.
- B. Schedule of references.

1.02 RELATED SECTIONS

- A. Standards as noted in individual Sections of these Specifications.

1.03 QUALITY ASSURANCE

Contractor shall:

- A. For products or workmanship specified by association, trade, or Federal Standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date of Contract Documents, unless specifically noted.
- C. Obtain copies of standards when required by Contract Documents.
- D. Maintain a copy of the applicable reference standards at jobsite during submittals, planning, and progress of the specified work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from the County before proceeding.
- F. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.04 SCHEDULE OF REFERENCES

- AA Aluminum Association
818 Connecticut Avenue, N.W.
Washington, DC 20006
- AABC Associated Air Balance Council
1000 Vermont Avenue, N.W.
Washington, DC 20005
- AASHTO American Association of State Highway and Transportation Officials
444 North Capitol Street, N.W.
Washington, DC 20001
- ACI American Concrete Institute
Box 19150

	Reford Station Detroit, MI 48219
AI	Asphalt Institute Asphalt Institute Building College Park, MD 20740
AIA	American Institute of Architects 1735 New York Avenue, N.W. Washington, DC 20006
AICS	American Institute of Steel Construction 400 North Michigan Avenue Eighth Floor Chicago, IL 60611
AISI	American Iron and Steel Institute 1000 16th Street, N.W. Washington, DC 20036
AITC	American Institute of Timber Construction 333 W. Hampden Avenue Englewood, CO 80110
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
APA	American Plywood Association Box 11700 Tacoma, WA 98411
ARI	Air-Conditioning and Refrigeration Institute 1501 Wilson Boulevard Arlington, VA 22209
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers 1791 Tullie Circle, N.E. Atlanta, GA 30329
ASME	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103
AWPA	American Wood-Preservers' Association 7735 Old Georgetown Road Bethesda, MD 20014
AWS	American Welding Society 550 LeJeune Road, N.W. Miami, FL 33135
AWWA	American Water Works Association 666 West Quincy Avenue Denver, CO 80235

CLFMI	Chain Link Fence Manufacturers Institute 1101 Connecticut Avenue, N.W. Washington, DC 20036
CRSI	Concrete Reinforcing Steel Institute 933 Plum Grove Road Schaumburg, IL 60195
DHI	Door and Hardware Institute 7711 Old Springhouse Road McLean, VA 22102
FGMA	Flat Glass marketing Association 3310 Harrison White Lakes Professional Building Topeka, KS 66611
FM	Factory Mutual System 1151 Boston-Providence Turnpike P.O. Box 688 Norwood, MA 01062
FS	Federal Specification General Services Administration Specifications and Consumer Information Distribution Section (WFSIS) Washington Navy Yard, Bldg. 197 Washington, DC 20407
GA	Gypsum Association 1603 Orrington Avenue Evanston, IL 60201
ICBO	International Conference of Building Officials 5360 S. Workman Mill Road Whittier, CA 90601
IEEE	Institute of Electrical and Electronics Engineers 345 East 47th Street New York, NY 10017
MFMA	Maple Flooring Manufacturers Association 60 Rivere Drive Northbrook IL 60062
MIL	Military Specification Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
ML/SFA	Metal Lath/Steel Framing Association 221 North LaSalle Street Chicago, IL 60601
NCMA	National Concrete Masonry Association P.O. Box 781 Herndon, VA 22070

NEBB	National Environmental Balancing Bureau 8224 Old Courthouse Road Vienna, VA 22180
NEMA	National Electrical Manufacturers' Association 2101 "L" Street, N.W. Washington, DC 20037
NFPA	National Fire Protection Association Battery March Park Quincy, MA 02269
PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60077
PS	Product Standard U.S. Department of Commerce Washington, DC 20203
RIS	Redwood Inspection Service One Lombard Street San Francisco, CA 94111
RCSHSB	Red Cedar Shingle and Handsplit Shake Bureau 515 116th Avenue Bellevue, WA 98004
SDI	Steel Deck Institute P.O. Box 9506 Canton, OH 44711
SDI	Steel Door Institute 712 Lakewood Center North 14600 Detroit Avenue Cleveland, OH 44107
SIGMA	Sealed Insulating Glass Manufacturers Association 111 East Wacker Drive Chicago, IL 60601
SMACNA	Sheet Metal and Air Conditioning Contractor's National Association 8224 Old Court House Road Vienna, VA 22180
TCA	Tile Council of America, Inc. Box 326 Princeton, NJ 08540
UL	Underwriters' Laboratories Inc. 333 Pfingston Road Northbrook, IL 60062
WIC	Woodwork Institute of California 1331 T Street Sacramento, CA 95807

WCLIB West Coast Lumber Inspection Bureau
6980 S.W. Varns Road
Box 23145
Portland, OR 97223

WWPA Western Wood Products Association
1500 Yeon Building
Portland, OR 97204

1.05 SCHEDULE OF GOVERNING CODES

- A. See Drawings for a list of applicable codes and regulations which shall govern, except where otherwise indicated.
- B. Refer to individual Specification Sections for additional codes and regulations which shall apply to the individual Work of said Sections.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

- A. All work shall be done in accordance with governing codes. A copy of each shall be kept at the jobsite at all times.

END OF SECTION

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SECTION 01200
PROJECT MEETINGS

.....

1.01 GENERAL

- A. Meetings:
 - 1. Project Manager will schedule regular project meetings as required. Contractor shall attend with appropriate staff, subcontractors, and suppliers.
 - 2. Meetings shall include, but not be limited to:
 - a. Pre-construction conference
 - b. Work progress.
 - c. Schedule and coordination.
 - d. Payment review.
 - e. Changes in the work.
 - f. Pre-installation.
- B. Administration: Project Manager will prepare agenda, conduct meetings, and distribute recorded proceedings and decisions to meeting participants and affected persons.
- C. Project Manager and ARCHITECT: Will attend each meeting.
- D. Space and Facilities: By Contractor at job site except Pre-construction *Conference* by Project Manager.

1.02 PRE-CONSTRUCTION CONFERENCE

- A. With Contractor and subcontractors, within 10 days after Notice to Proceed. Time as determined by Project Manager.

1.03 PROGRESS MEETING

- A. General: Not less than once a month on a regular, scheduled basis.
- B. Attendance: Project Manager, Owner, ARCHITECT, Contractor, and subcontractors, sub-subcontractors, suppliers and others as required by the Project Manager.

1.04 GUARANTEE, BONDS, SERVICE AND MAINTENANCE CONTRACTS MEETING

- A. General: Eleven months following date of final acceptance, meet to review guarantees, bonds, and service and maintenance contracts for materials and equipment.
- B. Action: Repair or replace defective work. Extend service and maintenance contracts as desired.
- C. Attendance: Project Manager, ARCHITECT, ARCHITECT's professional consultants as appropriate, Contractor, subcontractors, suppliers and others as appropriate to the agenda.

1.05 SPECIAL

- Called by Project Manager as warranted by developed conditions.

END OF SECTION

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SECTION 01300
SUBMITTALS

.....

1.01 SECTION INCLUDES

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Schedule of Values.
- D. Submittals and Shop Drawings.
- E. Product Data.
- F. Samples.
- G. Mock-Ups.
- H. Manufacturers' instructions.
- I. Manufacturers' certificates.

1.02 RELATED SECTIONS

- A. Section 1039 - Coordination and Meetings
- B. Section 01310 - Construction Schedule
- C. Section 01400 - Quality Control: Manufacturers' field services and reports.
- D. Section 01600 - Material and Equipment / Substitutions.
- E. Section 01700 - Contract Closeout: Contract warranty and manufacturer's certificates closeout submittals.

1.03 SUBMITTAL PROCEDURES

- A. Timing:
 - 1. Make submittals within the times specified herein. Do not submit all at one time. Submit in accordance with the sequence of procurement, fabrication and construction.
 - 2. Make submittals far enough in advance of scheduled dates of installation to allow the time required for reviews, for securing necessary approvals, for possible revision and resubmittal, and for placing orders and securing delivery.
- B. Identification:
 - 1. Identify each submittal and resubmittal with the following information:
 - a. Project name and address as they appear on the Contract Documents.

- b. Contract name and number.
 - c. Contractor's name and address.
 - d. Date of submission.
 - e. Numbering System: Submittals shall be identified by specification section (i.e., 02810-001, 07210-001, 11191-001, etc.) Any resubmittals shall be numbered sequentially according to the original submittal section, followed by the subscript ".1, .2, .3, etc. submittal number (i.e., 001.1, 001.2, etc.). Submittals and resubmittals shall be kept intact with the original number. Do not add new drawing or information outside the scope of the original submittal, unless specifically requested. Do not assign a new number for a resubmittal.
 - f. Reference: List Specification Section number and product reference as a cross-reference for each submittal.
2. Identify each submittal with the following additional identification:
- a. Contractor's stamp with initials or signature, certifying to review of submittal, compliance with Contract Documents, and coordination with other impacted work, and verification of field measurements. The architect will return any submittal not bearing this stamp without being reviewed.
 - b. Drawing and Specifications SECTION numbers to which the submittal applies.
 - c. Subcontractor's or suppliers name and address.
 - d. Name and telephone number of the individual to contact for additional information regarding the submittal.
 - e. Whether it is an original or a resubmittal.
- C. Coordination of Submittals:
- 1. General: Prior to submittal for the Architect's or consultant's review, as applicable, fully coordinate material as follows:
 - a. Determine and verify field dimensions and conditions, materials, catalog numbers, and similar data.
 - b. Coordinate shop drawing submittals with previously issued Addenda and Information Bulletins.
 - c. Coordinate with the various types of Work, and public agencies involved.
 - d. Secure necessary approvals from public agencies and others and signify by stamp, or other means, that approvals have been secured.
 - e. Unless otherwise specifically permitted by the Architect, make submittals in groups containing all associated items.
 - 2. Completeness: Submittals shall be complete; partial submittals will be rejected for not complying with the Contract Documents.
- D. Coordinate preparation and processing submittals with performance of construction activities.

1. Make submittals in groups containing associate items to ensure that information is available for checking each item when received.
 - a. Partial submittals may be rejected as not complying with requirements of Contract documents and Contractor shall be liable for any resulting delays.
 2. Requests for deviation from Contract Documents shall be submitted for consideration before submittal of affected items. Only deviations, which have been previously accepted in writing, shall be included in submittals.
- E. Place permanent label or title block on each submittal for identification. Indicate name or entity preparing each submittal in label or title block. See Paragraph 1.01.C herein for further information requirements on each submittal label or title block.
1. Provide space on label or beside title block to record Contractor's and Architect's review and approval markings and action taken.
- F. Contractor's Review:
1. Review submittals for accuracy, completeness, and conformity with Contract Documents.
 - a. Submittal shall be construed as stipulating Contractor has thoroughly and completely reviewed, and coordinated data.
 - b. Submittals that indicate less than Contractor's full compliance will be returned without action.
 - c. Delays caused by failure to comply will not be acceptable basis for extension of Completion Time.
- G. Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.
- H. Package each submittal appropriately for transmittal and handling.
- I. Project Architect's Review:
1. Submittals are reviewed for general conformance with design concept and general compliance with information given in Contract Documents only.
 2. Review of separate item shall not indicate acceptance of assembly of which item is part.
- J. Review shall not relieve Contractor from responsibility for errors or deviations from requirements of Contract Documents.
- K. Submittal Log: Maintain accurate submittal log for duration of Contract. Indicate current status of all submittals at all times. Make submittal log available for the Project Manager's review upon request.
- L. Resubmittals:
1. Subject to same terms and conditions as original submittal.
 2. Project Architect will accept not more than one resubmittal.

- a. Should additional resubmittals be required, Contractor shall reimburse Owner for Project Architect's account for time spent in processing additional resubmittals at rate of 2.5 times rate of Direct Personnel Expense (DPE). Direct Personnel Expense is defined as direct salaries of Project Architect's personnel engaged on Project and portion of costs of mandatory, and customary contributions and benefits related thereto, including employment taxes and other statutory employee benefits, insurance, sick leave, holidays, vacations, pensions, and similar contributions and benefits.
- 3. Claims will not be considered for Contractor's additional time or expense associated with resubmittals.
- M. Revisions:
 - 1. Make only those revisions required or accepted by Project Architect.
 - 2. Identify all changes made since previous submittal.
- N. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.
- O. Review or approval of any of the Contractor's submittals shall not relieve the Contractor of any of his/her responsibilities under the Contract for the successful completion of the Work in conformity with the requirements of the Drawings and Specifications. Any such review or approval shall not serve to waive any of the requirements of the Drawings or Specifications, nor to relieve the Contractor of any obligation thereunder. Defective, sub-standard, or non-complying work, materials, or equipment may be rejected, notwithstanding their previous review and/or approval.
- P. Special Submittals: In addition to submittals required by the Contract Documents, Contractor shall submit the following:
 - 1. Submittals required by governmental authorities and agencies of jurisdiction, as applicable.
- Q. Substitutions: Refer to Section 01600.

1.04 CONSTRUCTION PROGRESS SCHEDULES

- A. Refer to Section 01310.

1.05 SCHEDULE OF VALUES

- A. Submit a typed schedule on AIA Form G703 or other approved 8-1/2" x 11" format; Contractor's standard media-driven printout will be considered on request.
- B. Format: Table of Contents of Volume 2 Specifications, with modifications as may be directed by Owner; identify each line item with number and title of major Specification sections.
- C. Include in each line item a directly proportional amount of contractor general conditions, overhead, and profit.
- D. Revise schedule to list change orders for each Application for Payment.

1.06 SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND OTHER SUBMITTALS

A. General:

1. Submit only as required by the various Specification SECTIONS. Do not submit shop drawings, product data, samples or other submittals, unless specifically required.
2. Submit in accordance with the accepted submittal schedule. Send copies of transmittals to the Owner.
3. Submit in the manner and quantities specified hereinafter.
4. Allow a minimum of 15 working days for processing by the Architect and his consultants, as applicable. Some submittals may require more processing time based upon consultant's input and the complexity of the submittal. If certain submittals are critical, they should be so identified at time of submission. If a specific submittal cannot be reviewed and returned within 15 working days, the Architect will develop with the Contractor a timely "turn-around" that will not impact the construction schedule.

B. Shop Drawings:

1. Submit in the quantity required to be returned, together with 2 additional copies of black-line or blue-line prints.
2. The Architect or his consultants, as applicable, will review the Shop Drawings; mark the drawings with required revisions; stamp the drawings and indicate "No Exceptions Noted," "Furnish as Corrected," "Revise and Resubmit," or "Rejected," and return the drawings. "Revise and Resubmit" or "Rejected" stamps shall not be construed by the Contractor as a valid reason for an extension of time.
3. Review the returned drawings and take appropriate action as indicated.
 - a. If drawings are marked "Revise and Resubmit," make revisions and indicate them with a "cloud," stamp and date, and resubmit in the same manner and number as for the original submittal.
 - b. If drawings are marked "Rejected," make a new submittal and submit in the same manner and number as for the original submittal.
 - c. If drawings are marked "No Exceptions Noted" or "Furnish as Corrected", print and distribute copies for Owner and Inspector, as well as those required for Contractor and Subcontractors.
4. The Architect or his consultants, as applicable, may review at their discretion up to one resubmittal and take action, as appropriate, in the same manner as for the original submittal. If more than one resubmittal is required, any associated costs as a result of additional reviews shall be an extra service of the Architect or his consultants, as applicable, and will be processed as a deductive Change Order in accordance with the GENERAL CONDITIONS and SUPPLEMENTARY CONDITIONS.
5. As with the original submittal, review the returned drawings and take appropriate action as indicated. As specified hereinabove, resubmit and revise until final action by the Architect or his consultants, as applicable. Final action is signified by the markings "No Exceptions Noted," or "Furnish as Corrected," on the returned drawings.

6. Following final action by the Architect or his consultants, as applicable, the Contractor shall make copies and distribute as required for accomplishment and inspection of the indicated Work.
7. Only those Shop Drawings which bear stamps showing final review of the Contractor, Architect, or the Architect's consultants, as applicable, shall be used.
8. Reproduction and Mailing Costs: The Contractor shall pay the reproduction and mailing costs of reproducible and all prints.
9. Coordination drawings are a special type of Shop Drawing that show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or function as intended.
 - a. Preparation of coordination Drawings is specified in Section 01040 "Project Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.
 - b. Submit coordination Drawings for integration of different construction elements. Show sequences and relationships of separate components to avoid conflicts in use of space.

C. Product Data:

1. Submit in the quantity required to be returned, together with two additional copies each of brochures, catalog cuts, and similar material.
2. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, rough-in diagrams and templates, wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."
 - a. Submit number of copies which Contractor requires, plus four copies which will be retained.
 - b. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
 1. Manufacturer's printed recommendations
 2. Compliance with recognized trade association standards
 3. Compliance with recognized testing agency standards
 4. Application of testing agency labels and seals
 5. Notation of dimensions verified by field measurement
 6. Notation of coordination requirements
 - c. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
3. Review and processing of Product Data shall be the same as that for Shop Drawings.

D. Samples:

1. Submit in the size specified in the individual Specification SECTIONS, and in the quantity required to be returned to the Contractor, together with two additional Samples, which will be retained by the Architect or his consultants, as applicable.
 2. Ship samples to the Architect's office, carriage prepaid.
 3. Submit samples to illustrate functional and aesthetic characteristics of Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
 4. Preliminary Submittals:
 - a. Unless precise color, pattern, and texture or similar characteristics are specifically described, submit full set of choices for material or product.
 - b. Preliminary submittals will be reviewed and returned with Project Architect's mark indicating selection and other action.
 - c. Architect reserves right not to make individual determination or selections until all samples of all materials are submitted.
 - d. Submit samples of all selected colors, patterns, textures or other similar characteristics as selected by Project Architect.
 5. Submit number of samples required by Contractor plus three that will be retained.
 - a. Where variation in color, pattern, texture or other characteristics are inherent in material or product, submit multiple units (not less than 3), that show approximate limits of variations.
 - b. Accepted samples will form standard of comparison for finished Work.
 - c. Defects, and deviations in excess of those in accepted samples, are unacceptable and are subject to rejection of completed Work.
 6. Include identification on each sample, with full Project information, including:
 - a. Project name and location
 - b. Manufacturer and supplier
 - c. Name, finish, and composition of material
 - d. Location where material is to be used
 - e. Specification Section number.
 7. Reviewed samples which may be used in the Work are indicated in individual specification sections.
 8. Field Samples: Provide field samples as required by individual sections. Install samples in locations as directed, completed and finished.
- E. Other Submittals: Submit as specified in the individual Specification Sections.
1. Distribute after review.
 2. Unless specifically authorized in advance by the Owner, no fabrication or installation of any Product, material, component, or system of the Project shall begin until the specific submittals and shop drawings therefore (and/or other

required submittal items, as may be applicable) have been reviewed by the Architect, and returned to the Contractor with indication that no exception is taken, or that the subject Work may be furnished as corrected on the shop drawings.

3. The Contractor shall inform each of his/her subcontractors and suppliers of the various requirements found throughout the Specifications concerning the submission of shop drawings and related submittals for review by the Architect.
4. Submittals and shop drawings prepared by the Contractor or his/her subcontractors or suppliers for submission to the Architect shall be checked by the Contractor before submission. In particular, the Contractor shall ascertain that the submittals and shop drawings meet all requirements of the Contract Documents and conform to the actual dimensions and conditions at the job site. Contractor shall be fully responsible for observing the need for and making any changes required by the equipment Contractor proposes to supply. If the submittals and shop drawings show variations from Contract Drawings or Specifications, whether because of standard practice or other reasons, the Contractor shall make special mention thereof in his/her letter of transmittal; if no specific mention of such variation is made the Contractor will not be relieved of the responsibility for completing the work in full accordance with the Contract Documents, even though such shop drawings are noted "REVIEWED", "NO EXCEPTIONS TAKEN", or similar notation by the Architect.
5. Submittals and shop drawings shall be drawn to scale, shall show all necessary working and final dimensions and such details, sections, plans, and elevations (all properly cross-referenced to the Contract Drawings) as are necessary to clearly delineate arrangements, construction, and connection with other Work; and shall illustrate all Work contiguous with and having a bearing on Work indicated. Submittals and shop drawings shall indicate the Project name, the names of the Contractor and the subcontractor, the name or description of the equipment or articles shown, the manufacturers' names, and the kinds, types, grades, thickness, and finishes of materials or equipment to be installed in the work. Marked up copies of standard or "generic" product data, catalog cuts, manufacturer's drawings, etc., showing non-Project-specific conditions will not be acceptable, unless their specific application to the Project is clearly indicated.
6. Manufacturers' brochures shall be acceptable for submittals, provided that they comply with the requirements listed above and with applicable Sections of the Specifications. If manufacturers' brochures are used, they shall clearly and explicitly delineate what is being submitted.
7. Timeliness: Submittals and shop drawings shall be submitted in such time as to cause no delay in the orderly progress of Work, layout, or fabrication under the Contract. Proper allowances shall be made for checking by the Architect and such correcting, resubmission and re-checking as may be necessary.
8. The review of submittals and shop drawings by the Architect will be general, and shall not relieve the Contractor from his/her sole responsibility for errors or omissions of any sort; nor for proper fitting and construction of the Work; nor for the furnishing of materials or Work required by the Contract Documents but not shown; nor for required quantity of material; nor for correctness of dimensions. Any request by the Architect for change and corrections on shop drawings shall not be construed as an order of extra work under the Contract.

1.07 MOCK-UPS

- A. Provide as required by individual Sections of the Specifications.
- General Requirements

- B. Refer also to Section 01400, Quality Control.

1.08 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual Specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, an finish, in quantities specified for Product Data.
- B. Identify conflicts between manufacturers' instructions and Contract Documents.

1.09 MANUFACTURER'S CERTIFICATES

- A. When specified in individual Specification Sections, submit manufacturers' certificate to the Owner for review, in quantities specified for Product Data.
- B. Indicate that material(s) or Product(s) conform to or exceed specified requirements. Submit supporting reference data, affidavits, and certifications, as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Owner.

END OF SECTION

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SECTION 01310
CONSTRUCTION SCHEDULE

.....

1.01 SCOPE

- A. The work under this section consists of the planning, scheduling and reporting procedures required in conjunction with the progress of the work. It is the intent that the Contractor shall develop a schedule-demonstrating fulfillment of all contract requirements. The levels of detail and submittal procedures are described hereinafter.
- B. The schedule shall be updated a minimum of once a month at a joint meeting with the Project Manager, General Contractor and required subcontractors.
- C. Development and maintenance of the construction schedule and supplementary information as detailed hereinafter is the responsibility of the Contractor.
- D. The Contractor shall use the accepted schedule at all times in planning, coordinating and performing the work under this contract including all activities of the subcontractors, vendors and suppliers.

1.02 THE COMPLETE PROJECT SCHEDULE

- A. Within 10 working days after receipt of Notice to Proceed, the Contractor shall submit the schedule in accordance with all requirements of this section. The schedule shall reflect the Contractor's approach to scheduling the COMPLETE project, including all submittals; procurement and all required testing and operational requirements called for elsewhere in the documents.
- B. Within 5 working days after receipt of the schedule, the Project Manager will meet with the Contractor for joint review, correction or adjustment of the proposed schedule. Within five (5) working days after the joint review, the Contractor shall if necessary revise and shall resubmit the COMPLETE Schedule to the Project Manager. The resubmission will be reviewed by the Project Manager, and, if found to be as previously agreed upon, will be accepted.
- C. The accepted schedule shall constitute the project work schedule until subsequently revised in accordance with requirements of this section.

1.04 SCHEDULE REQUIREMENTS

- A. The schedule shall show the sequence and interdependence of activities required for complete performance of all items of work under the contract or portion thereof
- B. The Contractor shall submit the following supporting data with the submittal of his original CPM construction schedule:
 - 1. The proposed number of working days per week.
 - 2. The holidays to be observed during the duration of the contract (by day, month and year).
 - 3. The planned number of shifts per day.
 - 4. The number of hours per shift.

5. The planned usage of major construction equipment on the site, on a monthly basis.
6. The average weekly manpower usage for each trade to be employed on the project.

Any changes to the above information shall be submitted with successive updates and revisions.

- C. To the extent that the schedule or any revised schedule shows anything not jointly agreed upon, it shall be deemed to have not been accepted by the Project Manager. Failure to include any element of work required for the performance of this contract shall not excuse the Contractor from completing all work required within any applicable completion date of each phase notwithstanding the Project Manager's acceptance of the schedule.

1.05 ACTIVITY COST DATA

- A. The contractor shall furnish the Project Manager with a cost allocation (schedule of values) totaling to the contract amount, for all items detailed in the schedule. The Project Manager will prepare a Payment Request form this allocation. Once accepted by the Project Manager, the Payment Request form will become the basis for determining the progress payments for the balance of the project and the Contractor must submit his monthly Payment Request based upon progress reported on this form. No payment will be made unless supported by this Payment Request form completed to show monthly progress.
- B. The cost distribution may include cost for delivered equipment and material and the Project Manager will pay for only such items as identified elsewhere in these Contract Documents. All costs represented will include a pro rata distribution for overhead and profit: No separate item shall be shown for overhead and profit.
- C. Where the work of several trades is combined into one activity, the Contractor shall furnish for each such combined activity the cost breakdown of each trade on sheets separate from the network diagram. The sum of the costs for each trade shall equal the total dollar value of each such combined activity.
- D. Revisions to the schedule may require reallocation of costs. Revised activity cost data shall be submitted with revised Schedules as necessary, and a revised Payment Request form will be provided after approval of revised cost allocations.

1.06 PROGRESS REPORTING, UPDATING, AND REVISIONS

- A. On a date mutually agreed upon by the Project Manager and the Contractor, a job site progress meeting will be held each month at which time the schedule will be reviewed and updated. Attendees of this meeting shall include the Project Manager, the General Contractor and subcontractors if requested by the Project Manager. The Contractor shall have his copy of the Payment Request form and all other data required by the Contract Documents accurately filled in and completed prior to this meeting. Job progress and the Schedule will be reviewed to verify:
 1. Payment due to the Contractor based on percentage complete of items in the submitted Payment Request form.
 2. Logic, time and cost data for change order work that is to be incorporated into the schedule or Payment Request form.
 3. Status of as-built record drawings and as-built record specifications.

- B. The Contractor shall submit a narrative report as a part of his monthly progress review and update in a form agreed upon by the Contractor and the Project Manager.

The narrative report shall include:

1. Actual start and finish dates of activities completed during update period since the last accepted revision.
 2. Explanation of all changes in logic or in the scheduled work sequence, in durations, manpower and equipment.
 3. A description of the critical path for the remainder of the project.
 4. An explanation of corrective action taken or proposed.
- C. After each monthly update or revision, the Contractor shall submit to the Project Manager one complete schedule showing all revisions and changes in accordance with the monthly review meeting.
- D. Within five (5) working days after receipt of notice from the Project Manager, the Contractor shall submit a revised Schedule for any of the following reasons:
1. When delay in completion of any activity or group of activities indicates an overrun of the contract time or milestone requirement, by 20 working days or ten percent (10%) of the remaining duration, whichever is less.
 2. Delays in submittals or deliveries or work stoppage are encountered which make replanning or rescheduling of the work necessary.
 3. The schedule does not represent the actual prosecution and progress of the project as being performed in the field.
- E. Acceptance of any revised Schedule and all supporting data is contingent upon compliance with all other paragraphs of this section and any other previous agreements or requirements with or by the Project Manager.
- F. The cost of revisions to the Schedule resulting from contract changes shall be included in the cost for the change in work, and shall be based on the complexity of the revisions or contract change, man-hours expended in analyzing the change, and the total cost of the change.

1.07 RESPONSIBILITY FOR COMPLETION

- A. The Contractor agrees that whenever it becomes apparent from the monthly progress review meeting or the schedule that contract completion dates will not be met, he shall take some or all of the following action at no additional cost to the Owner:
1. Increase construction manpower in such quantities and crafts as will bring the progress of the work into conformance with all other requirements of this section.
 2. Increase the number of working hours per shift, shifts per working day, workdays per week, the amount of construction equipment or any combination of the foregoing, to bring the scheduling and progress of the work into conformance with all requirements of the Contract Documents.
 3. Reschedule the work under this contract in conformance with all other contract requirements to demonstrate completion of the contract work within the contract time.

1.08 ADJUSTMENT OF THE CONTRACT TIME

- A. The contract time will be adjusted only for causes specified in the Contract Documents. In the event the Contractor requests an adjustment of the contract time, he shall furnish such justification, schedule data and supporting evidence as the Project Manager may deem necessary for a determination as to whether or not the Contractor is entitled to an adjustment of time under the provisions of the contract. Submissions of proof based on revised activity logic, durations and costs is obligatory with any request.
- B. The Contractor shall submit each request for an adjustment in the contract time to the Project Manager in accordance with all other requirements of the Contract Documents. The Contractor shall include, as part of each request:
 - 1. Justification for the delay in narrative form.
 - 2. A subnetwork showing all CPM logic revisions, duration changes, and cost changes, for the work in question and its relationship to other activities on the Schedule.
- C. The schedule must clearly display that the Contractor has used, in full, all the float time available for the work involved in this request. Actual delays in activities, which according to the schedule, do not affect the critical path work in the Schedule, will not be the basis for an adjustment to the contract time.
- D. The Project Manager's determination as to the adjustment of the contract time shall be based upon the latest schedule that has been accepted at the time of the alleged delay and all other relevant information. The Contractor shall submit with every request, an updated Schedule whenever the actual field progress of the work does not conform to the accepted schedule in force at the time of the alleged delay. The data if approved by the Project Manager shall be included in the next monthly updating of the schedule.
- E. The Project Manager shall, within a reasonable time after receipt of a request for extension of the contract time and supporting evidence, review the facts and shall advise the Contractor, in writing of his decision.
- F. When the Project Manager has not yet made a final determination as to the adjustment of the contract time, and the parties are unable to agree as to the amount of the adjustment to be reflected in the Schedule, the Contractor shall reflect that amount of time adjustment in the Schedule as the Project Manager may determine to be appropriate for interim purposes. It is understood and agreed that any such interim determination by the Project Manager shall not be binding and shall be made only for the purpose of continuing to schedule the work until such time as the Project Manager has made a final determination as to any adjustment of the contract time. The Contractor shall revise the Schedule prepared thereafter in accordance with the final decision.

END OF SECTION

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SECTION 01400
QUALITY CONTROL

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PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Quality assurance and control of installation.
- B. References.
- C. Field samples.
- D. Mock-ups.
- E. Inspection Services.
- F. Manufacturer's field services and reports.

1.02 RELATED SECTIONS

- A. Section 01090 – Reference Standards.
- B. Section 01300 – Submittals.
- C. Section 01410 – Testing Laboratory Services.
- D. Section 01600 – Material and Equipment / Substitutions: Requirements for material and product quality.

1.03 QUALITY ASSURANCE/CONTROL OF INSTALLATION

Contractor shall:

- A. Monitor quality control over sub-contractors, suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of highest quality.
- B. Comply fully with manufacturer's instructions, including each step in sequence.
- C. Should manufacturers instructions conflict with Contract Documents, request clarification from the Architect before proceeding.
- D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality.
- F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.04 REFERENCES

- A. Conform to reference standard by date of issue current on date of Contract Documents.

- B. Contractor shall obtain copies of standards when required by Contract Documents.
- C. Should specified reference standards conflict with Contract Documents, Contractor shall request clarification from Architect before proceeding.
- D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.05 FIELD SAMPLES

- A. Contractor shall install field samples at the site as required by individual specification Section for review.
- B. Acceptable samples represent the minimum required quality level for the Work.
- C. Where field sample is specified in individual Sections to be removed, clear area after field sample has been accepted by Architect.

1.06 MOCK-UPS

- A. Contractor shall assemble specified items, complete, with specified attachment and anchorage devices, seals, and finishes, as applicable.
- B. Where mock-up is specified in individual Sections to be removed, Contractor shall clear the area after the mock-up has been accepted by Architect.

1.07 INSPECTION SERVICES

- A. The County will provide services of a person or persons to perform inspection of the Project. Contractor shall:
 - 1. Notify County at least 48 hours prior to expected time for operations requiring specific inspection.
 - 2. Make arrangements with County's inspector(s) and pay for additional samples and tests required for Contractor's use.

1.08 MANUFACTURERS' FIELD SERVICES AND REPORTS

Contractor shall:

- A. When specified in individual Specification Sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance of equipment and as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Project Manager 30 days in advance of required observations. The observer is subject to approval of County.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- D. Submit report in duplicate within 30 days of observation to Project Manager for review.

END OF SECTION

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SECTION 01410
TESTING LABORATORY SERVICE

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PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Selection and payment.
- B. Contractor submittals.
- C. Laboratory responsibilities.
- D. Laboratory reports.
- E. Limits on testing laboratory authority.
- F. Contractor responsibilities.
- G. Schedule of inspections and tests.

1.02 RELATED SECTIONS

- A. Division 00 - Contract Conditions (General Provisions Paragraph 4-07).
- B. Section 01090 - Reference Standards.
- C. Section 01300 - Submittals: Manufacturer's certificates.
- D. Section 01700 - Contract Closeout: Project Record Documents.
- E. Drawings and individual Specification Sections: Inspections and tests required, and standards for testing.

1.03 REFERENCES

- A. ANSI/ASTM D3740 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- B. ANSI/ASTM E329 - Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.
- C. The Geotechnical Investigation included as Appendix Item #1 of this Project Manual. (This report is provided for general information only, and neither the County nor the Architect warrants its accuracy or completeness.)

1.04 SELECTION AND PAYMENT

- A. County will provide services of an independent testing laboratory to perform specified inspection and testing, or perform said inspection and testing in-house.

1.05 LABORATORY RESPONSIBILITIES

- A. All concrete mixes are to be submitted for approval and the maximum slump shall be 4 inches unless otherwise approved. Concrete cylinders (3) will be taken for each type of pour. The contractor has to hire a firm to test the cylinders at 7, 14 and 28 days. The contractor is to submit mix designs for approval.

1.06 CONTRACTOR RESPONSIBILITIES

Contractor shall:

- A. Deliver to laboratory at designated location, adequate samples of materials proposed to be used which require testing, along with proposed mix designs.
- B. Cooperate with laboratory personnel, and provide access to the Work and to manufacturer's facilities.
- C. Provide incidental labor and facilities to provide access to Work to be tested, to obtain and handle samples at the site or at source of products to be tested, to facilitate tests and inspections, storage and curing of test samples.
- D. Notify Inspector and laboratory 24 hours prior to expected time for operations requiring inspection and testing services.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.01 SCHEDULES OF INSPECTIONS AND TESTS

- A. As required by individual Specification Sections.
- B. As required by Drawings.

END OF SECTION

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SECTION 01500
TEMPORARY FACILITIES

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1.01 GENERAL

- A. Provide temporary facilities as shown or specified and as required to complete the work per Contract Documents.
- B. Providing temporary facilities is the Contractor's sole responsibility, and is not limited to the minimums established by the requirements hereof. Except as otherwise indicated, the use of alternative temporary facilities equivalent to those specified is the Contractor's option, subject to the Project Manager's or the ARCHITECT's acceptance. Temporary construction facilities are defined to exclude tools and self-contained construction machines and equipment.
- C. The types of temporary construction facilities as may be required for the project include:
 - 1. Construction water distribution.
 - 2. Dewatering facilities and drains.
 - 3. Temporary enclosure.
 - 4. Temporary heat
 - 5. Ventilation and humidity control
 - 6. Construction aids and miscellaneous facilities.
 - 7. Temporary power distribution.
 - 8. Temporary lighting.

1.02 QUALITY ASSURANCE

- A. Regulations: Comply with governing regulations for the installation and use of temporary construction facilities, including health and safety regulations.
- B. Standards: Comply with the "Manual of Accident Prevention in Construction" by AGC (AGC Safety Manual) and with NFPA Code 241 "Building Construction and Demolition Operations," and with ANSI AIO-Series standards "Safety Requirements for Construction and Demolition" and State of California Department of Industrial Relations, Division - Occupational Safety and Health CAC Title 8.

1.03 SUBMITTALS

- A. General: Submit copies of whatever reports of inspections, tests, gauge readings and similar data and copies of permits and certificates have been secured for the operation of temporary construction facilities, including those used for dewatering, distributing power, lighting and similar operations.

1.04 JOB CONDITIONS

- A. Schedule uses: Provide the temporary construction facilities ready for use at each location, at the time first needed to avoid delays in the performance of the work. Maintain, expand and modify as needed through the progress of work, and do not remove until no longer needed or replaced by authorized use of completed permanent facilities of the project.
- B. Temporary use of permanent facilities: Regardless of previously assigned responsibilities for temporary facilities, the Installer of each permanent facility shall assume responsibility for its operation, maintenance and protection during use as a construction facility prior to the Project Manager's acceptance and assumed operation of the facility.
- C. Conditions of use: Operate, maintain, control and protect temporary construction facilities in a manner which will prevent overloading, hazardous exposures, fire, disease, damage or deterioration of completed work, public nuisances, and similar deleterious effects.

1.05 MATERIALS OF TEMPORARY FACILITIES

- A. General: Provide either new or used materials and equipment, which are in substantially undamaged condition. Provide materials and equipment which are recognized in the construction industry, by compliance with appropriate standards, as being suitable for the intended use in each case, and capable of being maintained properly through the course of anticipated use at the project site.
- B. Water hoses: Where shut-off nozzles are used at the discharge of water hoses, provide heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system. Where non-potable water is used, provide adequate warning sign on discharge end of each length of hose.
- C. Heating units: Provide temporary heating units which have been tested and labeled by UL, FM, FIA or a recognized trade association relate to the fuel being consumed (AGA, NEMA, or other).
- D. Tarpaulins: Waterproof and fire-retardant type, UL labeled with a flame-spread rating of 15 or less. Provide translucent type (Laminated polyethylene with nylon reinforcement, or similar) for temporary enclosure where work is being or will be performed.
- E. Voltage differences: Provide identification warning signs at power outlets which are other than 110-120 volt power. Provide polarized outlets for plug-in type outlets.
- F. Electrical power cords: Use only grounded extension cords; hard-service type where exposed to abrasion and traffic of any kind.
- G. Lamps and light fixtures: Provide general service type incandescent lamps of the wattage indicated or required for adequate illumination. Where exposed to breakage by construction operations, protect lamps with guard cages or tempered glass enclosures. Provide exterior type fixtures where exposed to weather or moisture.

1.06 INSTALLATION OF TEMPORARY FACILITIES

- A. General:
 - 1. Use qualified tradesmen for the installation of temporary construction facilities. Locate facilities where they will serve the total project construction work adequately, and result in minimum interference with performance of the work. Relocate, modify and extend facilities as required during the course of the work, to properly accommodate the entire work of the project.

2. Changeover from the use of temporary facilities to the use of the permanent facilities at the earliest feasible date in each portion of the building. Do not use permanent water piping for the distribution of non-potable water.
- B. Dewatering facilities and drains: For general temporary drainage and dewatering facilities and operations provide dewatering as required to maintain the site, excavations and the construction free of water.
- C. Temporary Enclosure: Where required, provide temporary enclosure of materials, equipment, work in progress and completed portions of work, so as to afford protection for both the work and employees, from whatever ill effects may result from the work or the weather. Provide temporary enclosure wherever temporary heat is needed and permanent building enclosure is neither yet completed nor adequate for the containment of temporary heat. Coordinate temporary enclosures with ventilating and drying-of-the-work requirements, so as to avoid dangerous conditions and ill effects.
- D. Temporary heat:
 1. At each stage of construction in each portion of the building, restrict the selection of temporary heating facility to a method that is recognized as safe and without ill effect upon the work in place and being installed. Provide temporary heat wherever needed for the proper performance of the work, or for curing or drying of work recently installed, or for the protection of work in place from adverse effects of low temperatures or high relative humidity. Coordinate temporary heating with ventilation requirements to produce the indicated ambient condition required for the work, and at the same time to minimize the consumption of fuel or energy.
 2. Except as otherwise indicated, maintain a minimum temperature of 45 degrees F in permanently enclosed portions of the building, and in areas where finished work has been installed.
- E. Temporary ventilation: Ventilate wherever possible through the use of natural ventilation, utilizing temporary heat and temporary enclosures and openings to effect the needed movement of air where necessary. Operate units with filters and baffles to avoid the distribution of dust and to minimize other ill effects upon the work.
- F. Construction aids and miscellaneous facilities: This category of temporary construction facilities includes scaffolding, ramps, runways, staging, temporary stairs, ladders, sheeting, shoring, cross-lot bracing, bridge, guard rails, barriers, closures, platforms, swing stages and temporary partitions. The design, construction and maintenance of these facilities is the sole responsibility of the Contractor. Provide whatever facilities are needed to accommodate the performance of the entire work of the project.

1.07 OPERATIONS AND TERMINATIONS:

- A. Supervision: Enforce strict discipline in the use of temporary facilities. Limit availability of facilities to essential uses.
- B. Maintained operations: Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour-per-day basis where required to achieve the indicated results in the work, and avoid the possibility of damage to the work and temporary facilities.
- C. Prevent water-filled piping and vessels from freezing, whether temporary or permanent, by either draining or by insulation or heating.
- D. Termination and removal:

1. At the time the need has ended for each temporary construction facility, or for a substantial element of the facility, or when it has been replaced by authorized use of a permanent facility, or no later than the time of substantial completion, promptly remove the temporary facility unless requested by the Project Manager to retain it for a longer period of time. Complete the work, which may have been delayed because of interference's with temporary facilities, and restore work which may have been affected by temporary facilities. Repair damaged work, clean exposed surfaces, and replace work that cannot be satisfactorily restored. Except as otherwise indicated, the materials and equipment of temporary facilities remain the property of the contractors.

2. At the time of substantial completion clean and renovate permanent facilities, which have been used to provide temporary services during the construction period. Replace significantly worn parts and parts which may have been subjected to unusual operating conditions. Restore facilities to a substantially good-as-new condition in every respect. Replace used facilities that cannot be satisfactorily restored.

END OF SECTION

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SECTION 01540
SECURITY AND PROTECTION

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1.01 DESCRIPTION OF REQUIREMENTS

- A. This section of General Requirements specifies minimum requirements of temporary provisions for security and protection not specified elsewhere. The providing of adequate security and protection is Contractor's sole responsibility, and is not limited to minimums established by requirements hereof. Except as otherwise indicated, use of alternative security and protection methods of facilities equivalent to those specified, is Contractor's option. The work of this section is not intended to include required insurance coverage, performance/payment bonds, individual provisions for safe performance of specific work, first aid requirements, general supervision, quality control, damage surveys, prequalification of construction personnel, temporary enclosure of completed work and stored materials, inspection and tests of the work, instructions to Owner's personnel and similar recognized protection/security provisions, which are, nevertheless, specified elsewhere in the Contract Documents, if required.
- B. The types of security and protection facilities and services required for project (entire project not just work of contract) may include but are not necessarily limited to the following:
 - 1. Temporary fire protection.
 - 2. Barricades, warning signs, lights.
 - 3. Barrier fence enclosure.
 - 4. Security enclosure and lockup of work.
 - 5. Environmental protection. Coordinate permits with California Department of Fish and Game prior to commencing with the work when applicable.
- C. Coordinate with Owner to minimize conflict, and to facilitate Owner's operations. Coordinate with owner for a security plan, which will include ingress and egress, identification, protection of staff, materials and tools.

1.02 QUALITY ASSURANCE

- A. Regulations: Comply with governing regulations for installation and operation of security and protection facilities, including rules and recommendations of fire departments, police rescue squads, watchman services and similar local organizations and companies.
- B. Standards: Comply with NFPA Code 241 "Building Construction and Demolition Operations."
- C. Responsibilities: The assignment of responsibilities for security and protection such as installation, maintenance and operation, is Contractor's obligation; refer to "Guidelines on Bid Conditions for Temporary Job Utilities and Services," by AGC and the Association of Specialty Contractors for industry recommendations.

1.03 JOB CONDITIONS:

- A. Scheduled uses: Provide security and protection at times first needed at site; and maintain, expand and modify facilities as needed throughout construction period.

- B. Temporary use of permanent facilities: The Installer of each permanent facility shall be required to assume responsibility for its operation, maintenance and protection during use (if any) as a temporary security or protection facility, prior to Owner's acceptance and assumed operation of facility.
- C. Conditions of use: Use security and protection facilities and services in a safe, sanitary, lawful, and publicly acceptable manner, which will not interfere unduly with performance of the work nor result in other deleterious effect.

1.04 MATERIALS OF SECURITY AND PROTECTION FACILITIES

- A. General: Provide either new or used materials and equipment, which are in substantially undamaged and serviceable condition.
- B. Fire extinguishers: Provide type A fire extinguishers for temporary offices and similar spaces where there is minimal danger of electrical fires or grease-oil-flammable liquid fires. Otherwise, provide either type ABC dry chemical extinguishers or a combination of several extinguishers of NFPA-recommended types for exposure in each case.
- C. Plywood: Provide exterior type, prime painted and finish painted. For fences and vision barriers provide minimum 5/8" thick plywood. For safety barriers and similar direct-contact uses, provide minimum 5/8" thick plywood.

1.05 INSTALLATION OF SECURITY/PROTECTION FACILITIES

- A. General:
 - 1. Use qualified tradesmen for installation of security and protection facilities. Locate facilities to serve total project construction work adequately, and to result in minimum interference with performance of the work. Relocate, modify and extend facilities as required during course of the work, to properly accommodate entire work of the project. Provide and maintain a reasonably neat and uniform appearance in security and protection facilities, acceptable to Project Manager.
 - 2. Provide temporary security and protection facilities until time of substantial completion, or for longer periods of time as requested by Project Manager.
- B. Temporary fire protection:
 - 1. General:
 - a. During construction period and until time certain protection needs may be fulfilled by permanent facilities, install and maintain whatever types and forms of fire protection temporary facilities may be needed to adequately protect against fire losses which are reasonably predictable and controllable. Except as otherwise indicated or required, comply with the applicable recommendations of NFPA No. 10 "Portable Fire Extinguishers" for each area of each construction activity when combustible materials, flammable liquids and similar exposures to possible fires are present. Locate extinguishers where most convenient and effective for intended purposes. Store combustible materials in recognized fire-safe locations and containers.
 - b. The local fire authority shall be consulted regarding temporary fire protection.

2. Program: Develop and supervise an overall fire prevention and first-aid fire protection program for personnel at project site. Instruct personnel in methods and procedures of program; post warnings and information, and enforce strict discipline. Review needs with local fire department officials and establish procedures to be followed. Maintain unobstructed access to extinguishers, fire hydrants, temporary fire protection facilities, stairways, and other access routes for fighting fires.
 3. Temporary water: Where temporary water outlets are available, provide hoses of adequate length to reach construction areas associated therewith. Hang hoses with warning sign, to effect that it is for fire protection and is not to be removed. Match hose sizes with outlet sizes, and equip with suitable nozzles.
- C. Permanent fire protection: not applicable
- D. Barricades, warning signs and lights: Comply with recognized standards and code requirements for erection of substantial and structurally adequate barricades where needed to prevent accidents and losses. Provide lighting where appropriate and needed for recognition of facility, including flashing red lights where appropriate.
- E. Enclosure fence: Installed by others. (Contractor will be responsible for any damage to and replacement of temporary fencing.)
- F. Security enclosure and lockup:
1. General: Install substantial and durable temporary enclosure of partially completed areas of construction, with locking entrances, adequate to prevent unauthorized entrance, vandalism, theft, and similar deleterious effects and violations of project security. It is recognized that enclosure fence around construction site does not provide adequate security against certain exposure to loss by theft and vandalism.
 2. Storage: Where materials and equipment must be temporarily stored, prior to and during construction, and are of substantial value or attractive for possible theft, provide secure lockup and enforce strict discipline in connection with timing of installation and release of materials, so that opportunity for theft and vandalism is minimized.
- G. Environmental protection: Provide protection facilities, operate temporary facilities, conduct construction activities, and enforce strict discipline for personnel at project site in ways and by methods which comply with environmental protection regulations, and which minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable and deleterious effects might result from performance of the work at project site. Avoid use of tools and equipment, which produce harmful noise; and restrict use of noise-making tools and equipment to hours or use which will minimize noise near project site.

1.06 TERMINATION AND REMOVAL

Maintain protection and security facilities and services in good operating condition through time of use and until completion and use of permanent work makes each temporary service unnecessary, or until Owner's occupancy has replaced the need for service or until its discontinuation has been otherwise authorized. Remove each facility promptly after its use has been terminated. Complete or restore permanent work that may have been delayed or otherwise affected by temporary facility. Replace work, which cannot be satisfactorily restored. Except as otherwise indicated materials and equipment of temporary security and protection facilities remain property of contractors.

END OF SECTION

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SECTION 01590
TEMPORARY GENERAL SERVICES

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1.01 DESCRIPTION OF REQUIREMENTS

- A. Provide temporary services and facilities which will enable construction processes, and will accommodate other necessary activities at the project site. Providing adequate general services is the Contractor's sole responsibility, and is not limited to the minimums established by the requirements hereof. Except as otherwise indicated, the use of alternative general services equivalent to those specified is the Contractor's option, subject to the Project Manager's acceptance. Temporary general services exclude inspection and testing services, surveys, photographs, security provisions, protection, safety, final cleaning, startup of systems, instructions to Owner's personnel and other services which are recognized to be similar to the work of this section but are specified in other sections hereof, if required.
- B. The types of temporary general services required for the project may include, but are not necessarily limited to, the following:
 - 1. Sanitary facilities.
 - 2. Collection/disposal of waste materials.
 - 3. Miscellaneous general services.

1.02 QUALITY ASSURANCE

- A. Regulations: Comply with governing regulations for the installation and use of general service facilities, including health and safety regulations.
- B. Standards: Comply with the "Manual of Accident Prevention in Construction" by AGC (AGC Safety Manual) and with NFPA Code 241 "Building Construction and Demolition Operations."
- C. Responsibilities: Except as otherwise indicated, the assignment of responsibilities for installing facilities and performing general services, and for complying with trade regulations and union jurisdictions associated therewith, is the Contractor's obligation.

1.03 SUBMITTALS

Submit copies of inspection reports, certificates, permits and similar documentation required or issued in connection with general services.

1.04 JOB CONDITIONS

- A. Scheduled uses: Provide temporary general services at the time first needed at the site; and maintain, expand and modify the facilities as needed throughout the construction period.
- B. Conditions of use: Operate, maintain, control and protect general service facilities in a manner which will prevent fire, hazardous exposures, health problems, unsanitary conditions, pollution, contamination, discomfort to users, flooding, freeze-up, interference with the construction work, public nuisances and similar deleterious effects.

1.05 MATERIALS AND EQUIPMENT OF GENERAL SERVICES

- A. General: Provide either new or used materials and equipment for general service facilities, which are in substantially undamaged and serviceable condition. Provide types and qualities, which are recognized in the construction industry as suitable for the intended use in each application.
- B. Drinking water: Potable water approved by local health authorities.
- C. Construction materials: For offices, fabrication shops, storage sheds and similar construction, provide standard manufactured prefabricated or mobile home construction insulated and weather-tight where indicated to be heated or air conditioned; or provide equivalent job-built construction. Equip each unit with locked entrances, operable windows, roofing, adequate foundations for usual loading including wind loads, serviceable finishes of the types indicated, and mechanical/electrical equipment as needed to achieve the ambient conditions indicated.

1.06 INSTALLATION OF GENERAL SERVICE FACILITIES

- A. General: Locate facilities where they will serve the total project construction work adequately, and result in minimum interference with performance of the work. Relocate, modify and extend facilities as required during the course of the work, to properly accommodate the entire work of the project.
- C. Collection and disposal of wastes: Establish and enforce a daily system for collecting and disposing of waste materials from construction areas and elsewhere at the project site. Do not hold collected materials at the site for periods of more than 7 days, nor for periods of more than 3 days during hot weather (when daily temperatures can be expected to rise above 80 degrees F). Handle hazardous, dangerous, unsanitary, contaminated, polluting and similar harmful wastes separately from inert materials, by containerizing in an appropriate manner. Dispose of each category of waste material in a lawful manner. Do not bury or burn waste materials on the Owner's property.
- D. Parking: Arrange for temporary surface parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking. Parking areas must be approved by Project Manager due to environmentally sensitive areas (i.e. vernal pools, wetlands)
- E. Miscellaneous general services: Include whatever general services may be required, or are found to be necessary, for the accommodation of the work. The items of general service which may be needed include, but are not necessarily limited to, the installation of postal delivery service, parking spaces at the temporary offices, walkways in and around the construction area and personal protection items for employees and visitors.

1.07 OPERATIONS AND TERMINATIONS

- A. Supervision: Enforce strict discipline in the use of general services at the project site. Limit availability of facilities to essential and intended uses, so as to minimize wastes and the possibility of abuses and the resulting unsanitary and hazardous or dangerous conditions. Do not allow temporary offices and similar temporary or permanent spaces to be used as living quarters, or for other unintended occupancies or uses.
- B. Maintenance: Operate and maintain general services in good operating condition through the time of use, and until removal is authorized. Protect from damage by weather.
- C. Termination and removal: When the need has ended for each temporary general service facility, or at the time of substantial completion, promptly remove the facility unless requested by the Project Manager to retain it. Complete or restore permanent work

which may have been delayed or otherwise affected by the temporary facility. Replace work which cannot be satisfactorily restored. Except as otherwise indicated, the materials and equipment of temporary general services remain the property of the Contractor. Owner reserves the right to take possession of project identification signs.

END OF SECTION

.....

SECTION 01600
MATERIAL AND EQUIPMENT / SUBSTITUTIONS

.....

PART 1 - GENERAL

1.01 SECTIONS INCLUDES

- A. Products.
- B. Transportation and handling.
- C. Storage and protection.
- D. Product options.
- E. Substitutions.

1.02 RELATED SECTIONS

- A. Division 00 - Contract Conditions (General Provisions Paragraph 4-10).
- B. Section 01300 - Submittals.
- C. Section 01400 - Quality Requirements.

1.03 PRODUCTS

- A. "Products" means new material, machinery, components, equipment, fixtures, assemblies, and systems forming the Work; and does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
- B. Do not use material and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- C. Provide interchangeable components of the same manufacturer, for similar components.
- D. Comply with Specifications, referenced standards, and applicable codes and regulations as minimum requirements.
- E. Provide new materials except as specifically allowed by Contract Documents.
- F. Provide equipment and systems composed of materials from a single manufacturer except where otherwise recommended by equipment or systems manufacturer or where otherwise indicated in Contract Documents.

1.04 WORKMANSHIP

Contractor shall:

- A. Comply with industry standards and applicable codes except when more restrictive tolerances or requirements indicate more rigid standards or precise workmanship.
- B. Perform work by persons qualified to produce workmanship of specified quality.

- C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking. Seismic and vertical load anchors shall conform to applicable code requirements.
- D. Install products plumb, straight and true, and in correct relationship to adjacent materials, with hairline joints, free of rough, sharp or potentially hazardous edges.

1.05 MANUFACTURERS' INSTRUCTIONS

- A. When work is specified to comply with manufacturer's recommendations or instructions, distribute copies to persons involved, and maintain one set in field office.
- B. Perform work in accordance with details or recommendations and instructions and specified requirements.
- C. Should a conflict existing between the Specifications and recommendations or instructions, consult with the County.
- D. Where manufacturer's information notes special recommendations in addition to installation instructions, comply with both recommendations and instructions.

1.06 PRODUCT OPTIONS

- A. Contractor shall provide products listed in the Contract Documents, products by manufacturers listed in the Contract Documents, and products meeting specified requirements.
- B. Procedures are described for requesting substitution of unlisted materials in lieu of materials named in the Contract Documents.
- C. Contractor's Options:
 - 1. For products specified only by reference standard, select products meeting the referenced standard.
 - 2. For products specified by naming one or more products or manufacturers, select products of any named manufacturer meeting the Specifications.
 - 3. For a product or manufacturer not specifically named, submit a Request for Substitution.
 - 4. Where terms "or equal", or "or approved equal", or similar references are made, submit a Request for Substitution for any product or manufacturer not specifically named in the Contract Documents.

1.07 SUBSTITUTIONS

- A.. The Contractor may submit written requests for substitutions for specified products within fifteen days preceding bid date or within 5 days following date of receipt of Notice to Proceed. Requests received after the 5 days will not be considered except for the following reasons:
 - 1. Product discontinued.
 - 2. Insufficient quantity except as caused by failure to award subcontract in time, or failure to order products so as to insure delivery without delay of work.

3. Delays beyond control such as strikes, fires, and acts of nature, war or civil disorder.
 4. Reasons supported by sufficient evidence to satisfy the Project Manager that the request should be allowed.
- B. Submit four copies of each request for substitution. Include in each request:
1. Complete data indicating compliance of substitute with Contract Documents.
 2. For products:
 - a. Product identification including name and address of manufacturer, source of supply nearest job site, contract specifications identification, and location in the work.
 - b. Product data: Description, performance and test data, reference standards; for substitute and specified item.
 - c. Samples, if requested.
 - d. Name and address of similar projects on which product was used and date of installation.
 - e. Deduction from contract price to be allowed for acceptance of substitutions.
 3. For construction methods:
 - a. Detailed description of proposed methods.
 - b. Drawings illustrating methods.
 4. Itemized comparison of specified and proposed methods or products.
 5. Data relating to changes in construction schedule.
 6. Accurate cost data on substitution compared to costs of specified item.
- C. In making request for substitution the bidder or Contractor represents:
1. He has investigated the proposed substitute and determined that it is equal or superior in all respects to the specified item.
 2. He will provide the same guarantee, warranty bonds or other assurances for the substitute as for the specified item.
 3. He waives all claims for additional costs related to the substitution that may develop.
 4. Cost data is complete and includes all related costs under his contract.
- D. Substitutions will not be considered if:
1. They are shown or implied on other submittals without formal request per this section.
 2. Acceptance will require substantial revision of the Contract Documents or the work.

- E. Only one substitution will be considered for any one material. If the requested substitution is not accepted the originally specified product must be supplied.
- F. Action on Requests for Substitution Approval of request will be documented by Change Order. Denial of request will be made by letter or RFI.

1.08 TRANSPORTATION AND HANDLING

Contractor shall:

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.09 STORAGE AND PROTECTION

Contractor shall:

- A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.
- B. For exterior storage of fabricated products, place on sloped supports, above ground.
- C. Provide off-site storage and protection when site does not permit on-site storage or protection.
- D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
- E. Store loose granular materials on solid flat surfaces in a well-drained area. Prohibit mixing with foreign matter.
- F. Provide equipment and personnel to storage products by methods to prevent soiling, disfigurement, or damage.
- G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION

SECTION 01700
PROJECT CLOSEOUT

1.01 DESCRIPTION OF REQUIREMENTS

- A. Definitions: Closeout includes the general requirements near the end of the contract time, in preparation for final acceptance, final payment, normal termination of the contract, occupancy by the Owner and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified in the specification sections. The time of closeout is recognized to be directly related to "Substantial Completion," and therefore may be either a single period for the entire work or a series of periods for individual parts of the work which have been certified as substantially complete at different dates.

1.02 PREREQUISITES FOR SUBSTANTIAL COMPLETION

- A. General: Prior to requesting Project Manager's inspection for certification of substantial completion, as required by the General Conditions, complete the following and list known exceptions in request:
1. Submit last Progress Payment Request, with sworn statement showing 100 percent completion of the work, complete with associated releases, consents and supports.
 2. Submit statement showing final accounting of changes to the contract price.
 3. Advise Project Manager of pending insurance change-over requirements.
 4. Submit special guarantees, warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
 5. Obtain and submit, operating certificates, final inspection/test certificates, and similar releases enabling Owner's full and unrestricted use of the work and access to services and utilities.
 6. Submit record drawings, maintenance manuals, final project photographs, damage or settlement survey, property survey, and similar final record information.
 7. Deliver tools, spare parts, extra stocks of materials, and similar physical items to Owner.
 8. Complete start-up testing of systems, and instructions of Project Manager's operating/maintenance personnel.
 9. Discontinue (or change over) and remove from the project site temporary facilities and services, along with construction tools and facilities, and similar elements.
 10. Complete the final cleaning.
 11. Touch-up and otherwise repair and restore marred exposed finishes.

- B. Inspection procedures: Upon receipt of Contractor's request, Project Manager will either proceed with inspection or advise Contractor of prerequisites for inspection not fulfilled. The number of items to be corrected or completed will be averaged. When the average exceeds four items, the inspection will be stopped and the Contractor advised that the work is not ready for inspection. The Contractor shall then resume the work. Following initial complete inspection, Project Manager will either prepare certificate of substantial completion, or advise Contractor of work which must be performed prior to issuance of certificate; and repeat inspection when requested and assured that work has been substantially completed. Results of completed inspection will form initial "punch-list" for final acceptance.

1.03 PREREQUISITES FOR FINAL ACCEPTANCE

Prior to requesting Project Manager's final inspection for certification of final acceptance and final payment, as required by the General Conditions, complete the following and list known exceptions (if any) in request:

- A. Submit final payment request with final releases and supports not previously submitted and accepted. Include certificates of insurance for products and completed operations.
- B. Submit updated final statement, accounting for additional changes to the contract price.
- C. Submit certified copy of Project Manager's final punch-list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by the Project Manager.

1.04 RECORD DOCUMENT SUBMITTALS

- A. General: Specific requirements for record documents are indicated in individual sections of these specifications. The general requirements are indicated in individual sections of these specifications. The general submittal requirements are indicated in section 01.300. Do not use record documents for construction purposes; protect from deterioration and loss in a secure fire-resistive location; provide access to record documents for the Project Manager's inspection during normal working hours.
- B. Record drawings: Refer to Section 01720 - Record Documents.
- C. Maintenance manuals: Organize maintenance-and-operating manual information into suitable sets of manageable size, and bind into individual binders properly identified and indexed (thumb-tabbed); Include emergency instructions, spare parts listing, warranties, guarantees, wiring diagrams, recommended "turnaround" cycles, inspection procedures, shop drawings, product data, and similar applicable information. Bind each manual of each set in a heavy-duty 2", 3-ring, vinyl-covered binder, and include pocket folders for folded sheet information. Mark identification on both the front and spine of each binder.

1.05 CLOSEOUT PROCEDURES

- A. General operating/maintenance instructions: Arrange for each installer of work requiring continuing maintenance or operation (by the Owner) to meet with the Project Manager's personnel, at the project site, to provide basic instructions needed for proper operation and maintenance of the entire work. Include instructions by manufacturer's representative where installers are not expert in the required procedures. Review maintenance manuals, record documentation, tools, spare parts and materials, lubricants, fuels, identification system, control sequences, hazards, cleaning and similar procedures and facilities. For operational equipment, demonstrate start-up, shutdown, emergency operations, noise and vibration adjustments, safety, economy/efficiency adjustments, and similar operations. Review maintenance and operations in relation with applicable guarantees, warranties, agreements to maintain, bonds, and similar continuing commitments.

1.06 FINAL CLEANING

- A. General: Special cleaning for specific units of work is specified in the sections of specifications.
- B. Provide final cleaning of the work, at the time indicated, consisting of cleaning and grading the work area to its preconstruction condition prior to placing the final erosion control measures.

END OF SECTION

SECTION 01720
RECORD DOCUMENTS

1.01 DESCRIPTION OF REQUIREMENTS

- A. Record documents include those documents or copies relating directly to the performance of the work, which the Contractor is required to prepare or maintain for the Owner's records, recording the work as actually performed. In particular, record documents show changes in the work in relation to the way in which it was shown and specified by the original contract documents; and show additional information of value to the Owner's records, but not indicated by the original contract documents. Record copies include newly-prepared drawings (if any are specified), marked-up copies of contract drawings and shop drawings, marked-up copies of specifications, addenda and change orders, marked-up product data submittals, record samples, field records for variable and concealed conditions such as excavations and foundations, and miscellaneous record information on work which is otherwise recorded only schematically or not at all. Certain individual work sections indicate specific record-copy requirements, which extend the requirements of this section.
- B. Refer to Section 01700 for general closeout requirements related to the submittal of record copies.

1.02 RECORD DOCUMENTS

- A. Record Drawings:
 - 1. Mark-up procedures: During the progress of the work, maintain a white-print set (blue-line or black-line) of contract drawings and shop drawings, with mark-up of actual installations which vary substantially from the work as originally shown. Mark whatever drawings are most capable of showing the as-built condition, fully and accurately. Where shop drawings are marked-up, mark cross-reference on contract drawings at the corresponding location. Mark with erasable colored pencil, using separate colors where feasible to distinguish between changes for different categories of work at the same general location. Mark-up important additional information which was either shown schematically or omitted from original drawings. Give particular attention to information on work to be concealed that would be difficult to identify or measure and record at a later date. Note alternative numbers.
 - 2. Preparation of transparencies:
 - a. In preparation for certification of substantial completion on the last major portion of the work, review the completed mark-up of record drawings with the Project Manager. Identify and date each updated drawing.
 - b. Printing of original drawings, with addition of contract modifications, to produce transparencies and other prints as required herein is the Engineer's responsibility.
 - 3. Distribution: Upon completion of the record drawings, prepare three copies of each drawing, regardless of whether changes and additional information were recorded thereon. Organize each of the three copies into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set. Organize and bind the mark-up set of prints (maintained during the construction period) in the same manner. Submit

mark-up set, three copy sets, and transparencies to Project Manager for Owner's records.

- B. Record Specifications: During the progress of the work, maintain one copy of the specifications, including addenda, change order and similar modifications issued in printed form during construction, and mark-up variations (of substances) in the actual work in comparison with the test of specifications and modifications as issued. Give particular attention to substitutions, selection of options, and similar information on work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation. Note related record drawing information and product data, where applicable. Upon completion of mark-up, submit to Project Manager for Owner's records.

END OF SECTION

END OF DOCUMENT

MORGUE HVAC UPGRADES

TEHAMA COUNTY

RED BLUFF, CALIFORNIA

CONSTRUCTION DOCUMENTS

MARCH 30, 2025



ALL IDEAS, DESIGNS, AND PLANS REPRESENTED BY THIS DRAWING ARE THE EXCLUSIVE PROPERTY OF FRONTIER CONSULTING ENGINEERS, INC. AND SHALL NOT BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF FRONTIER CONSULTING ENGINEERS, INC. UNAUTHORIZED REUSE OF THIS DRAWING SHEET OTHER THAN FOR THE PROJECT AND LOCATION SHOWN IS PROHIBITED.

LICENSE STAMP



CONSULTANTS

PROJECT NAME

MORGUE HVAC UPGRADES

FOR

TEHAMA COUNTY

22840 Antelope Blvd
Red Bluff, CA 96080

NO. REVISIONS DATE

SHEET TITLE

TITLE SHEET

ISSUED FOR:

CONSTRUCTION DOCUMENTS

DATE: 3/30/2025

DRAWN BY: GK

REVIEWED BY: BA

SCALE: As indicated

PROJECT NO: 24049

G100

APPLICABLE CODES & STANDARDS

ALL WORK PERFORMED AND MATERIALS FURNISHED SHALL COMPLY WITH THE FOLLOWING CODES.

- APPLICABLE CODES, REGULATIONS:**
 2022 CALIFORNIA ADMINISTRATIVE CODE (CAC)
 PART 1, TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR)
 2022 CALIFORNIA BUILDING CODE (CBC)
 PART 2, TITLE 24, CCR, BASED ON THE 2012 INTERNATIONAL BUILDING CODE (IBC)
 2022 CALIFORNIA ELECTRICAL CODE (CEC)
 PART 3, TITLE 24, CCR, BASED ON THE 2011 NATIONAL ELECTRIC CODE (NEC)
 2022 CALIFORNIA MECHANICAL CODE (CMC)
 PART 4, TITLE 24, CCR, BASED ON THE 2012 UNIFORM MECHANICAL CODE (UMC)
 2022 CALIFORNIA PLUMBING CODE (CPC)
 PART 5, TITLE 24, CCR, BASED ON THE 2012 UNIFORM PLUMBING CODE (UPC)
 2022 CALIFORNIA ENERGY CODE (IEC)
 PART 6, TITLE 24, CCR
 2022 CALIFORNIA FIRE CODE (CFC)
 PART 9 TITLE 24, CCR, BASED ON THE 2012 INTERNATIONAL FIRE CODE (IFC)
 2022 CALIFORNIA FIRE CODE (CFC)
 PART 11, TITLE 24, CCR
 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CGC)
 PART 12, TITLE 24, CCR
 2022 CALIFORNIA REFERENCED STANDARDS

OTHER APPLICABLE CODES AND REGULATIONS
 TITLE 19 - PUBLIC SAFETY, STATE FIRE MARSHAL, CALIFORNIA CODE OF REGULATIONS (CCR)
 ADA REGULATION FOR TITLE III - 2010 - STANDARDS FOR PUBLIC ACCOMMODATIONS AND COMMERCIAL FACILITIES, U.S. DEPT. OF JUSTICE.

- APPLICABLE NFPA STANDARDS ADOPTED BY 2019 CBC:**
 NFPA NO. 13 - 2016 INSTALLATION OF SPRINKLER SYSTEM
 NFPA NO. 45 - 2015 FIRE PROTECTION FOR LABORATORIES USING CHEMICALS
 NFPA NO. 55 - 2019 COMPRESSED GASES AND CRYOGENIC FLUIDS
 NFPA NO. 70 - 2017 NATIONAL ELECTRICAL CODE
 NFPA NO. 72 - 2016 NATIONAL FIRE ALARM & SIGNALING CODE
 NFPA NO. 80 - 2016 FIRE DOORS AND OTHER OPENING PROTECTIVES
 NFPA NO. 90A - 2009 INSTALLATION OF AIR-CONDITIONING VENTILATING SYSTEMS
 NFPA NO. 101 - 2018 LIFE SAFETY CODE
 NFPA NO. 220 - 2009 TYPES OF BUILDING CONSTRUCTION

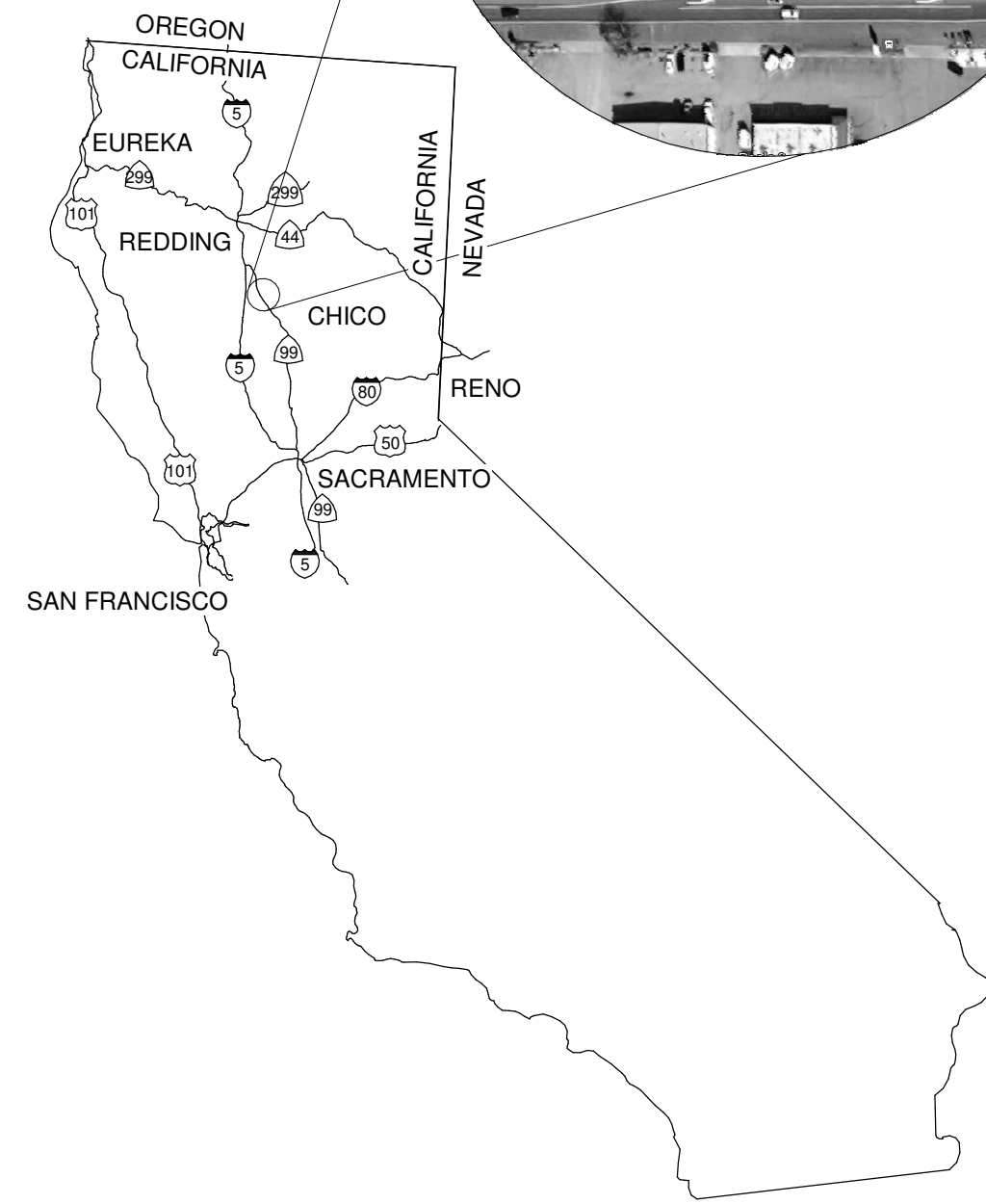
WHERE THERE IS A CONFLICT BETWEEN CALIFORNIA (ADAAG) AND FEDERAL (ADA) DISABLED ACCESS REQUIREMENTS, GENERALLY THE MOST STRINGENT WILL APPLY.

- UNIFORM FEDERAL ACCESSIBILITY STANDARD (UFAS)
- CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (CAL OSHA)
- OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA): HAZARD COMMUNICATIONS STANDARD

TITLE 24 C.C.R. ADMIN. REQUIREMENTS

- ALL WORK SHALL CONFORM TO THE 2022 EDITION OF TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).
- A COPY OF PARTS 1 THRU 5 & 9, TITLE 24, CCR, SHALL BE KEPT ON THE JOB SITE AT ALL TIMES DURING CONSTRUCTION.
- CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY ADDENDA OR CONSTRUCTION CHANGE DOCUMENT (CCD) APPROVED BY DSA, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, CCR.
- ALL CCD'S AND ADDENDA SHALL BE SIGNED BY THE ARCHITECT/ENGINEER AND THE OWNER.
- A CERTIFIED PROJECT INSPECTOR EMPLOYED BY THE COUNTY SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, PART 1, TITLE 24, CCR. A CLASS 2 (MIN) INSPECTOR IS REQUIRED FOR THIS PROJECT.
- SUPERVISION OF CONSTRUCTION BY DSA SHALL BE IN ACCORDANCE WITH SECTION 4-342, PART 1, TITLE 24.
- CONTRACTOR, INSPECTOR, ENGINEERS SHALL SUBMIT VERIFIED REPORTS (FORM 6) IN ACCORDANCE WITH SECTION 4-336 AND 4-343, PART 1, TITLE 24.
- THE STRUCTURAL ENGINEER SHALL PERFORM THEIR DUTIES IN ACCORDANCE WITH SECTION 4-333 (a) AND 4-341, PART 1, TITLE 24.
- CONTRACTOR SHALL PERFORM HIS DUTIES IN ACCORDANCE W/ SECTION 4-343, PART 1, TITLE 24.
- THE INTENT OF THESE DRAWINGS AND SPEC'S, IS THAT THE WORK DESCRIBED HEREIN SHALL BE IN ACCORDANCE WITH THE TITLE 24, CCR. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE CONTRACT DOC'S, WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH SAID TITLE 24, CCR, A CCD DETAILING & SPECIFYING THE REQD. WORK SHALL BE SUBMITTED TO & APPROVED BY THE DSA BEFORE PROCEEDING WITH THE WORK.
- GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS, AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH LOCAL ORDINANCES.

PROJECT LOCATION



1 PROJECT LOCATION
G100 1/8" = 1'-0"

PROJECT TEAM

OWNER:

TEHAMA COUNTY SHERIFF
22840 ANTELOPE BLVD
RED BLUFF, CA 96080

ELECTRICAL ENGINEER:

NATHAN WARNER, PE
FRONTIER CONSULTING ENGINEERS, INC.
2727 BECHELL LANE
REDDING, CA 96002
(530) 232-6160

MECHANICAL ENGINEER:

NATHANIEL WARFIELD, PE
FRONTIER CONSULTING ENGINEERS, INC.
2727 BECHELL LANE
REDDING, CA 96002
(530) 232-6160

STRUCTURAL ENGINEER:

BILL NAGEL, SE
NAGEL ENGINEERING
3335 PLACER STREET #225
REDDING, CA 96001
(530) 917-0224

PROJECT NOTICE

THE FINAL DESIGN DOCUMENTS ARE INTENDED TO BE USED AS A COMPLETE PACKAGE. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO FURNISH ANY SUBCONTRACTORS, MATERIAL OR EQUIPMENT SUPPLIERS ACCESS TO THE TOTAL BID PACKAGE OF FINAL DESIGN DOCUMENTS. ALL OF THE DOCUMENTS APPLY TO ALL MEMBERS OF THE GENERAL CONTRACTOR CONSTRUCTION TEAM.

THE ENGINEERS HAVE SHOWN VARIOUS PORTIONS OF THE WORK ON SEPARATE SHEETS OF DRAWINGS OR IN SEPARATE PROJECT SPECIFICATION SECTIONS FOR CLARITY. 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 SUB- CONTRACTORS.

THE FINAL PROJECT SHALL REFLECT ALL THE WORK SHOWN ON ALL DOCUMENTS WITHOUT REGARD TO WHO SHALL PROVIDE THE WORK. FOR PURPOSES OF THIS PROJECT THE ENGINEER/ OWNER SHALL CONSIDER THE GENERAL CONTRACTOR AS THE SOLE PROVIDER OF ALL ITEMS NECESSARY TO COMPLETE THE PROJECT.

ITEMS SHOWN ON ONE DRAWING OR SPECIFICATION SECTION BUT NOT OTHERS SHALL BE FURNISHED IN THEIR ENTIRETY AS IF SHOWN ON ALL DOCUMENTS. - THE USE OF THESE DOCUMENTS WITHOUT THE BENEFIT OF REVIEWING THE ENTIRE PACKAGE WILL BE AT THE RISK OF THE USER.

SCOPE OF WORK

THE SCOPE OF WORK FOR THIS PROJECT INCLUDES NEW VENTILATION SYSTEMS FOR THE MORGUE AT TEHAMA COUNTY SHERIFF'S OFFICE. THE PROJECT INCLUDES A 100% OUTDOOR AIR SYSTEM FOR MAKEUP AIR. AN EXISTING EXHAUST SYSTEM WILL REMAIN IN OPERATION AND BE REBALANCED TO ACHIEVE PRESSURE RELATIONSHIPS. THE PROJECT INCLUDES NEW ROOM PRESSURE MONITORING CONTROLS.

SHEET INDEX

Sheet Number	Sheet Name
G100	TITLE SHEET
M100	MECHANICAL LEGEND AND SCHEDULES
M101	MECHANICAL SPECIFICATIONS
M102	MECHANICAL SPECIFICATIONS
M103	TAB SPECIFICATIONS
M104	PLUMBING SPECIFICATIONS
M110	MECHANICAL DEMOLITION PLAN
M140	MECHANICAL ROOF DEMOLITION PLAN
M210	MECHANICAL FLOOR PLAN
M240	MECHANICAL ROOF PLAN
M300	MECHANICAL DETAILS
M301	MECHANICAL DETAILS
M400	T24 COMPLIANCE REPORT
E100	ELECTRICAL LEGEND AND SCHEDULES
E110	ELECTRICAL SPECIFICATIONS
E111	ELECTRICAL SPECIFICATIONS
E240	ELECTRICAL ROOF PLAN

TOTAL SHEETS: 17

DEFERRED APPROVAL

NO ITEMS ARE TO BE APPROVED UNDER DEFERRED APPROVAL IN THIS PROJECT.

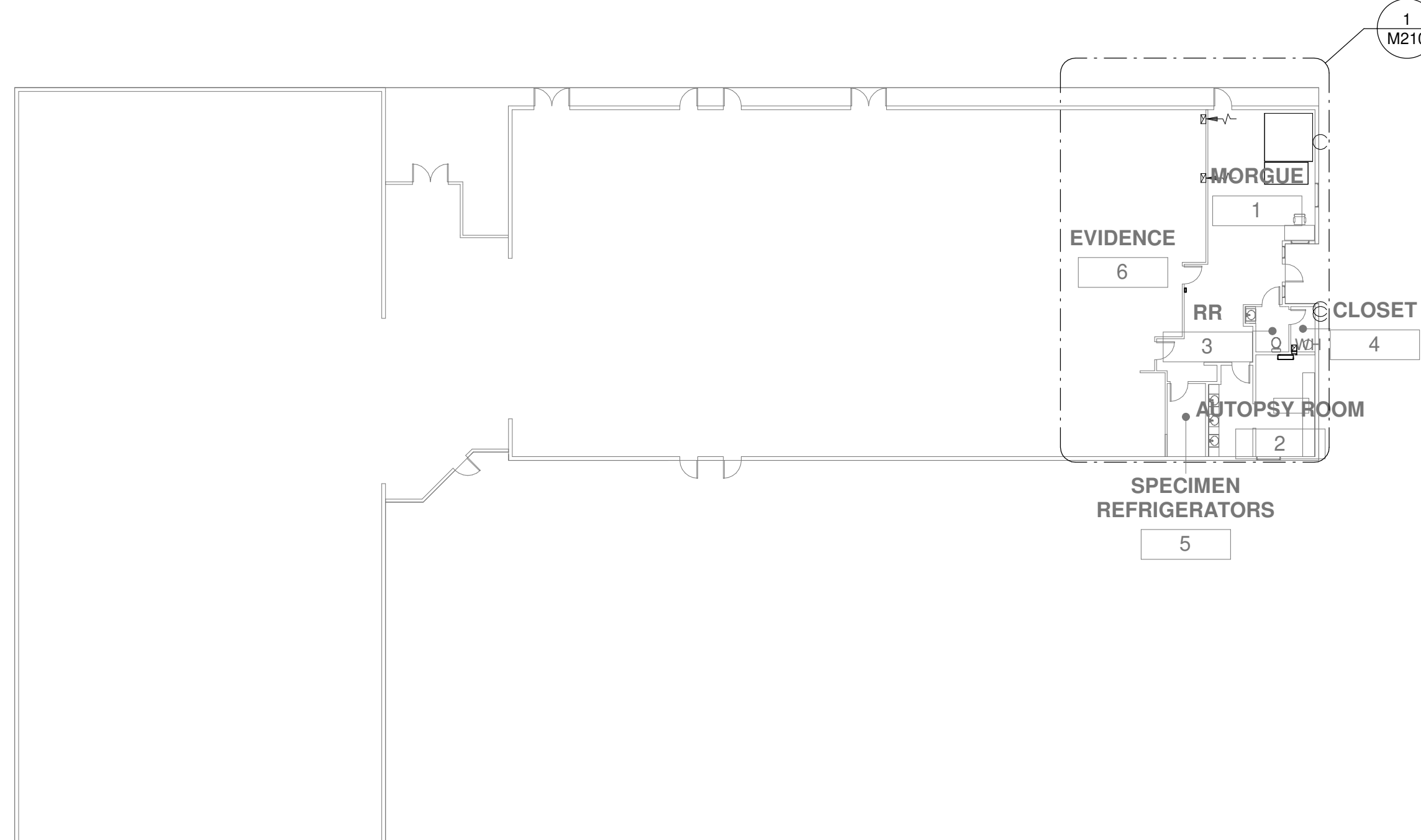
ALTERNATES

NO ADDITIVE ALTERNATE ITEMS ARE INCLUDED IN THIS PROJECT.

STRUCTURAL DESIGN CRITERIA

NEW EQUIPMENT PLACED IN THE LOCATION OF REMOVED ROOFTOP UNIT IS EXEMPT FROM CALCULATIONS BECAUSE IT DOES NOT EXCEED THE REMOVED ROOFTOP UNIT WEIGHT.

REFER TO STRUCTURAL CALCULATIONS PACKAGE FOR ADDITIONAL CRITERIA.



MECHANICAL LEGEND		
SYMBOLS	ABBREVIATIONS	
	ABC	ABOVE CEILING
	AFF	ABOVE FINISHED FLOOR
□AD	AD	ACCESS DOOR
	AL	ACOUSTIC LINED DUCT (DIM IS INTERNAL)
	AC	AIR CONDITIONING
	BHP	BRAKE HORSE POWER
	CFM	CUBIC FEET PER MINUTE
A 123 CFM		DIFFUSER TAG
---	D	DEMO
	DB	DRY BULB
		DUCT (RECTANGULAR DUCT, DIMENSIONS IN INCHES)
		DUCT (ROUND DUCT, DIAMETER IN INCHES)
		DUCT DROP IN DIRECTION OF ARROW
		DUCT RISE IN DIRECTION OF ARROW
	EER	ENERGY EFFICIENCY RATIO
	EAT	ENTERING AIR TEMPERATURE
	EA	EXHAUST AIR DUCT
	EF	EXHAUST FAN
		EXHAUST GRILLE
(E), EX		EXISTING
	ESP	EXTERNAL STATIC PRESSURE
	FPM	FEET PER MINUTE
		FLEXIBLE DUCT
	FLA	FULL LOAD AMPS
	LAT	LEAVING AIR TEMPERATURE
		LOUVERED DOOR
	MOC	MAXIMUM OVER CURRENT PROTECTION
	MCA	MINIMUM CIRCUIT AMPACITY
		MOTORIZED DAMPER
	(N)	NEW
		NEW CONNECTION TO EXISTING
	OA	OUTSIDE AIR
1 123 CFM		REGISTER/GRILLE TAG
	(R), R	RELOCATE
	RA	RETURN AIR DUCT
		RETURN GRILLE
	RLRS	REFRIGERANT LINE SET
	SEER	SEASONAL ENERGY EFFICIENCY RATIO
	SD	SMOKE DETECTOR
	SP	STATIC PRESSURE SENSOR
	SA	SUPPLY AIR DUCT
		SUPPLY DIFFUSER
	T*STAT	THERMOSTAT (48" AFF TOP OF BOX)
	TSP	TOTAL STATIC PRESSURE
		TURNING VANES
	TYP	TYPICAL
		UNDERCUT DOOR
	UG	UNDERGROUND
	VIF	VERIFY IN FIELD
		VOLUME DAMPER - MANUAL OPERATION
	WB	WET BULB

EXISTING EXHAUST FAN SCHEDULE											
ID	Location	Manufacturer	Model	CFM	S.P.	Fan Drive	Service	Motor HP	Weight (lbs)	Notes	
EF-1	MORGUE	CAPTIVEAIRE	DU85HFA	2,100	0.75	DIRECT	115/60/1	3/4	85	1-4	

- NOTES:
- BALANCE TO SPECIFIED AIRFLOWS.
 - 0-10V DC SPEED CONTROL.
 - DIRECT DRIVE.
 - EQUIPMENT SHALL BE SCHEDULED TO RUN 24/7 IN ORDER TO MAINTAIN PROPER PRESSURE BALANCE IN BUILDING.

HEAT PUMP SCHEDULE																	
ID	Service	Location	Manufacturer	Model	Cooling			Heating			Electrical Data			Refrigerant	Dimensions	Operating Weight (lbs)	Notes
					Rated Capacity Btu/h	Rating Conditions	EER/IEER	Rated Capacity Btu/h	Rating Conditions	COP 47°F/17°F	Service	MCA	MOCP				
HP-1	MORGUE	ROOF	DAIKIN	RXYQ144AATJA	131,578	110°F OA DB	11.722.9	138,706	25°F DB/20°F WB	3.4/2.1	208/3/60	47.8	50.0	R410A	48.8"W x 30.1"D x 65.4"H	750	1

- NOTES:
- PROVIDE WITH ALL REQUIRED REFRIGERAATION PIPING AND APPURTENANCES.

FAN COIL UNIT SCHEDULE													
ID	Manufacturer	Model	Airflow	ESP	Cooling Capacity		Heating MBh	Electrical Data			Dimensions	Weight (lbs)	Notes
					Total MBh	ESP		Service	MCA	MOCP			
FC-1	DAIKIN	FXMQ48MFVJU	650	0.88"	29.1	30	208/1/60	2.1	15	29.3"W x 43.3"D x 18.5"H	190	1-3,5-6	
FC-2	DAIKIN	FXMQ96MFVJU	1250	1.1"	56.7	61	208/1/60	4.1	15	54.3"W x 43.3"D x 18.5"H	271	1-2, 4-5	

- NOTES:
- PROVIDE DAIKIN BRC1E73 REMOTE CONTROLLER.
 - PROVIDE WITH ALL REQUIRED PIPING AND APPURTENANCES.
 - PROVIDE DACA-MQ48F-13-1K FILTER RACK WITH 18"x24"x4" MERV 13 FILTERS.
 - PROVIDE DACA-MQ96F-13-1K FILTER RACK WITH 18"x24"x4" MERV 13 FILTERS.
 - EQUIPMENT SHALL BE SCHEDULED TO RUN 24/7 IN ORDER TO MAINTAIN PROPER PRESSURE BALANCE IN BUILDING.
 - MANUFACTURER'S INTEGRAL CONDENSATE OVERFLOW SWITCH.

INTAKE HOOD SCHEDULE								
ID	Manufacturer	Model	CFM	Throat Size	Velocity (fpm)	Pressure Drop	Weight (lbs)	Notes
IH-1	GREENHECK	FGI-21X21	1,900	21"x21"	621	0.065	71	1-3

- NOTES:
- PROVIDE MANUFACTURER'S INSULATED FLAT ROOF CURB.
 - PROVIDE MANUFACTURER'S BIRD SCREEN.

AIR OUTLET SCHEDULE									
ID	Manufacturer	Model	Mounting	Module Size	Face Size	Neck Size	Material	Finish	Notes
A	TITUS	TDC	SURFACE	--	15"x15"	SEE PLANS	STEEL	#26 WHITE	1

- NOTES:
- LOUVERED FACE SUPPLY GRILLE, 4-WAY THROW.

2022 CMC TABLE 4-A																		
HVAC Unit	Exhaust Fan	Number	Name	Area Designation	Air Balance Relationship	Min. O.A. ACH	Min. Total ACH	Design Values		Space Volume		Design Air Balance Data						Notes
								Outside Air ACH	Total Air ACH	Area	Ceiling Height	Volume	Supply Air	Outside Air	Exhaust Air	Return Air	Transfer Air	
HP-1																		
FC-1, FC-2	(E) EF-1	1	MORGUE	MORGUES AND AUTOPSY ROOM	NEGATIVE	2	12	10.9	15.0	709 SF	8' - 6"	6027 CF	1370	1096	1510	0	-140	1
	(E) EF-1	2	AUTOPSY ROOM	MORGUES AND AUTOPSY ROOM	NEGATIVE	2	12	10.5	14.5	279 SF	8' - 0"	2234 CF	490	392	540	0	-50	1
	(E) EF-1	3	RR	--	NR	--	--	5.1	8.0	47 SF	8' - 0"	376 CF	40	32	50	0	-10	2
										1035 SF		8638 CF	1900	1520	2100	0	-200	

- NOTES:
- AUTOPSY AND MORGUE SHALL BE BALANCED NEGATIVE TO ADJACENT SPACES. REFER TO 1M210 FOR PRESSURE MONITORING SENSORS AND DISPLAY.
 - ROOM IS NOT BOUND BY TABLE 4-A PER CODE AND IS SHOWN ONLY FOR OVERALL AIR BALANCE.

ROOM PRESSURE MONITOR SPECIFICATIONS

PART 1.0 - GENERAL

1.1 DESCRIPTION

A) A ROOM PRESSURE MONITOR SYSTEM SHALL BE FURNISHED AND INSTALLED TO MEASURE AND DISPLAY THE MEASURED ROOM PRESSURIZATION INDEPENDENT OF SUPPLY AND EXHAUST FLOW VOLUMES. THE SYSTEM SHALL ENSURE THAT THE AIR PRESSURE OF THE SPACE IS NEGATIVE WITH RESPECT TO THE ADJACENT SPACES TO COMPLY WITH THE RECOMMENDATIONS PUT FORTH IN THE ANS/ASHRAE STANDARD 170-2008

1.2 ACCEPTABLE MANUFACTURERS

A) SPECIFICATIONS AND DRAWINGS ARE BASED ON TSI INC. PRESSURA™ MODEL RPM10-SA ROOM PRESSURE MONITOR.

1.3 WARRANTY

A) THE ROOM PRESSURE MONITOR SYSTEM SHALL HAVE A LIMITED TWO-YEAR WARRANTY FOR ALL PARTS. THE WARRANTY SHALL COMMENCE ON THE DATE OF SHIPMENT FROM THE MANUFACTURER.

PART 2.0 - SYSTEM REQUIREMENTS

A) THE ROOM PRESSURE MONITOR SYSTEM SHALL MEASURE THE PRESSURE DIFFERENTIAL BETWEEN THE ROOM AND REFERENCE SPACE. THE ROOM PRESSURE SENSOR SHALL HAVE A RESOLUTION OF 5% OF THE MEASURED VALUE AND SHALL DETECT ANY CHANGE IN THE ROOM PRESSURE WITHIN 0.1 SECOND, WITH A MINIMUM READING OF 0.00001 INCHES H2O. SENSOR SHALL BE BI-DIRECTIONAL AND SHALL HAVE DIP SWITCHES FOR MATCHING SENSOR DIRECTION AND ROOM POLARITY. SENSOR TEMPERATURE COMPENSATION SHALL BE FROM 55°F TO 95°F. ACCURACY SHALL BE 10% OF READING. AT MINIMUM PRESSURE OF 0.00001 INWC ACCURACY SHALL BE +/- 0.000001 INWC. SENSOR SHALL UTILIZE IN LINE CERAMIC COATED RTDS FOR MASS FLOW MEASUREMENT. THERMISTOR BASED SENSORS ARE NOT ACCEPTABLE.

B) EACH MONITOR SHALL HAVE A FULL COLOR TOUCH SCREEN INTERFACE WITH A MINIMUM TOUCHSCREEN SIZE OF 4.3 INCHES. SCREEN SHALL BE CAPABLE OF DISPLAYING MULTIPLE COLORS AT ONE TIME, DISPLAYING ROOM MODE, ALARM STATUS, AND USER-CONFIGURABLE ROOM LABELS FOR THREE ROOMS ON A SINGLE SCREEN WITHOUT SCROLLING. DISPLAYS THAT CHANGE THE BACKLIGHTING COLOR OR EXTERNAL LEDS TO INDICATE ALARM STATUS ARE NOT ACCEPTABLE. MONITORS THAT USE KEYPADS ARE NOT ACCEPTABLE.

C) SYSTEMS UTILIZING PRESSURE TRANSDUCERS TO MEASURE ROOM PRESSURE DIFFERENTIAL MUST USE COPPER OR STAINLESS STEEL TUBING TO ELIMINATE KINKING. SYSTEMS UTILIZING PRESSURE TRANSDUCERS MUST PROVIDE ACCURACY STATEMENTS INCLUDING NON-LINEARITY, HYSTERESIS, NON-REPEATABILITY, ZERO OFFSET, SPAN OFFSET, AND TEMPERATURE COMPENSATION ERRORS. SYSTEMS UTILIZING PRESSURE TRANSDUCERS MUST INCLUDE 10 YEARS OF RECALIBRATIONS USING A CALIBRATION KIT THAT MEETS OR EXCEEDS ACCURACY: ±0.04% FS, PRECISION 0.0002 IN H2O, CALIBRATION STABILITY OF 0.2% READING/YR. CALIBRATION KIT MUST HAVE VALID NIST-TRACEABLE CALIBRATION CERTIFICATE. CALIBRATIONS THAT CONSIST OF RE-ZEROING THE SENSOR WITHOUT ADJUSTING THE SENSOR SPAN ARE NOT ACCEPTABLE.

D) LOCAL AUDIBLE AND VISUAL ALARMS AND RELAY CONTACTS SHALL BE ENABLED WHENEVER EITHER MEASURED ROOM PRESSURE DIFFERENTIAL FALLS BELOW ITS USER CONFIGURABLE LOW ALARM SET POINT OR RISES ABOVE ITS USER CONFIGURABLE HIGH ALARM SET POINT, AFTER A CONFIGURABLE DELAY. THE PRIMARY, SECOND AND THIRD PRESSURE SENSORS SHALL HAVE INDIVIDUAL ALARM SET POINTS FOR HIGH AND LOW ALARMS. A MUTE FUNCTION SHALL TEMPORARILY SILENCE THE AUDIBLE ALARM FOR A USER CONFIGURED DELAY. MANUAL OR AUTOMATIC RESET OF THE ALARMS SHALL BE CONFIGURABLE.

E) THE ROOM PRESSURE MONITOR SYSTEM SHALL ACCEPT 7 INPUTS CONFIGURABLE PRESSURE, FLOW, DOOR SWITCH, KEY SWITCH.

F) CALIBRATION OF ROOM PRESSURE DIFFERENTIAL AND AIR FLOW SHALL BE DONE ELECTRONICALLY.

G) ROOM PRESSURE MONITOR SHALL HAVE AN ANALOG OUTPUT FOR ROOM PRESSURE, CONFIGURABLE FOR 0-1VDC OR 4-20MA.

H) MONITORS AND NURSE STATION ALARMS SHALL MOUNT IN STANDARD DEPTH ELECTRICAL BOX AND SHALL EXTEND NO MORE THAN 0.625" FROM WALL.

PART 4.0 - EXECUTION

4.1 INSTALLATION

A) THE AUTOMATIC TEMPERATURE MEASURES (ATC) CONTRACTOR SHALL INSTALL THE ROOM PRESSURE SENSOR AND MONITOR IN EACH PATIENT ROOM, AS RECOMMENDED BY THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND INSTALL ALL WIRING AS REQUIRED.

4.2 EQUIPMENT START-UP, CALIBRATION, AND TRAINING

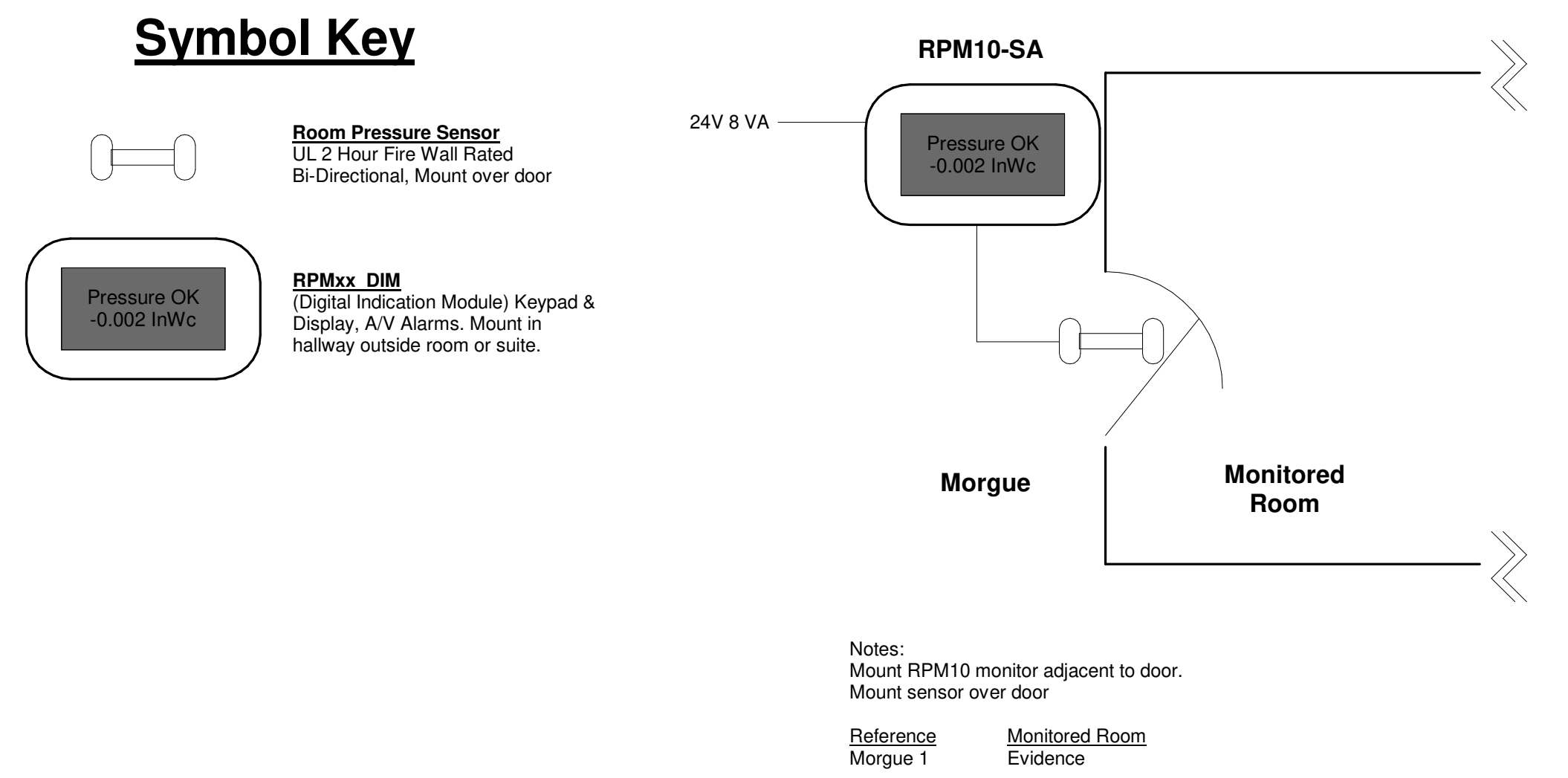
A) THE CONTRACTOR SHALL PERFORM SYSTEM START UP. START-UP SHALL INCLUDE CALIBRATION OF THE MONITORS. CALIBRATION SHALL BE PERFORMED ONLY AFTER SUBSTANTIAL COMPLETION OF THE BUILDING. CEILINGS AND DOORS SHALL BE INSTALLED AND THE HVAC SYSTEMS (EXHAUST AND SUPPLY FANS) SHALL BE PROPERLY AIR-BALANCED. THE BALANCING CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL VERIFICATION AND REPORTING OF ALL AIR FLOWS.

B) THE CONTRACTOR SHALL PROVIDE 3 HOURS OF TRAINING FOR BUILDING PERSONNEL.

ACCEPTANCE TESTING

PER TAB SPECIFICATION SECTION 1.2.B. THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR HIRING A QUALIFIED TESTING, ADJUSTING, AND BALANCING (TAB) AGENCY. THE TAB AGENCY MUST BE AN APPROVED ACCEPTANCE TEST EMPLOYER WITH ACCEPTANCE TEST TECHNICIANS (ATT) WHO WILL BE REQUIRED TO PERFORM ALL ACCEPTANCE TESTING AND ASSOCIATED FORMS.

PIPING MATERIALS SCHEDULE				
Service	Location	Size	Material	Notes
COND. DRAIN	ALL	ALL	TYPE M - HARD TEMPER COPPER	SLOPED AT 1/4" PER FOOT PROVIDE CLEANOUTS PER 2022 CMC 310.3.1



- NOTES:
- PER ASHRAE 107-2021 SECTION 7.5.1, THE PRESSURE DIFFERENTIAL BETWEEN THE MORGUE AND EVIDENCE STORAGE SHALL BE A MINIMUM OF -0.01 IN. WATER IF THE PRESSURE DIFFERENTIAL IS REDUCED, AN ALARM SHALL BE GENERATED. REFER TO ROOM PRESSURE MONITOR SPECIFICATIONS FOR DETAILS.

1
M100
MONITOR CONTROLS DETAIL
NOT TO SCALE



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LICENSE STAMP



CONSULTANTS

PROJECT NAME

MORGUE HVAC UPGRADES

FOR

TEHAMA COUNTY

22840 Antelope Blvd
Red Bluff, CA 96080

NO. REVISIONS DATE

SHEET TITLE

MECHANICAL LEGEND AND SCHEDULES

ISSUED FOR:
CONSTRUCTION DOCUMENTS

DATE: 3/30/2025
DRAWN BY: GK
REVIEWED BY: BA
SCALE: 1/8" = 1'-0"
PROJECT NO: 24049

M100

MECHANICAL SPECIFICATION

PART 1 - GENERAL

- 1.1 INCLUDED
- A. THIS SECTION COVERS MECHANICAL WORK. COMPLETE WORK INCLUDES FURNISHING, INSTALLING, CALIBRATING, ADJUSTING, TESTING, DOCUMENTING, AND STARTING UP EQUIPMENT IN ACCORDANCE WITH THESE SPECIFICATIONS, THE ACCOMPANYING PLANS, AND THE DIRECTIONS OF THE ENGINEER.
- 1.2 CODES AND STANDARDS
- A. ALL WORK SHALL BE DONE IN CODE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL BUILDING SAFETY CODES, ORDINANCES, AND REGULATIONS. ADDITIONALLY, ALL WORK SHALL CONFORM TO THE LATEST EDITIONS OF THE FOLLOWING STANDARDS:
- NATIONAL FIRE PROTECTION ASSOCIATION.
 - CALIFORNIA MECHANICAL CODE.
 - CALIFORNIA PLUMBING CODE.
 - UNDERWRITERS LABORATORIES.
 - TITLES 8, 17, 19, 21, 24 OF THE CALIFORNIA CODE OF REGULATIONS.
 - CALIFORNIA ELECTRIC CODE.
 - SMACNA STANDARDS.
 - ASHRAE STANDARDS 55 AND 62.1.
- B. WHEN THE CONTRACT DOCUMENTS CALL FOR MATERIALS OR CONSTRUCTION OF A HIGHER STANDARD THAN IS REQUIRED BY THE ABOVE, THE CONTRACT DOCUMENT REQUIREMENTS SHALL TAKE PRECEDENCE OVER THE REQUIREMENTS OF THE APPLICABLE LAWS, ORDINANCES, RULES, OR REGULATIONS. NOTHING IN THE CONTRACT DOCUMENTS SHALL BE INTERPRETED AS PERMITTING WORK IN VIOLATION OF SAID LAWS, RULES, AND/OR REGULATIONS.
- C. THE CONTRACTOR FOR THIS WORK SHALL FURNISH, WITHOUT EXTRA CHARGE, ANY ADDITIONAL MATERIALS AND/OR LABOR AS MAY BE REQUIRED FOR COMPLIANCE WITH THESE LAWS, RULES, AND/OR REGULATIONS THOUGH SUCH MATERIALS AND/OR LABOR ARE NOT SPECIALLY SET FORTH IN THE CONTRACT DOCUMENTS.
- 1.3 LICENSING REQUIREMENTS
- A. ALL WORK OF DIVISION 22 AND 23 SHALL BE PERFORMED BY AN APPROPRIATELY LICENSED CONTRACTOR. THE LICENSES SHALL BE CURRENT, VALID THROUGH THE TERM OF THE CONTRACT AND IN THE NAME OF THE CONTRACTOR.
- ALL HVAC WORK, WHICH INCLUDES WARM AIR HEATING SYSTEMS AND WATER HEATING PUMPS, VENTILATING SYSTEMS, AIR CONDITIONING SYSTEMS, AND DUCTWORK, REGISTERS, FLUES, HUMIDITY, AND THERMOSTATIC CONTROLS IN CONNECTION WITH THESE SYSTEMS, SHALL BE PERFORMED BY A C-20 - WARM-AIR HEATING, VENTILATING AND AIR-CONDITIONING CONTRACTOR.
 - ALL HYDRONIC PIPING SYSTEMS SHALL BE PERFORMED BY A C-4 - BOILER, HOT WATER HEATING AND STEAM FITTING CONTRACTOR.
 - ALL HYDRONIC PIPING INSULATION SHALL BE PERFORMED BY A C-2 - INSULATION AND ACOUSTICAL CONTRACTOR.
- 1.4 SUBMITTALS
- A. SUBMITTAL LISTS AND DRAWINGS SHALL INCLUDE IDENTIFYING MARKS ASSIGNED BY THE DRAWINGS AND SPECIFICATIONS.
- B. REVIEW OF DRAWINGS AND OTHER MATERIAL SUBMITTED SHALL NOT BE CONSTRUED AS COMPLETE CHECK OR CONSTITUTE A WAIVER OF THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS, BUT WILL INDICATE THAT THE MATERIAL SUBMITTED IS ACCEPTABLE IN QUALITY AND UTILITY. THIS REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO FIT THE PROPOSED MATERIALS TO THE SPACES PROVIDED, AND TO EFFECT NECESSARY REARRANGEMENTS OR CONSTRUCTION OF OTHER WORK.
- C. ALL FIXTURES, MATERIALS, AND EQUIPMENT EQUAL IN QUALITY AND UTILITY TO THESE HEREIN MENTIONED WILL BE ACCEPTED. WHEN SPECIFIC NAMES ARE USED IN DESCRIBING FIXTURES, MATERIALS, AND EQUIPMENT THEY ARE MENTIONED AS STANDARDS ONLY, BUT THIS IMPLIES NO RIGHT ON THE PART OF THE CONTRACTOR TO USE OTHER FIXTURES, MATERIAL, AND EQUIPMENT OR METHODS, UNLESS APPROVED AS EQUAL IN QUALITY AND UTILITY BY THE ARCHITECT.
- D. BEFORE ANY FIXTURES, MATERIALS, OR EQUIPMENT ARE PURCHASED, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL, A COMPLETE LIST OF MATERIALS, FIXTURES, AND EQUIPMENT, GIVING THE MANUFACTURER'S NAMES, CATALOG NUMBER, CAPACITY, SIZE, POWER REQUIREMENTS, ETC.
- E. THE CONTRACTOR SHALL SUBMIT FOR THE APPROVAL OF THE ENGINEER, SHOP DRAWINGS OF PROPOSED MATERIAL AND EQUIPMENT THAT DIFFER FROM THE SPECIFIED MATERIALS AND EQUIPMENT, AND OF ANY SPECIFIED MATERIALS AND EQUIPMENT WITH SPECIAL CONDITIONS AND/OR ARRANGEMENTS. THESE DRAWINGS SHALL SHOW NECESSARY MODIFICATIONS OF OWNER, PLUMBING, ELECTRICAL, AND MECHANICAL WORK REQUIRED BY THE PROPOSED MATERIALS AND EQUIPMENT.
- 1.5 COOPERATION WITH OTHER TRADES
- A. COOPERATE FULLY WITH OTHER TRADES DOING WORK ON THE PROJECT AS MAY BE NECESSARY FOR THE PROPER COMPLETION OF THE PROJECT. REFER TO THE STRUCTURAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR DETAILS OF THE BUILDING STRUCTURE AND EQUIPMENT INSTALLATION THAT WILL TEND TO OVERLAP, CONFLICT WITH OR REQUIRE COORDINATION WITH THE WORK OF THIS SECTION, AND SCHEDULE THIS WORK ACCORDINGLY.
- B. ANY WORK DONE WITHOUT REGARD FOR OTHER TRADES SHALL BE MOVED, REPLACED, OR REDONE AS REQUIRED, WITHOUT EXTRA CHARGES TO OWNER.
- 1.6 DIVISION OF WORK BETWEEN DIVISIONS 23 AND 26
- A. CLOSE COORDINATION BETWEEN THE ELECTRICAL AND MECHANICAL TRADES IS A PART OF THE WORK THAT IS REQUIRED BY THIS CONTRACT. NO ALLOWANCE WILL BE MADE FOR OMISSIONS BASED ON INCORRECTLY ASSUMING ANOTHER TRADE WILL BE PERFORMING YOUR WORK. CONFIRM YOUR SCOPE OF WORK WITH THE GENERAL CONTRACTOR.
- B. THE DIVISION OF RESPONSIBILITIES BETWEEN TRADES SUPPLYING EQUIPMENT IN OTHER DIVISIONS MAY BE DIFFERENT. FOR INSTANCE, DIVISION 26 CONTRACTOR MAY BE REQUIRED TO SUPPLY DISCONNECT SWITCHES AND STARTERS FOR NON-HVAC MECHANICAL EQUIPMENT SUPPLIED UNDER DIVISIONS.
- C. DIVISION 23 RESPONSIBILITIES
- ASSUME RESPONSIBILITY FOR THE PROPER FUNCTIONING OF THE HVAC SYSTEMS IN THEIR ENTIRETY.
 - FURNISH AND INSTALL ALL CONDUCTORS AND CONDUIT REQUIRED FOR CONTROL OF HVAC EQUIPMENT.
 - MAKE ALL TERMINATIONS WITH THE EXCEPTION OF POWER CONDUCTORS.
 - FURNISH AND INSTALL ALL CONTROL PANELS AND DEVICES TO PROVIDE A COMPLETE AND FUNCTIONAL CONTROLS SYSTEM, INCLUDING ALL CONTROLS TRANSFORMERS.
 - FURNISH AND INSTALL MOTOR STARTERS FOR ALL EQUIPMENT SPECIFIED IN DIVISION 23.
 - INSTALL DUCT SMOKE DETECTORS FURNISHED BY FIRE ALARM CONTRACTOR IN BUILDINGS WITH FIRE ALARM SYSTEMS.
 - FURNISH AND INSTALL DUCT SMOKE DETECTORS IN BUILDINGS WITHOUT FIRE ALARM SYSTEMS.
 - FURNISH AND INSTALL ALL CONTROL CONDUCTORS AND CONDUIT CONNECTING DUCT SMOKE DETECTORS TO SMOKE DAMPERS AND FAN START CONTROLS.
 - ALL ELECTRICAL WORK PERFORMED UNDER DIVISION 23 SHALL CONFORM TO THE REQUIREMENTS OF DIVISION 26.
- D. DIVISION 26 RESPONSIBILITIES
- FURNISH AND INSTALL ALL RACEWAYS, CONDUIT, DISCONNECT SWITCHES, AND CONDUCTORS NECESSARY FOR ELECTRICAL POWER SUPPLY.
 - MAKE ALL POWER SUPPLY TERMINATIONS TO MOTORS, STARTERS, DISCONNECT SWITCHES, CONTROL TRANSFORMERS, AND OTHER MECHANICAL DEVICES.
 - FIRE ALARM CONTRACTOR TO FURNISH DUCT SMOKE DETECTORS IN BUILDINGS WITH FIRE ALARM SYSTEMS.
 - PROVIDE POWER TO ALL DUCT SMOKE DETECTORS AND SMOKE DAMPERS.
 - COORDINATE ALL WORK WITH MECHANICAL CONTRACTORS.
- 1.7 AS-BUILT DRAWINGS
- A. A COMPLETE SET OF CONTRACT DRAWINGS SHALL BE MAINTAINED AT THE WORK SITE, AND ALL CHANGES IN THE WORK SHALL BE RECORDED ON THIS SET, ON A DAILY BASIS. THE FINAL AS-BUILT DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL.
- 1.8 DESIGN DRAWINGS
- A. THE DRAWINGS INDICATE DIAGRAMMATICALLY THE GENERAL LAYOUT OF THE MECHANICAL SYSTEMS AND OTHER RELATED WORK. FIELD VERIFICATION OF SCALED DIMENSIONS TAKEN FROM THE DRAWINGS IS REQUIRED.

- B. THE CONTRACTOR SHALL REVIEW AND COMPARE THE ARCHITECTURAL, STRUCTURAL, PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS AND ALL OWNER SUPPLIED EQUIPMENT DRAWINGS, AND ADJUST THEIR WORK TO BE IN CONFORMITY WITH THE CONDITIONS INDICATED THEREON. DISCREPANCIES BETWEEN DRAWINGS, BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS, OR BETWEEN DRAWINGS AND SPECIFICATIONS, SHALL PROMPTLY BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR A DETERMINATION OF THE MODIFICATIONS TO BE EFFECTED. IN THE EVENT THAT A MAJOR MODIFICATION IS REQUIRED, A CHANGE ORDER WILL BE PREPARED.
- 1.9 VERIFICATION OF EXISTING CONDITIONS AND DEMOLITION
- A. BEFORE INSTALLATION OF ANY NEW WORK, VERIFY THE LOCATION, SIZE, AND OTHER CONDITIONS AT ALL POINTS OF CONNECTION TO SERVICES OR OTHER EXISTING PIPING, AND AT ALL LOCATIONS WHERE NEW WORK WILL CROSS OR PASS NEAR EXISTING PIPING, ELECTRICAL, OR OTHER FACILITIES.
- B. REMOVE DUCTWORK, PIPING, CONTROLS, FIXTURES, AND EQUIPMENT THAT IS NOT TO REMAIN IN SERVICE AS SHOWN ON THE DRAWINGS OR AS REQUIRED. THIS INCLUDED THE REMOVAL OF ASSOCIATED APPURTENANCES AND SUPPORTS.
- C. PATCH, CAP, OR REPAIR EXISTING WORKS AFFECTED BY THIS DEMOLITION IN CONCEALED SPACES WITHIN SIX (6) INCHES OF A LIVE MAIN OR BRANCH.
- D. DELIVER REMOVED MATERIAL TO THE OWNER AS DIRECTED BY THE ARCHITECT. DISPOSE OF ALL OTHER REMOVED MATERIAL OFFSITE.
- E. INFORMATION SHOWN RELATIVE TO EXISTING SERVICES IS BASED UPON AVAILABLE RECORDS AND DATA DURING PREPARATION OF THE DRAWINGS, BUT SHALL BE VERIFIED. MAKE REASONABLE DEVIATIONS FOUND NECESSARY TO CONFORM TO ACTUAL LOCATIONS AND CONDITIONS, WITHOUT EXTRA CHARGE.
- 1.10 OPERATING AND MAINTENANCE INSTRUCTIONS
- A. FURNISH THREE SETS OF TYPEWRITTEN INSTRUCTIONS COVERING MAINTENANCE, ADJUSTMENT, AND OPERATION OF EACH PIECE OF APPARATUS, BOUND IN A HARD COVER LOOSE-LEAF BINDER, NEATLY OBFUSCURE OR CROSS OUT INAPPLICABLE DATA FROM MANUFACTURER'S LITERATURE. SUBMIT DATA TO THE ARCHITECT.
- B. OPERATING INSTRUCTIONS SHALL SHOW SEQUENCE OF OPERATIONS, LUBRICATION, CARE, AND MAINTENANCE REQUIREMENTS OF ALL EQUIPMENT. FINAL ACCEPTANCE OF THE WORK WILL NOT BE MADE UNTIL A SATISFACTORY SUBMISSION OF THIS MATERIAL IS RECEIVED AND APPROVED BY THE ARCHITECT.
- C. THE OWNER'S AUTHORIZED REPRESENTATIVE SHALL BE INSTRUCTED IN THE OPERATION AND SERVICING OF ALL HVAC & PLUMBING SYSTEMS.
- 1.11 ACCURACY OF DATA
- A. THE DATA GIVEN HEREIN AND ON THE DRAWINGS ARE AS EXACT AS COULD BE REASONABLY SECURED, BUT ABSOLUTELY ACCURATE IS NOT GUARANTEED. EXACT LOCATIONS, DISTANCES, ELEVATIONS, ETC. WILL BE GOVERNED BY SHOP DRAWINGS, THE BUILDING ITSELF, AND ACTUAL FIELD CONDITIONS.
- 1.12 DAMAGE BY LEAKS
- A. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO WORK OF OTHER CONTRACTORS THAT IS CAUSED BY LEAKS IN ANY TEMPORARY OR PERMANENT PIPING SYSTEMS DUE TO PIPE RUPTURE, DISCONNECTED PIPES OR FITTINGS, OR BY OVERFLOW OF EQUIPMENT.
- 1.13 SEISMIC FORCE RESISTANCE: MECHANICAL, PLUMBING, FIRE PROTECTION SYSTEMS
- A. ALL MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS SHALL ADHERE TO THE SMACNA "SEISMIC RESTRAINT MANUAL: GUIDELINES FOR MECHANICAL SYSTEMS," THIRD EDITION DATED MARCH 2008.
- 1.14 DELIVERY, STORAGE, AND HANDLING
- A. CONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERY, STORAGE, PROTECTION, AND PLACING OF ALL EQUIPMENT AND MATERIALS.
- CONTRACTOR SHALL PROTECT THE WORK AND MATERIALS FROM DAMAGE DURING CONSTRUCTION. EQUIPMENT STORED AT THE JOB SITE SHALL BE PROTECTED FROM DUST, WATER, OR OTHER DAMAGE, AND BE COVERED IF EQUIPMENT IS EXPOSED TO WEATHER. PROTECT INTERIORS OF NEW EQUIPMENT AND PIPING SYSTEMS AGAINST ENTRY OF FOREIGN MATTER. CLEAN BOTH INSIDE AND OUTSIDE BEFORE PAINTING OR PLACING EQUIPMENT IN OPERATION.
 - ANY ITEMS DAMAGED SHALL BE REPAIRED OR REPLACED, AT NO ADDITIONAL COST TO THE OWNER.
- B. CLEANLINESS OF PIPING AND EQUIPMENT SYSTEMS
- EXERCISE CARE IN STORAGE AND HANDLING OF EQUIPMENT AND PIPING MATERIAL TO BE INCORPORATED IN THE WORK. REMOVE DEBRIS ARISING FROM CUTTING, THREADING, AND WELDING OF PIPING.
 - PIPING SYSTEMS SHALL BE FLUSHED, BLOWN, OR PIGGED AS NECESSARY TO DELIVER CLEAN SYSTEMS.
 - CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ALL COSTS, DAMAGE, AND DELAY ARISING FROM FAILURE TO PROVIDE CLEAN SYSTEMS.
- 1.15 WARRANTIES
- A. EQUIPMENT WARRANTIES SHALL BE PROVIDED FOR ALL EQUIPMENT, WITH ALL NECESSARY INFORMATION FILLED IN, EXCEPT PURCHASE DATE, IN FAVOR OF THE OWNER.
- B. THE CONTRACTOR SHALL GUARANTEE THAT ALL WORK UNDER THIS SECTION IS FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FILING THE NOTICE OF COMPLETION. REPLACEMENT OF DEFECTIVE WORK AND DAMAGE CAUSED TO WORK OF OTHER TRADES AS A RESULT OF SUCH DEFECTIVE WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE MADE AT NO COST TO THE OWNER.
- 1.16 ALTERNATIVE MATERIALS AND METHODS
- A. THESE PLANS AND SPECIFICATIONS DESCRIBE THE GENERAL SCOPE OF THE MECHANICAL SYSTEMS. THESE PLANS AND SPECIFICATIONS DO NOT PRECLUDE THE SUBMITTAL OF ALTERNATIVE METHODS OR MATERIALS. MANUFACTURER'S NAMES AND CATALOG NUMBERS ARE STATED TO IDENTIFY THE TYPE AND QUALITY OF THE EQUIPMENT OR MATERIALS REQUIRED FOR THE PROJECT.
- B. THE CONTRACTOR MAY SUBMIT SHOP DRAWINGS AND/OR TECHNICAL INFORMATION ON ALTERNATIVE EQUIPMENT, MATERIALS OR INSTALLATION DETAILS TO ACCOMPLISH THE INTENT OF THE PLANS AND SPECIFICATIONS. APPROVAL OF THE ALTERNATIVE EQUIPMENT, MATERIALS OR INSTALLATION DETAILS SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR COMPLYING WITH THE INTENT OF THE PLANS AND SPECIFICATIONS. SUBMIT THE MANUFACTURERS' TECHNICAL INFORMATION, SHOP DRAWINGS, AND/OR WRITTEN DESCRIPTION OF ALTERNATIVE METHODS FOR EACH ITEM DESCRIBED BY MANUFACTURER'S NAME AND CATALOG NUMBER AND FOR EACH COMPONENT, EQUIPMENT, MATERIAL, OR INSTALLATION DETAIL REQUIRED.
- 1.17 SITE EXAMINATION
- A. THOROUGHLY EXAMINE THE SITE AND VERIFY THE ACTUAL WORK CONDITIONS. NO EXTRA COMPENSATION WILL BE ALLOWED FOR EXPENSES DUE TO FAILURE TO DISCOVER SITE CONDITIONS WHICH AFFECT THE WORK.
- PART 2 - PRODUCTS**
- 2.1 GENERAL
- A. ALL MATERIALS, APPLIANCES, AND EQUIPMENT SHALL BE NEW AND BEST OF THEIR RESPECTIVE KINDS, FREE FROM DEFECTS, AND OF THE MAKE, BRAND, OR QUALITY SPECIFIED OR AS ACCEPTED BY THE ARCHITECT.
- B. WHEN TWO OR MORE UNITS OF MATERIALS OR EQUIPMENT OF THE SAME TYPE OR CLASS ARE REQUIRED, THESE UNITS SHALL BE PRODUCTS OF ONE MANUFACTURER.
- C. APPLY AND INSTALL ALL ITEMS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. REFER TO CONFLICTS BETWEEN MANUFACTURER'S INSTRUCTIONS AND THE CONTRACT DRAWINGS AND SPECIFICATIONS TO THE ARCHITECT FOR RESOLUTION.
- 2.2 THERMOSTATS
- A. ELECTRIC, SOLID-STATE, MICROCOMPUTER-BASED ROOM THERMOSTAT WITH THE FOLLOWING FEATURES.
- AUTOMATIC SWITCHING FROM HEATING TO COOLING.
 - PREFERENTIAL RATE CONTROL TO MINIMIZE OVERTHOOT AND DEVIATION FROM SET POINT.
 - SET UP FOR FOUR SEPARATE TEMPERATURES PER DAY.
 - INSTANT OVERRIDE OF SET POINT FOR CONTINUOUS OR TIMED PERIOD FROM 1 HOUR TO 31 DAYS.
 - SHORT-CYCLE PROTECTION.
 - PROGRAMMING BASED ON EVERY DAY OF WEEK.
 - SELECTION FEATURES INCLUDE DEGREE F OR DEGREE C DISPLAY, 12- OR 24-HOUR CLOCK, KEYBOARD DISABLE, REMOTE SENSOR, AND FAN ON-AUTO.
 - BATTERY REPLACEMENT WITHOUT PROGRAM LOSS.

9. THERMOSTAT DISPLAY FEATURES INCLUDE THE FOLLOWING:
- TIME OF DAY.
 - ACTUAL ROOM TEMPERATURE.
 - PROGRAMMED TEMPERATURE.
 - PROGRAMMED TIME.
 - DURATION OF TIMED OVERRIDE.
 - DAY OF WEEK.
 - SYSTEM MODE INDICATIONS INCLUDE "HEATING," "OFF," "FAN AUTO," AND "FAN ON."
- B. THERMOSTAT COVER CONSTRUCTION: HEAVY-DUTY, LOCKING THERMOSTAT GUARD, OF SOLID METAL TAMPERPROOF CONSTRUCTION.
- C. ACCURACY: PLUS OR MINUS 0.5 DEG. F AT CALIBRATION POINT.
- D. WIRE: TWISTED, SHIELDED-PAIR CABLE.
- E. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS PRIOR TO ORDERING FAN AND CURB ADAPTOR.
- 2.3 DUCTWORK
- A. SHEET METAL DUCTWORK - RECTANGULAR
- DUCTS AND PLENUMS SHALL BE FABRICATED AND INSTALLED IN CONFORMANCE WITH THE LATEST EDITIONS OF THE CALIFORNIA BUILDING CODE; CALIFORNIA MECHANICAL CODE AND THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS (METAL AND FLEXIBLE). DUCTS AND PLENUMS SHALL BE CONSTRUCTED OF HOT DIPPED GALVANIZED MILD STEEL AND SHALL HAVE AIRTIGHT CLASS "B" SEALS AT ALL TRANSVERSE JOINTS AND LONGITUDINAL SEAMS. TABLES AND FIGURES HEREINAFTER REFERENCED ARE FROM THE 2005 EDITION OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS (METAL AND FLEXIBLE).
 - RECTANGULAR DUCT CONSTRUCTION SHALL CONFORM TO TABLE 2-3. ALL TRANSVERSE JOINTS SHALL BE FLANGED PER TABLE 2-32, WITH CORNER CLOSURES OR "DUCT MATE" FLANGED CONNECTIONS WITH CORNER CLOSURES PER FIGURE 2-17. ELBOWS SHALL BE STANDARD RADIUS (TYPE RE 1) OR SQUARE THROAT WITH VANES (TYPE RE 2) PER FIGURE 4-2, WITH DOUBLE THICKNESS TURNING VANES PER FIGURES 4-3 AND 4-4. OFFSETS AND TRANSITIONS SHALL BE PER FIGURE 4-7. SUPPLY, RETURN, AND EXHAUST BRANCH CONNECTIONS SHALL BE PER FIGURE 4-5 OR 4-6. SPLITTERS SHALL NOT BE USED.
 - LINED DUCTS SHALL BE FABRICATED SUCH THAT THE NET INSIDE DIMENSIONS EQUALS THE DUCT SIZES SHOWN ON THE DRAWINGS.
- B. SHEET METAL DUCTWORK - ROUND DUCTS SHALL BE SPIRAL, UNITED MCGILL OR EQUAL. ALL TRANSVERSE JOINTS AND LONGITUDINAL SEAMS SHALL HAVE CLASS "B" SEALS. ALL BRANCHES IN ROUND DUCT SYSTEMS SHALL BE MADE WITH FACTORY FABRICATED REDUCING WYE BRANCHES. DUCT TURNS SHALL BE MADE WITH STANDARD, FACTORY FABRICATED, THREE-PIECE ELBOWS.
- C. FLEXIBLE DUCTWORK - FLEXIBLE DUCTS SHALL BE FLEXMASTER "8M" OR APPROVED EQUAL. FLEXIBLE DUCTS SHALL BE USED ONLY WHERE SHOWN ON THE DRAWINGS, AND MAXIMUM LENGTH OF ANY GIVEN FLEXIBLE DUCT SHALL NOT EXCEED 5 FT. GALVANIZED SHEET METAL ELBOWS SHALL BE USED FOR TURNS GREATER THE 45° ON FLEXIBLE DUCTS 10" AND LARGER. CONNECTIONS TO RECTANGULAR DUCTS SHALL BE MADE WITH "SPIN-IN" FITTINGS WITH AIR SCOOPS. THE INSTALLATION OF FLEXIBLE DUCTS SHALL CONFORM TO FIGURE 3-10, WITH THE EXCEPTIONS NOTED HEREIN.
- D. SUPPORTS - SUPPORTS FOR HORIZONTAL DUCTS AND PLENUMS SHALL BE FABRICATED PER FIGURES 5-5 AND 5-6 AND TABLES 5-1, 5-2, AND 5-3. THE MAXIMUM DISTANCE BETWEEN HANGERS SHALL BE EIGHT FEET FOR RECTANGULAR DUCTS AND TWELVE FEET FOR ROUND DUCTS. ATTACHMENTS TO THE STRUCTURE SHALL BE MADE WITH ADEQUATELY SIZED LAG BOLTS FOR STRAPHANGERS AND ADEQUATELY SIZED MACHINE BOLTS AND SIDE BEAM BRACKETS FOR ROD HANGERS. SUPPORTS FOR VERTICAL DUCTS SHALL BE BAND IRON STRAP OR ANGLE BRACKET TYPE PER FIGURE 5-8 AND 5-9.
- E. DUCT ACCESS DOORS: INCLUDING THOSE FOR REMOVING FILTERS, DUCT ACCESS DOORS SHALL BE AS DETAILED IN FIGURE 7-2 WITH SASH LOCKS, PIANO HINGES, AND GASKETS. ACCESS DOORS SHALL HAVE AN UNOBSTRUCTED FULL SWING.
- 2.4 IDENTIFICATION FOR MECHANICAL SYSTEMS
- A. LABELS
- VINYL WRAPAROUND LABELS: PREPRINTED, FLEXIBLE LABELS LAMINATED WITH A CLEAR, WEATHER- AND CHEMICAL-RESISTANT COATING AND MATCHING WRAPAROUND CLEAR ADHESIVE TAPE FOR SECURING LABEL ENDS.
 - SNAP-AROUND LABELS: SLIT, PRE-TENSIONED, FLEXIBLE, PREPRINTED, COLOR-CODED ACRYLIC SLEEVES, WITH DIAMETERS SIZED TO SUIT DIAMETERS AND THAT STAY IN PLACE BY GRIPPING ACTION.
 - SELF-ADHESIVE WRAPAROUND LABELS: 3-MIL-THICK, POLYESTER FLEXIBLE LABEL WITH ACRYLIC PRESSURE-SENSITIVE ADHESIVE:
 - SELF-LAMINATION: CLEAR; UV-, WEATHER- AND CHEMICAL-RESISTANT; SELF-LAMINATING, PROTECTIVE SHIELD OVER THE LEGEND, LABELS SIZED SUCH THAT THE CLEAR SHIELD OVERLAPS THE ENTIRE PRINTED LEGEND.
 - MARKER FOR LABELS: MACHINE-PRINTED, PERMANENT, WATERPROOF, BLACK INK RECOMMENDED BY PRINTER MANUFACTURER.
 - SELF-ADHESIVE LABELS: POLYESTER, THERMAL, TRANSFER-PRINTED, 3-MIL-THICK, MULTICOLOR, WEATHER- AND UV-RESISTANT, PRESSURE-SENSITIVE ADHESIVE LABELS, CONFIGURED FOR INTENDED USE AND LOCATION:
 - MINIMUM NOMINAL SIZE:
 - 3-1/2 BY 5 INCHES FOR EQUIPMENT.
 - AS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
- 2.5 DUCTWORK ACCESSORIES
- A. FLEXIBLE DUCT CONNECTIONS
- DURO-DYNE "METAL-FAB" WITH DUROION, VENTFABRICS "VENTGLASS," OR APPROVED EQUAL.
 - INSTALL AT EACH POINT WHERE A BLOWER UNIT IS CONNECTED TO A DUCT. A MINIMUM CLEARANCE OF THREE INCHES BETWEEN THE DUCT AND THE SOURCE OF VIBRATION SHALL BE MAINTAINED. INSTALL PER FIGURE 2-17.
- B. SCREENS - INSTALL REMOVABLE BIRD SCREENS AT ALL OUTSIDE INTAKES AND EXHAUST AIR DISCHARGES. SCREENS SHALL BE FABRICATED FROM 1/2" X 1/4 GAUGE MESH SECURED IN FULL FRAMES. SCREENS AND FRAMES SHALL BE CONSTRUCTED OF THE SAME MATERIAL AS THE DUCT, HOOD, OR EQUIPMENT TO WHICH ATTACHED.
- C. JOINTS - TAPE ALL JOINTS AIRTIGHT USING HARDCAST TYPE "DT" PRESSURELESS TAPE AND "HD-20" ADHESIVE, PER MANUFACTURER'S DIRECTIONS.
- D. DAMPERS - PROVIDE BUTTERFLY OR MULTI-BLADE DAMPERS WHERE INDICATED ON THE DRAWINGS OR AS REQUIRED FOR BALANCING AIR QUANTITIES TO VALUES SHOWN WITHOUT GENERATING EXCESSIVE NOISE. PROVIDE DURO-DYNE "KS-385," OR APPROVED EQUAL, LOCKING QUADRANTS ON EACH MANUAL DAMPER. LOCATE DAMPERS IN FURRED CEILINGS NEAR ACCESS PANELS WHERE POSSIBLE.
- BUTTERFLY DAMPERS SHALL BE CONSTRUCTED AS PER FIGURE 7-4, FIGURE A, B, AND C IN THE DUCT MANUAL.
 - MULTI-BLADE DAMPERS SHALL CONFORM TO FIGURE 7-5.
 - BACK-DRAFT DAMPERS SHALL BE AIR BALANCE "AIR DYNAMIC" MODEL DY-1002-Y, OR EQUAL.
- 2.6 INSULATION
- A. EXTERIOR OF DUCTWORK:
- UNLESS SPECIFIED TO BE LINED, ALL SHEET METAL SUPPLY AND RETURN DUCTS IN INDIRECTLY CONDITIONED SPACES SHALL BE INSULATED ON THE OUTSIDE WITH JOHNS MANVILLE "MICROLITE XG" FLEXIBLE FIBERGLASS BLANKET-TYPE DUCT WRAP, WITH FACTORY APPLIED FSK ALUMINUM FOIL FACING, WITH A COMPOSITE UL RATING OF 25/50, MINIMUM R-6 INSTALLED.
 - UNLESS SPECIFIED TO BE LINED, ALL SHEET METAL SUPPLY AND RETURN DUCTS IN UNCONDITIONED SPACES SHALL BE INSULATED ON THE OUTSIDE WITH JOHNS MANVILLE "MICROLITE XG" FLEXIBLE FIBERGLASS BLANKET-TYPE DUCT WRAP, WITH FACTORY APPLIED FSK ALUMINUM FOIL FACING, WITH A COMPOSITE UL RATING OF 25/50, MINIMUM R-8 INSTALLED.
 - ALL OUTSIDE AIR DUCTWORK BETWEEN BUILDING OUTSIDE AIR INLET AND HVAC UNIT OR HEAT/ENERGY RECOVERY VENTILATOR SHALL BE INSULATED ON THE OUTSIDE WITH JOHNS MANVILLE "MICROLITE XG" FLEXIBLE FIBERGLASS BLANKET-TYPE DUCT WRAP, WITH FACTORY APPLIED FSK ALUMINUM FOIL FACING, WITH A COMPOSITE UL RATING OF 25/50, MINIMUM R-4 INSTALLED.
 - EXHAUST DUCTWORK WITHIN 10 FEET OF TERMINATION POINT AND BETWEEN ANY HEAT/ENERGY RECOVERY VENTILATOR AND EXHAUST TERMINATION SHALL BE INSULATED ON THE OUTSIDE WITH JOHNS MANVILLE "MICROLITE XG" FLEXIBLE FIBERGLASS BLANKET-TYPE DUCT WRAP, WITH FACTORY APPLIED FSK ALUMINUM FOIL FACING, WITH A COMPOSITE UL RATING OF 25/50, MINIMUM R-4 INSTALLED.

- B. INTERIOR OF DUCTWORK:
- DUCT LINING SHALL BE INSTALLED IN SUPPLY AND RETURN DUCTS AND PLENUMS WHERE NOTED ON THE DRAWINGS. LINING SHALL BE JOHNS MANVILLE "PERMACOTELINACOUSTIC R" RIGID FIBERGLASS BOARD FOR PLENUMS AND "PERMACOTELINACOUSTIC HP" FIBERGLASS DUCT LINER FOR DUCTS, 1" THICK, UNLESS OTHERWISE NOTED, WITH FIRE RESISTANT COATING. DUCT LINER SHALL MEET ASTM C 1071, WITH AIR SURFACE COATED WITH ACRYLIC COATING TREATED WITH EPA REGISTERED ANTI-MICROBIAL AGENT PROVE TO RESIST MICROBIAL GROWTH AS DETERMINED BY ASTM G 21 AND G 22. INSULATION WITH TORN OR BROKEN COATING SHALL BE REMOVED AND REPLACED. LOOSE CORNERS, EDGES, AND BUTT JOINTS WILL NOT BE ACCEPTED.
 - ALL EXPOSED EXTERIOR SUPPLY AND RETURN DUCTWORK SHALL HAVE MINIMUM 2" INTERIOR INSULATION, AS SPECIFIED IN THIS SECTION.
 - MAXIMUM VELOCITY: 5,000 FT/MIN.
 - FASTENERS: DUCT LINER GALVANIZED STEEL PINS, WELDED OR MECHANICALLY FASTENED.
 - DEVELOPED SMOKE DENSITY SHALL NOT EXCEED 50. FLAME SPREAD RATING SHALL NOT EXCEED 25.
- 2.7 REFRIGERATION PIPING AND APPURTENANCES
- A. REFRIGERANT PIPING SHALL BE TYPE "ACR" DE-OXIDIZED HARD TEMPER COPPER TUBE, ASTM B280.
- B. MECHANICAL JOINTS ON REFRIGERANT PIPING SYSTEMS ARE PROHIBITED. ALL REFRIGERANT PIPING JOINTS SHALL BE BRAZED. USE LEAD-FREE, SILVER SOLDER, MINIMUM 15% SILVER CONTENT.
- C. PIPE FITTINGS SHALL BE WROUGHT-COPPER WITH SOLDERED JOINTS, ASME B16.22.
- D. FLEXIBLE CONNECTIONS SHALL BE BRONZE, DOUBLE BRAIDED, SWEAT SOLDER ENDS.
- E. MOISTURE/LIQUID INDICATORS (SIGHT GLASSES) SHALL BE COLOR CHANGE MOISTURE INDICATION TYPE, REPLACEABLE ELEMENT, FILTER SCREEN AND PAD, SWEAT SOLDER ENDS; SPORLAN "SEE-ALL," HENRY, OR EQUAL.
- F. CHARGING AND PURGE VALVES SHALL BE FORGED BRASS, DIAPHRAGM PACKLESS, GLOBE TYPE, ANGLE OR STRAIGHT THROUGH, ONE END SOLDER, ONE END FLARE; HENRY 623 AND 643 SERIES, SPORLAN OR EQUAL.
- G. SOLENOID VALVES SHALL BE FORGED BRASS, EXTENDED END CONNECTIONS, SOLDER ENDS, MOLDED COIL; SPORLAN "E" SERIES OR EQUAL, COMPLY WITH ARI 760 & UL 429.
- H. FILTER DRIERS SHALL BE REPLACEABLE MEDIA, ANGLE TYPE; HENRY "DRI-COR" OR EQUAL; ARI 730.
- I. THERMOSTATIC EXPANSION VALVES SHALL HAVE FORGED BRASS BODY, STAINLESS STEEL SEATS AND PINS, ODF SOLDER CONNECTIONS, EXTERNAL EQUALIZER, ARI 750.
- J. OUTDOOR CONDENSING UNITS SHALL HAVE A FLEXIBLE PIPING SECTION AT THE OUTDOOR UNIT.
- K. REFRIGERANT PIPING BETWEEN THE OUTDOOR UNIT AND THE INDIVIDUAL FAN COIL (SPLIT SYSTEM) OR BRANCH SELECTOR BOX (VRF SYSTEM) SHALL BE TYPE "ACR" DE-OXIDIZED HARD TEMPER COPPER TUBE, ASTM B280.
- L. REFRIGERANT PIPING (EXPOSED) BETWEEN THE INDOOR BRANCH SELECTOR BOXES AND THE INDIVIDUAL FAN COIL IN EXPOSED AREAS SHALL BE TYPE "ACR" DE-OXIDIZED HARD TEMPER COPPER TUBE, ASTM B280.
- M. REFRIGERANT PIPING SHALL BE INSULATED WITH 1" WALL THICKNESS "ARMACEL AP ARMAFLEX" BLACK FLEXIBLE CLOSED-CELL ELASTOMERIC THERMAL INSULATION IN TUBULAR FORM WITH SELF-SEAL SYSTEM REINFORCED WITH LAP SEAL TAPE.
- N. REFRIGERANT PIPING (CONCEALED) BETWEEN THE INDOOR BRANCH SELECTOR BOXES AND THE INDIVIDUAL AIR HANDLING UNITS MAY BE PRE-INSULATED LINE SETS, ISOCLIMA OR EQUAL. PRE-INSULATED WITH EXPANDED POLYETHYLENE SHEATH, CLOSED CELL WITH EXTERNAL LDPE FOIL. PIPING SHALL BE CRIMPED CLOSED FOR SAFETY. TESTED IN ACCORDANCE WITH UL94 FOR SURFACE BURNING CHARACTERISTICS, UL724 FOR FLAME/SMOKE INDEX AND UL746A FOR IGNITION RESISTANCE. COPPER SHALL BE ASTM B280 APPROVED.
- 2.8 ACCESS PANELS
- A. WHERE CONSTRUCTION IS NOT INHERENTLY ACCESSIBLE, PROVIDE ADEQUATELY SIZED AND CONVENIENTLY LOCATED ACCESS DOORS IN CEILINGS, WALLS, AND FURRING FOR SERVICING VALVES, EQUIPMENT, ETC. DOORS SHALL BE DELIVERED TO THE GENERAL CONTRACTOR FOR INSTALLATION.
- B. FIRE RATED: INRYCO/MILCOR, U.L. LISTED, "B" LABEL, 1 1/2 HOUR RATING. MINIMUM SIZE SHALL BE 12" X 12". PROVIDE LARGER SIZES WHERE REQUIRED. LOCKS SHALL BE FLUSH SCREWDRIVER OPERATED.
- C. DRYWALLED SURFACES: INRYCO/MILCOR, STYLE DW, PRIME COATED STEEL. MINIMUM SIZE SHALL BE 12" X 12". PROVIDE LARGER SIZES WHERE REQUIRED. LOCKS SHALL BE FLUSH SCREWDRIVER OPERATED.
- D. CONCRETE AND TILED SURFACES: INRYCO/MILCOR, STYLE M, PRIME COATED STEEL, EXCEPT ACCESS PANELS INSTALLED IN TILED SURFACES SHALL BE STAIN FINISH STAINLESS STEEL. MINIMUM SIZE SHALL BE 12" X 12". PROVIDE LARGER SIZES WHERE REQUIRED. LOCKS SHALL BE FLUSH SCREWDRIVER OPERATED.
- E. PLASTERED SURFACES: INRYCO/MILCOR, STYLE K, PRIME COATED STEEL. MINIMUM SIZE SHALL BE 12" X 12". PROVIDE LARGER SIZES WHERE REQUIRED. LOCKS SHALL BE FLUSH SCREWDRIVER OPERATED.
- PART 3 - EXECUTION**
- 3.1 INSTALLATION, GENERAL
- A. PROVIDE ALL NECESSARY CUTTING IN CONNECTION WITH THE WORK OF THE SECTION. NO CUTTING SHALL BE DONE WITHOUT THE APPROVAL OF THE ARCHITECT. COMPLY WITH REQUIREMENTS SPECIFIED IN CUTTING AND PATCHING SECTION.
- B. NO STRUCTURAL MEMBERS SHALL BE DRILLED, BORED, OR NOTCHED IN A MANNER THAT WILL IMPAIR THEIR STRUCTURAL CAPACITY.
- C. ALL PENETRATIONS OF CONCRETE OR MASONRY SHALL BE MADE WITH CORE DRILLS.
- 3.2 EQUIPMENT STARTUP
- A. NOTIFY THE OWNER'S REPRESENTATIVE A MINIMUM OF TWO WEEKS PRIOR TO EQUIPMENT STARTUP DATE TO ALLOW FOR OWNER'S PERSONNEL TO BE PRESENT DURING STARTUP.
- B. MANUFACTURER MUST PROVIDE A SERVICE TECHNICIAN TO SUPERVISE RIGGING OF THE UNITS TO ENSURE PROPER FIT.
- C. UNIT MUST BE CHECKED OUT, TESTED AND PLACED INTO OPERATION BY THE INSTALLING CONTRACTOR UNDER THE SUPERVISION OF AN AUTHORIZED REPRESENTATIVE OF THE FACTORY.
- D. CONTROLS CONTRACTOR MUST BE PRESENT DURING STARTUP TO ENSURE THAT FACTORY-INSTALLED CONTROLS HAVE BEEN ADEQUATELY INSTALLED, WIRED, AND INTEGRATED INTO THE BUILDING MANAGEMENTS SYSTEM.
- E. PROVIDE MINIMUM EIGHT (8) HOURS OF TRAINING TIME WITH OWNER'S MAINTENANCE PERSONNEL TO THOROUGHLY REVIEW NEW EQUIPMENT, MAINTENANCE REQUIREMENTS, AND EQUIPMENT CONTROLS.
- F. DURING STARTUP, THE FULL FUNCTIONALITY OF THE EQUIPMENT SHALL BE DEMONSTRATED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE, INCLUDING HEATING, MECHANICAL COOLING, ECONOMIZER COOLING, ZONE MODULATION, AND ALL EMERGENCY SHUTDOWN FEATURES.
- 3.3 EQUIPMENT, GENERAL REQUIREMENTS
- A. EQUIPMENT SHALL OPERATE QUIETLY AND WITHOUT OBJECTIONABLE VIBRATION. SUCH PROBLEMS, OTHER THAN FROM EQUIPMENT OPERATING AT OPTIMUM CONDITIONS, SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE ELIMINATED AT THE DIRECTION OF THE ARCHITECT.
- B. INSTALL EQUIPMENT TO PROVIDE GOOD APPEARANCE, EASY ACCESS, AND ADEQUATE SPACE TO ALLOW REPLACEMENT AND MAINTENANCE. PROVIDE BASES, SUPPORTS, ANCHOR BOLTS, AND OTHER ITEMS REQUIRED TO ACHIEVE THIS. INSTALLATION SHALL BE LEVEL, ABOVE MOISTURE LEVEL, AND ADEQUATELY BRACED.
- C. THOROUGHLY LUBRICATE EQUIPMENT BEFORE OPERATING. REPAIR OF DAMAGE RESULTING FROM FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- D. CONNECTIONS TO PIPING SHALL BE SECURED AND PROPERLY ALIGNED AND ALL UTILITY AND CONTROL CONNECTIONS SHALL BE PROPERLY ISOLATED FROM THE BUILDING STRUCTURE BY MEANS OF VIBRATION ISOLATORS AND FLEXIBLE CONNECTIONS. ANY EQUIPMENT NOT MEETING THIS REQUIREMENT WILL BE MODIFIED AND REINSTALLED AT NO EXPENSE TO THE OWNER.
- E. MOVE EQUIPMENT INTO BUILDING THROUGH AVAILABLE OPENINGS. DISMANTLE EQUIPMENT WHERE NECESSARY TO ACCOMPLISH THIS. AFTER REASSEMBLY, TEST EQUIPMENT TO VERIFY ITS SATISFACTORY OPERATING CONDITION.



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LICENSE STAMP



CONSULTANTS

PROJECT NAME

MORGUE HVAC UPGRADES

FOR

TEHAMA COUNTY

22840 Antelope Blvd
Red Bluff, CA 96080

NO.	REVISIONS	DATE

SHEET TITLE

MECHANICAL SPECIFICATIONS

ISSUED FOR:

CONSTRUCTION DOCUMENTS

DATE:	3/30/2025
DRAWN BY:	GK
REVIEWED BY:	BA
SCALE:	
PROJECT NO:	24049

M101

MECHANICAL SPECIFICATION

- 3.4 DUCTWORK
- A. ALL DUCTWORK SHALL BE INSTALLED WITHIN SPACES PROVIDED WHERE POSSIBLE. DUCTS SHALL BE INSTALLED TRUE TO LINE AND GRADE, FULLY SECURED TO STRUCTURAL FACING WITH SPECIFIED HANGERS AND SUPPORTS, INSULATED, AND VIBRATION ISOLATED, WHERE REQUIRED.
- B. EACH SECTION OF SUPPLY AIR DUCTWORK SHALL BE CLEANED AT THE SHOP. DUST AND OIL FREE, USING A DEGREASING AGENT AND DETERGENT AND SEALED AIRTIGHT AT BOTH ENDS WITH VISQUEEN AND TAPE. SUPPLY DUCTS SHALL BE ADDITIONALLY CLEANED WITH A DISINFECTING SOLUTION. ENDS OF ALL SUPPLY AND INTERNALLY INSULATED EXHAUST DUSTS SHALL BE KEPT SEALED UNTIL THE TIME THEY ARE JOINED. WHEN DUCT SECTIONS ARE JOINED, WIPE DOWN ALL INTERIOR SURFACES WITH A CLEAN TACK CLOTH. IF TACK CLOTH SHOWS ANY DUST, THEN RE-CLEAN DUCT AS DESCRIBED ABOVE. THE INTENT IS THAT NO FOREIGN MATTER BE ALLOWED TO ENTER THE DUCTWORK AT ANY TIME AFTER FACTORY CLEANING AND DURING CONSTRUCTION.
- 3.5 CONTROLS
- A. THIS CONTRACTOR SHALL PROVIDE ALL REQUIRED CONTROL COMPONENTS, INCLUDING BUT NOT LIMITED TO THERMOSTATS, TEMPERATURE SENSORS, STATIC PRESSURE SENSORS, HUMIDITY SENSORS, DAMPER ACTUATORS, VALVE ACTUATORS, UNITARY CONTROLLERS, RELAYS, AND LOW-VOLTAGE WIRING, SUCH THAT THE OWNER IS PROVIDED WITH A FULLY FUNCTIONAL CONTROL SYSTEM.
- B. WHERE WORK IS PERFORMED IN AN EXISTING BUILDING, THIS CONTRACTOR SHALL INTEGRATE ALL CONTROL MODIFICATIONS INTO THE EXISTING BUILDING CONTROL SYSTEM, IF APPLICABLE. SPECIFIC REQUIREMENTS SHALL BE COORDINATED WITH OWNER AND APPROVED BY ARCHITECT PRIOR TO INSTALLATION.
- C. INSTALLATION OF THE SYSTEM SHALL BE MADE UNDER THE SUPERVISION OF THE MANUFACTURER OF THE EQUIPMENT, OR HIS FACTORY AUTHORIZED REPRESENTATIVE.
- D. ROOM THERMOSTATS SHALL BE INSTALLED IN THE LOCATIONS INDICATED ON THE CONTRACT DRAWINGS. FINAL LOCATIONS SHALL BE COORDINATED WITH OWNER'S MAINTENANCE PERSONNEL AND SHALL BE INSTALLED IN LOCATIONS WHICH SHALL PROVIDE REPRESENTATIVE TEMPERATURES FOR THE ADJACENT AREAS.
- E. LOW VOLTAGE CONTROL WIRING AND CONDUIT SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF DIVISION 26.
- 3.6 INSULATION
- A. EXTERIOR DUCTWORK:
1. THE INSULATION SHALL BE CUT LONGER THAN THE PERIMETER OF THE DUCT TO PROVIDE 2" STAPLE LAP AND MINIMUM COMPRESSION AT THE CORNERS. ALL JOINTS SHALL BE LAPPED 2" AND STAPLED WITH OUTWARD CLINGING STAPLES 2" ON CENTER. THE INSULATION SHALL BE MECHANICALLY FASTENED TO THE UNDERSIDE OF ALL DUCTS 24" WIDE OR MORE USING CUP-HEAD PINS, WELD PINS, OR STICK PINS WITH SPEED CLIPS 18" ON CENTER. ALL JOINTS AND PENETRATIONS OF THE VAPOR BARRIER JACKET SHALL BE SEALED WITH A MINIMUM 3" WIDE MATCHING PRESSURE SENSITIVE TAPE. PRESSURE-SENSITIVE TAPE SHALL BE FIRMLY RUBBED IN PLACE IMMEDIATELY AFTER APPLICATION USING A "SQUEEGEE" TYPE TOOL.
2. WHEN A VAPOR SEAL IS REQUIRED, TWO COATS OF VAPOR RETARDER MASTIC REINFORCED WITH ONE LAYER OF 4" WIDE, OPEN WEAVE GLASS FABRIC MAY BE USED IN LIEU OF PRESSURE-SENSITIVE TAPE. MASTIC SHALL BE BRUSHED ONTO JOINT AND GLASS FABRIC UNTIL THE FABRIC IS FILLED. MASTICS SHALL BE APPLIED IN ACCORDANCE WITH APPLICATION INSTRUCTIONS ON THE CONTAINER.
- B. INTERIOR DUCT LINER
1. APPLY TO THE INSIDE FACE OF DUCTS, COATED SIDE FACING AIR STREAM, FASTEN USING FIRE RETARDANT ADHESIVE MEETING ASTM C 9169, AND SECURE WITH MECHANICAL LINER FASTENERS AT 24" MAXIMUM O.C., BOTH DIRECTIONS. PIN LENGTH SHOULD BE SUCH AS TO LIMIT COMPRESSION OF LINER.
2. EXPOSED EDGES MUST BE FACTORY OR FIELD COATED. FOR SYSTEMS OPERATING AT 4000 FPM OR HIGHER, A METAL NOSING MUST BE INSTALLED ON ALL LINER LEADING EDGES. INSULATION WITH TORN OR BROKEN COATINGS SHALL BE REMOVED OR REPLACED. LOOSE CORNERS, EDGES, AND BUTT JOINTS WILL NOT BE ACCEPTED.
- C. REFRIGERANT PIPING
1. THE INSULATION SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ALL JOINTS AND SEAMS SHALL BE SEALED WITH WATERPROOF VAPOR RETARDANT ADHESIVE. ALL PIPES EXPOSED TO THE WEATHER SHALL BE COATED WITH ALUMINUM JACKETING TO PROTECT THE INSULATION FROM ULTRA-VIOLET RADIATION IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTRUCTIONS.
- 3.7 TEST, INSPECTIONS
- A. MAKE ALL NECESSARY CONTROL ADJUSTMENTS AND BALANCING OF AIR. OPERATE THE ENTIRE SYSTEM FOR A PERIOD OF TIME NOT LESS THAN THREE (3) WORKING DAYS FOR THE PURPOSE OF PROVING SATISFACTORY PERFORMANCE. DURING THIS PERIOD, INSTRUCT SUCH PERSONS AS THE OWNER AND/OR ARCHITECT MAY DESIGNATE IN THE PROPER OPERATION OF THE SYSTEMS. SHOULD FURTHER ADJUSTMENT PROVE NECESSARY, OPERATING TESTS SHALL BE REPEATED UNTIL A SATISFACTORY TEST IS OBTAINED.
- B. THIS CONTRACTOR SHALL NOT ALLOW OR CAUSE ANY WORK OF THIS SECTION TO BE COVERED OR ENCLOSED UNTIL IT HAS BEEN INSPECTED, TESTED, AND APPROVED BY THE ARCHITECT AND THE AUTHORITIES HAVING JURISDICTION OVER THE WORK. SHOULD ANY OF THIS WORK BE ENCLOSED OR COVERED UP BEFORE SUCH INSPECTION, TESTING, AND APPROVAL, THIS CONTRACTOR SHALL UNCOVER THE WORK, HAVE THE NECESSARY INSPECTIONS, TESTS, AND APPROVALS MADE AND, AT NO EXPENSE TO THE OWNER, MAKE ALL REPAIRS NECESSARY TO RESTORE BOTH HIS WORK AND THAT OF OTHER CONTRACTORS WHICH MAY HAVE BEEN DAMAGED TO BE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.
- 3.8 CLEANUP
- A. UPON COMPLETION OF THE WORK OF THIS SECTION, REMOVE ALL MATERIAL, DEBRIS, AND EQUIPMENT ASSOCIATED WITH OR USED IN THE PERFORMANCE OF THIS WORK.

END OF SECTION



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LICENSE STAMP



CONSULTANTS

PROJECT NAME

MORGUE HVAC UPGRADES

FOR

TEHAMA COUNTY

22840 Antelope Blvd
Red Bluff, CA 96080

NO. REVISIONS DATE

NO.	REVISIONS	DATE

SHEET TITLE

MECHANICAL SPECIFICATIONS

ISSUED FOR:
CONSTRUCTION DOCUMENTS

DATE: 3/30/2025
DRAWN BY: GK
REVIEWED BY: BA
SCALE:
PROJECT NO: 24049

M102

TAB SPECIFICATION

PART 1 GENERAL

1.1 SCOPE

- A. PROVIDE ALL SUPERVISION, PERSONNEL, INSTRUMENTS, CALIBRATION, EQUIPMENT, AND ALL OTHER MATERIALS NECESSARY TO PERFORM BALANCING AND TESTING...

1.2 GENERAL

- A. MECHANICAL CONTRACTOR WILL EMPLOY A TESTING, ADJUSTING, AND BALANCING (TAB) AGENCY THAT IS CERTIFIED BY ASSOCIATED AIR BALANCING COUNCIL (AABC)...

1.3 SERVICES

- A. THE TAB AGENCY WILL BALANCE, TEST, AND ADJUST THE SYSTEMIC COMPONENTS TO OBTAIN OPTIMUM CONDITIONS IN EACH CONDITIONED SPACE IN THE BUILDING...

1.4 SUBMITTALS

- A. SUBMITTAL NO. 15950 (1) - TAB AGENDA
1. THE TAB CONTRACTOR SHALL SUBMIT A COMPLETE AGENDA, WHICH SHALL OUTLINE IN FULL THE TESTING METHODS AND LOCATIONS FOR EACH HVAC SYSTEM AND/OR DEVICE...

1.5 AIR SYSTEMS REQUIREMENTS

- A. IN ADDITION TO THE ABOVE DATA IN ITS APPROPRIATE FORMAT, THE TEST AND BALANCE REPORT SHALL INCLUDE THE FOLLOWING DATA:
1. FAN COIL UNITS
a. MANUFACTURER AND MODEL.
b. SIZE.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL PROCEDURES

- A. DURING THE BALANCING, THE TEMPERATURE REGULATION SHALL BE ADJUSTED FOR PROPER RELATIONSHIP BETWEEN CONTROLLING INSTRUMENTS AND CALIBRATED.

3.2 AIR SYSTEMS PROCEDURES

- A. THE TAB AGENCY SHALL PERFORM THE FOLLOWING TESTS AND BALANCE THE AIR SYSTEMS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:
1. TEST AND ADJUST BLOWER AND MOTOR RPM TO DESIGN REQUIREMENTS.

3.3 TEMPERATURE CONTROL SYSTEM

- A. IN THE PROGRESS OF PERFORMING THE TAB WORK, THE TAB AGENCY SHALL:
1. WORK WITH THE CONTROLS CONTRACTOR TO ENSURE THE MOST EFFECTIVE TOTAL SYSTEM OPERATION WITHIN THE DESIGN LIMITATIONS...

3.4 DUCT LEAKAGE TEST

- A. ALL SUPPLY, RETURN, EXHAUST, AND OUTSIDE AIR DUCTWORK SHALL BE TESTED FOR LEAKS, USING NECESSARY INSTRUMENTS BEFORE INSULATING ANY DUCTWORK.

3.5 TEST AND BALANCE REPORT

- A. THE REPORT SHALL CONTAIN THE FOLLOWING DATA:
1. A LISTING OF THE MEASURED AIR QUANTITIES AT EACH OUTLET CORRESPONDING TO THE TEMPERATURE TABULATION SPECIFIED ABOVE.

3.6 FINAL ACCEPTANCE

- A. AT THE TIME OF FINAL INSPECTION, THE BALANCING AGENCY SHALL RECHECK, IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE, SPECIFIC AND RANDOM SELECTIONS OF DATA, I.E., WATER AND AIR QUANTITIES, RECORDED IN THE CERTIFIED REPORT.

END OF SECTION



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Table with columns: NO., REVISIONS, DATE

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TAB SPECIFICATIONS

ISSUED FOR: CONSTRUCTION DOCUMENTS

Table with columns: DATE, DRAWN BY, REVIEWED BY, SCALE, PROJECT NO.

M103

PLUMBING SPECIFICATION

PART 1 – GENERAL

1.1 INCLUDED

- A. THIS SPECIFICATION ESTABLISHES THE REQUIRED STANDARDS FOR ALL LABOR, MATERIALS, EQUIPMENT, AND WORKMANSHIP IN CONNECTION WITH THE FURNISHING, FABRICATION, AND INSTALLATION OF "PLUMBING."

1.2 CODES AND STANDARDS

- A. ALL WORK SHALL BE DONE IN COMPLIANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL BUILDING SAFETY CODES, ORDINANCES, AND REGULATIONS. ADDITIONALLY, ALL WORK SHALL CONFORM TO THE LATEST EDITIONS OF THE FOLLOWING STANDARDS:
1. NATIONAL FIRE PROTECTION ASSOCIATION.
 2. CALIFORNIA MECHANICAL CODE.
 3. CALIFORNIA PLUMBING CODE.
 4. UNDERWRITERS LABORATORIES.
 5. TITLES 8, 17, 19, 21, 24 OF THE CALIFORNIA CODE OF REGULATIONS.
 6. CALIFORNIA ELECTRIC CODE.
- B. WHEN THE CONTRACT DOCUMENTS CALL FOR MATERIALS OR CONSTRUCTION OF A HIGHER STANDARD THAN IS REQUIRED BY THE ABOVE, THE CONTRACT DOCUMENT REQUIREMENTS SHALL TAKE PRECEDENCE OVER THE REQUIREMENTS OF THE APPLICABLE LAWS, ORDINANCES, RULES, OR REGULATIONS. NOTHING IN THE CONTRACT DOCUMENTS SHALL BE INTERPRETED AS PERMITTING WORK IN VIOLATION OF SAID LAWS, RULES, AND/OR REGULATIONS.
- C. THE CONTRACTOR FOR THIS WORK SHALL FURNISH, WITHOUT EXTRA CHARGE, ANY ADDITIONAL MATERIALS AND/OR LABOR AS MAY BE REQUIRED FOR COMPLIANCE WITH THESE LAWS, RULES, AND/OR REGULATIONS THOUGH SUCH MATERIALS AND/OR LABOR ARE NOT SPECIALLY SET FORTH IN THE CONTRACT DOCUMENTS.

1.3 LICENSING REQUIREMENTS

- A. ALL PLUMBING SYSTEMS SHALL BE INSTALLED BY A C-36 PLUMBING CONTRACTOR. PLUMBING SYSTEMS INCLUDE: WASTE REMOVAL AND CONNECTION OF ON-SITE WASTE DISPOSAL SYSTEMS; PIPING, STORAGE TANKS, AND VENTING FOR SUPPLY OF GASES AND LIQUIDS FOR ANY PURPOSE; ALL GAS APPLIANCES, FLUES, AND GAS CONNECTIONS; WATER AND GAS PIPING FROM THE OWNER'S SIDE OF UTILITY METER TO THE STRUCTURE OR FIXED WORKS; INSTALLATION OF ANY TYPE OF EQUIPMENT TO HEAT WATER OR FLUIDS TO A SUITABLE TEMPERATURE; AND MAINTENANCE AND REPLACEMENT OF THE ITEMS DESCRIBED ABOVE, INCLUDING HEALTH AND SAFETY DEVICES.
- B. ALL PLUMBING AND HYDRONIC PIPING INSULATION SHALL BE PERFORMED BY A C-2 – INSULATION AND ACOUSTICAL CONTRACTOR.

1.4 COOPERATION WITH OTHER TRADES

- A. COOPERATE FULLY WITH OTHER TRADES DOING WORK ON THE PROJECT AS MAY BE NECESSARY FOR THE PROPER COMPLETION OF THE PROJECT. REFER TO THE STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR DETAILS OF THE BUILDING STRUCTURE AND EQUIPMENT INSTALLATION THAT WILL TEND TO OVERLAP, CONFLICT WITH OR REQUIRE COORDINATION WITH THE WORK OF THIS SECTION, AND SCHEDULE THIS WORK ACCORDINGLY.
- B. ANY WORK DONE WITHOUT REGARD FOR OTHER TRADES SHALL BE MOVED, REPLACED, OR REDONE AS REQUIRED, WITHOUT EXTRA CHARGES TO OWNER.

1.5 AS-BUILT DRAWINGS

- A. A COMPLETE SET OF CONTRACT DRAWINGS SHALL BE MAINTAINED AT THE WORK SITE, AND ALL CHANGES IN THE WORK SHALL BE RECORDED ON THIS SET, ON A DAILY BASIS. THE FINAL AS-BUILT DRAWINGS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL.

1.6 DRAWINGS

- A. THE DRAWINGS INDICATE DIAGRAMMATICALLY THE GENERAL LAYOUT OF THE PLUMBING SYSTEMS AND OTHER RELATED WORK. FIELD VERIFICATION OF SCALED DIMENSIONS TAKEN FROM THE DRAWINGS IS REQUIRED.
- B. THE CONTRACTOR SHALL REVIEW AND COMPARE THE ARCHITECTURAL, STRUCTURAL, PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS AND ALL OWNER SUPPLIED EQUIPMENT DRAWINGS, AND ADJUST THEIR WORK TO BE IN CONFORMITY WITH THE CONDITIONS INDICATED THEREON. DISCREPANCIES BETWEEN DRAWINGS, BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS, OR BETWEEN DRAWINGS AND SPECIFICATIONS, SHALL PROMPTLY BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR A DETERMINATION OF THE MODIFICATIONS TO BE EFFECTED. IN THE EVENT THAT A MAJOR MODIFICATION IS REQUIRED, A CHANGE ORDER WILL BE PREPARED.
- 1.7 VERIFICATION OF EXISTING CONDITIONS AND DEMOLITION
- A. BEFORE INSTALLATION OF ANY NEW WORK, VERIFY THE LOCATION, SIZE, AND OTHER CONDITIONS AT ALL POINTS OF CONNECTION TO SERVICES OR OTHER EXISTING PIPING, AND AT ALL LOCATIONS WHERE NEW WORK WILL CROSS OR PASS NEAR EXISTING PIPING, ELECTRICAL, OR OTHER FACILITIES.
- B. PATCH, CAP, OR REPAIR EXISTING WORKS AFFECTED BY THIS DEMOLITION IN CONCEALED SPACES WITHIN SIX (6) INCHES OF A LIVE MAIN OR BRANCH.
- C. DELIVER REMOVED MATERIAL TO THE OWNER AS DIRECTED BY THE ARCHITECT. DISPOSE OF ALL OTHER REMOVED MATERIAL OFFSITE.
- D. INFORMATION SHOWN RELATIVE TO EXISTING SERVICES IS BASED UPON AVAILABLE RECORDS AND DATA DURING PREPARATION OF THE DRAWINGS, BUT SHALL BE VERIFIED. MAKE REASONABLE DEVIATIONS FOUND NECESSARY TO CONFORM TO ACTUAL LOCATIONS AND CONDITIONS, WITHOUT EXTRA CHARGE.
- E. THE DATA GIVEN HEREIN AND ON THE DRAWINGS ARE AS EXACT AS COULD BE REASONABLY SECURED, BUT ABSOLUTE ACCURACY IS NOT GUARANTEED. EXACT LOCATIONS, DISTANCES, ELEVATIONS, ETC. WILL BE GOVERNED BY SHOP DRAWINGS, THE BUILDING ITSELF, AND ACTUAL FIELD CONDITIONS.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. CONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERY, STORAGE, PROTECTION, AND PLACING OF ALL EQUIPMENT AND MATERIALS.
1. CONTRACTOR SHALL PROTECT THE WORK AND MATERIALS FROM DAMAGE DURING CONSTRUCTION. EQUIPMENT STORED AT THE JOB SITE SHALL BE PROTECTED FROM DUST, WATER, OR OTHER DAMAGE, AND BE COVERED IF EQUIPMENT IS EXPOSED TO WEATHER. PROTECT INTERIORS OF NEW EQUIPMENT AND PIPING SYSTEMS AGAINST ENTRY OF FOREIGN MATTER. CLEAN BOTH INSIDE AND OUTSIDE BEFORE PAINTING OR PLACING EQUIPMENT IN OPERATION.
 2. ANY ITEMS DAMAGED SHALL BE REPAIRED OR REPLACED, AT NO ADDITIONAL COST TO THE OWNER.
- B. CLEANLINESS OF PIPING AND EQUIPMENT SYSTEMS
1. EXERCISE CARE IN STORAGE AND HANDLING OF EQUIPMENT AND PIPING MATERIAL TO BE INCORPORATED IN THE WORK. REMOVE DEBRIS ARISING FROM CUTTING, THREADING, AND WELDING OF PIPING.
 2. PIPING SYSTEMS SHALL BE FLUSHED, BLOWN, OR PIGGED AS NECESSARY TO DELIVER CLEAN SYSTEMS.
 3. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ALL COSTS, DAMAGE, AND DELAY ARISING FROM FAILURE TO PROVIDE CLEAN SYSTEMS.

1.9 WARRANTIES

- A. EQUIPMENT WARRANTIES SHALL BE PROVIDED FOR ALL EQUIPMENT, WITH ALL NECESSARY INFORMATION FILLED IN, EXCEPT PURCHASE DATE, IN FAVOR OF THE OWNER.
- B. THE CONTRACTOR SHALL GUARANTEE THAT ALL WORK UNDER THIS SECTION IS FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FILING THE NOTICE OF COMPLETION. REPLACEMENT OF DEFECTIVE WORK AND DAMAGE CAUSED TO WORK OF OTHER TRADES AS A RESULT OF SUCH DEFECTIVE WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE MADE AT NO COST TO THE OWNER.

1.10 ALTERNATIVE MATERIALS AND METHODS

- A. THESE PLANS AND SPECIFICATIONS DESCRIBE THE GENERAL SCOPE OF THE MECHANICAL SYSTEMS. THESE PLANS AND SPECIFICATIONS DO NOT PRECLUDE THE SUBMITTAL OF ALTERNATIVE METHODS OR MATERIALS. MANUFACTURER'S NAMES AND CATALOG NUMBERS ARE STATED TO IDENTIFY THE TYPE AND QUALITY OF THE EQUIPMENT OR MATERIALS REQUIRED FOR THE PROJECT.
- B. THE CONTRACTOR MAY SUBMIT SHOP DRAWINGS AND/OR TECHNICAL INFORMATION ON ALTERNATIVE EQUIPMENT, MATERIALS OR INSTALLATION DETAILS TO ACCOMPLISH THE INTENT OF THE PLANS AND SPECIFICATIONS. APPROVAL OF THE ALTERNATIVE EQUIPMENT, MATERIALS OR INSTALLATION DETAILS SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR COMPLYING WITH THE INTENT OF THE PLANS AND SPECIFICATIONS. SUBMIT THE MANUFACTURERS' TECHNICAL INFORMATION, SHOP DRAWINGS, AND/OR WRITTEN DESCRIPTION OF ALTERNATIVE METHODS FOR EACH ITEM DESCRIBED BY MANUFACTURER'S NAME AND CATALOG NUMBER AND FOR EACH COMPONENT, EQUIPMENT, MATERIAL, OR INSTALLATION DETAIL REQUIRED.

PART 2 – PRODUCTS

2.1 PIPE AND FITTINGS

- A. CONDENSATE PIPING: TYPE M, HARD TEMPER, COPPER WITH WROUGHT COPPER OR CAST BRASS FITTINGS. JOINTS SHALL BE MADE UP WITH "STAY-SAFE 50" LEAD FREE SOLDER.

2.2 UNIONS

- A. COPPER PIPE UNIONS SHALL BE SOLDERED JOINT, NIBCO SERIES 633 OR 733, MUELLER, OR EQUAL.
- B. DIELECTRIC UNIONS SHALL BE EPCO OR EQUAL.

2.3 SLEEVES, WALL PLATES

- A. SERVICE PIPE THROUGH EXTERIOR WALL, ROOFS: CRANE STYLE BC WALL AND CEILING PLATES; CHROME PLATED AT FINISHED ROOMS.
- B. PIPES THROUGH, UNDER FOOTINGS: 18 GAUGE IRON SLEEVES TWO DIAMETERS LARGER THAN PIPE, CAST IN CONCRETE, ANNULAR SPACE FILLED WITH MASTIC OR PLASTIC BITUMINOUS CEMENT.
- C. PIPES THROUGH FIRE RATED WALLS SHALL BE PROTECTED WITH FIRE RETARDANT MASTIC AS DETAILED ON THE DRAWINGS. INSTALLATION SHALL BE IN FULL ACCORDANCE WITH THE REQUIREMENTS OF THE UL SYSTEM NUMBER. HILTI OR APPROVED EQUAL.
- D. WALL AND CEILING PLATES: CRANE STYLE BC OR EQUAL; CHROME PLATED AT FINISHED ROOMS.
- E. PIPES THROUGH FLOORS, INTERIOR CONCRETE WALLS, AND THROUGH FIRE RATED WALL AND SMOKE STOP PARTITIONS: 18 GAUGE IRON SLEEVES, TWO DIAMETERS LARGE THAN PIPE, ANNULAR SPACE FILLED WITH 3M BRAND FIRE BARRIER CP-25 CAULK.
- F. PIPES THROUGH 1-HOUR WALLS SHALL BE PROTECTED WITH FIRE RETARDANT MASTIC AS DETAILED ON THE DRAWINGS. INSTALLATION SHALL BE IN FULL ACCORDANCE WITH THE REQUIREMENTS OF THE UL SYSTEM NUMBER. HILTI OR APPROVED EQUAL.

2.4 ACCESS DOORS

- A. WHERE CONSTRUCTION IS NOT INHERENTLY ACCESSIBLE, PROVIDE ADEQUATELY SIZED AND CONVENIENTLY LOCATED ACCESS DOORS IN CEILING, WALLS, AND FURRING FOR SERVICING VALES, EQUIPMENT, ETC.
- B. ACCESS DOORS SHALL BE KARP, MILCOR, OR EQUAL, PRIME COATED STEEL FOR ALL SURFACES EXCEPT CERAMIC TILE. 12" X12" MINIMUM SIZE AS REQUIRED. LOCKS SHALL BE FLUSH, SCREWDRIVER OPERATED.
1. STYLE KDW FOR GYPSUM BOARD SURFACES.
 2. STYLE PL FOR PLASTER SURFACES.
 3. STYLE 210 FOR ACOUSTIC TILE SURFACES.
 4. STYLE DSC 214-M SATIN FINISH STAINLESS STEEL AT CERAMIC TILE SURFACES.
 5. STYLE "FIRE RATED" AT RATED CEILINGS AND WALLS.

PART 3 – EXECUTION

3.1 SURFACE CONDITIONS

- A. THIS CONTRACTOR SHALL BE HELD TO HAVE EXAMINED THE SITE AND COMPARED IT WITH THE CONTRACT DOCUMENTS, AND TO ADEQUATELY UNDERSTAND THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. IN THE EVENT OF DISCREPANCY, THIS CONTRACTOR SHALL NOTIFY THE ARCHITECT AND PROCEED AS DIRECTED. THIS CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL EXISTING CONDITIONS, WHETHER OR NOT ACCURATELY DESCRIBED, AND NO ALLOWANCE SHALL SUBSEQUENTLY BE MADE ON HIS BEHALF FOR ANY ERROR, OMISSION, OR EXTRA EXPENSE DUE TO FAILURE OR NEGLECT TO MAKE SUCH EXAMINATION AND NOTIFICATION.

3.2 VIBRATION AND SOUND CONTROL

- A. MAKE ALL NECESSARY PROVISIONS TO PREVENT THE TRANSMISSION OF VIBRATION TO THE BUILDING STRUCTURE, INCLUDING FLEXIBLE PIPE CONNECTIONS TO MOTOR DRIVEN EQUIPMENT, RESILIENT MOUNTING FOR PIPING, AND SEALING OFF PIPE AND DUCT PENETRATIONS OF WALLS AND ROOF.

3.3 INSULATION

- A. INSULATION SHALL BE APPLIED IN COMPLETE ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS. ALL INSULATION SHALL BE APPLIED ON CLEAN, DRY SURFACES AND SHALL BE CONTINUOUS THROUGH WALL AND CEILING OPENING AND SLEEVES. ALL JOINTS SHALL BE FIRMLY BUTTED TOGETHER AND LONGITUDINAL JACKET LAPS AND BUTT STRIPS SHALL BE SMOOTHLY SECURED. SPECIFIED ADHESIVES, MASTICS, AND COATINGS SHALL BE APPLIED AT THE MANUFACTURER'S RECOMMENDED MINIMUM COVERAGE PER GALLON.

3.4 PIPING INSTALLATION, GENERAL REQUIREMENTS

- A. ALL PIPING SHALL BE CONCEALED IN FINISHED ROOMS, INSTALLED IN FURRED WALLS AND PARTITIONS. WHERE FURRED OR SUSPENDED CEILINGS OCCUR, PIPING SHALL BE INSTALLED IN THE CONCEALED SPACE AT POINTS ADJACENT TO BEAMS AND/OR OTHER STRUCTURAL MEMBERS, AND COORDINATED WITH DUCTWORK AND EQUIPMENT. WHERE EXPOSED PIPING OCCURS, IT SHALL BE INSTALLED PARALLEL TO OR AT RIGHT ANGLES TO BUILDING WALLS, UNLESS SPECIFICALLY SHOWN OTHERWISE ON THE DRAWINGS.
- B. INSTALLATION OF PIPING SHALL BE SUCH THAT DAMAGE CANNOT RESULT, THROUGH THERMAL EXPANSION OR CONTRACTION, TO PIPING, BUILDING, OR PIPE HANGERS AND SUPPORTS. ANCHORS SHALL BE INSTALLED AT MIDPOINTS OF ALL RUNS IN MAIN PIPING FOR THE PURPOSE OF LOCALIZING PIPE EXPANSION OR PREVENTION OF CREEPAGE.
- C. ALL PIPE LINES SHALL BE INSTALLED FREE FROM TRAPS AND AIR POCKETS, TRUE TO LINE AND GRADE, WITH SUITABLE SUPPORTS PROPERLY SPACED. ALL PIPING SHALL BE INSTALLED WITHOUT UNDUE STRESSES AND WITH PROVISION FOR EXPANSION AND CONTRACTION.
- D. ALL PIPING SHALL BE NEW AND FREE FROM FOREIGN SUBSTANCES. AMERICAN STANDARD PIPE THREADS SHALL BE USED FOR IPS THREADED WORK. JOINTS IN THREADED PIPING SHALL BE MADE UP WITH TEFLON TAPE APPLIED TO THE MALE THREADED PIPE. JOINTS SHALL BE CAULKED OR PACKED WITH ROPE OR OTHER PACKING MATERIALS. PIPE SHALL BE FREE FROM TOOL MARKS, THREADS CUT ACCURATELY WITH NOT MORE THAN TWO (2) THREADS SHOWING BEYOND FITTING. FRICTION WRENCHES SHALL NOT BE USED WITH PLATED, POLISHED, OR SOFT METAL PIPING. ALL CHANGES IN PIPE SIZE SHALL BE MADE WITH REDUCING FITTING. BUSHINGS WILL NOT BE PERMITTED.
- E. NO WATER OR DRAINAGE PIPING SHALL PASS OVER ELECTRICAL EQUIPMENT UNLESS ADEQUATE PROTECTION IS PROVIDED TO PREVENT DAMAGE BY LEAKS OR CONDENSATION.
- F. ALL COPPER TUBING SHALL BE FORMED IN A WORKMANLIKE MANNER, IN ACCORDANCE WITH THE PIPE AND TUBE BENDING HANDBOOK OF THE COPPER AND BRASS RESEARCH ASSOCIATION. A TUBE BENDER GIVING SUPPORT TO THE PERIPHERY OF THE TUBE SHALL BE USED. THE TUBING SHALL BE PROTECTED AGAINST FLATTING OR OTHER INJURY.
- G. ALL COPPER CONNECTIONS AND JOINTS SHALL BE MADE IN ACCORDANCE WITH THE COPPER TUBE HANDBOOK, COPPER AND BRASS RESEARCH ASSOCIATION. NO SWAGED CONNECTIONS WILL BE PERMITTED. ALL VALVES, PUMPS, AND SIMILAR EQUIPMENT SHALL BE CONNECTED TO COPPER PIPING THROUGH UNION OR FLANGE ADAPTER FITTINGS.
- H. SHUT OFF VALVES SHALL BE PROVIDED IN ALL MAIN SERVICES, AND WHERE REQUIRED TO PERMIT PROPER SERVICING OF EQUIPMENT. VALVES OF ONE TYPE SHALL BE OF ONE MANUFACTURER.
- I. ALL VALVES SHALL BE OF THE SAME SIZE AS THE PIPELINES IN WHICH THEY ARE INSTALLED, UNLESS SPECIFICALLY SIZED ON THE DRAWINGS. ALL HAND CONTROLLED LINE VALVES SHALL BE BALL VALVES, EXCEPT WHERE THROTTLING CONTROL OR FREQUENT OPERATION IS REQUIRED, IN WHICH CASE GLOBE OR ANGLE VALVES SHALL BE USED. GLOBE VALVES IN HORIZONTAL LINES SHALL BE INSTALLED WITH STEM IN HORIZONTAL TO PERMIT LINE DRAINING. ALL GLOBE AND ANGLE VALVES SHALL BE INSTALLED TO CLOSE AGAINST PRESSURE. DISC VALVES SHALL HAVE DISCS SUITABLE FOR THE SERVICES FOR WHICH THEY ARE TO BE USED.
- J. PROVIDE PRIME COATED ESCUTCHEON PLATES AT ALL POINTS WHERE EXPOSED PING PENETRATES FINISHED WALL CEILINGS OR FLOORS.
- 3.5 INSTALLATION, PIPING
- A. CONDENSATE PIPING INDIRECT WASTE PIPING SHALL BE INSTALLED TO A UNIFORM MINIMUM GRADE OF 1/4" PER FOOT UNLESS OTHERWISE NOTED. CHANGES IN DIRECTION OF INDIRECT WASTE PIPING SHALL BE ACCOMPLISHED BY THE USE OF APPROPRIATE DRAINAGE FITTINGS.
- B. FLASHING: ALL ROOF AND WALL PENETRATIONS SHALL BE FLASHED AND COUNTERFLASHED WATER TIGHT WITH 26 GAUGE SHEET METAL, EXCEPT AS NOTED. VENTS THROUGH ROOF SHALL BE FLASHED WITH SEMCO #1104 LEAD FLASHING ASSEMBLIES. FLASHING SHALL EXTEND OVER TOP OF PIPE AND SHALL BE TURNED DOWN INSIDE TOP OF PIPE.

3.6 TESTING, INSPECTIONS

A. GENERAL

1. THIS CONTRACTOR SHALL NOT ALLOW OR CAUSE ANY WORK OF THIS SECTION TO BE COVERED OR ENCLOSED UNTIL IT HAS BEEN INSPECTED, TESTED, AND APPROVED BY THE ARCHITECT AND THE AUTHORITIES HAVING JURISDICTIONS OVER THE WORK. SHOULD ANY OF THIS WORK BY ENCLOSED OR COVERED UP BEFORE SUCH INSPECTION, TESTING, AND APPROVAL, THIS CONTRACTOR SHALL UNCOVER THE WORK, HAVE THE NECESSARY INSPECTIONS, TESTS, AND APPROVALS MADE AND, AT NO EXPENSE TO THE OWNER, MAKE ALL REPAIRS NECESSARY TO RESTORE BOTH HIS WORK AND THAT OF OTHER CONTRACTORS THAT MAY HAVE BEEN DAMAGED, TO BE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.

B. TESTS

1. THIS CONTRACTOR SHALL MAKE ALL TESTS REQUIRED BY ALL LOCAL, STATE, AND FEDERAL LAWS, CODES, ORDINANCES, AND REGULATIONS HAVING JURISDICTION OVER THIS WORK.
2. FURNISH ALL NECESSARY LABOR, MATERIALS, AND EQUIPMENT FOR CONDUCTING TESTS, AND PAY ALL EXPENSES IN CONNECTION THEREWITH. SHOULD LEAKS DEVELOP WHILE TESTING, REPAIRS SHALL BE MADE, AND TESTS SHALL BE REPEATED UNTIL A SATISFACTORY TEST IS OBTAINED.
3. DRAINAGE AND VENT PIPING SHALL BE TESTED FOR 1 HOUR BY PLUGGING ALL OUTLETS AND FILLING THE PIPES WITH WATER TO THE TOP OF VERTICAL SECTIONS OF PIPES. NO LOSS OF WATER SHALL BE PERMITTED.

END OF SECTION



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PLUMBING SPECIFICATIONS

ISSUED FOR:

CONSTRUCTION DOCUMENTS

DATE: 3/30/2025
DRAWN BY: GK
REVIEWED BY: BA
SCALE:
PROJECT NO: 24049

M104

KEYED NOTES:

- ① REMOVE AIR TERMINALS. CLEAN, AND PREPARE FOR INSTALLATION IN NEW LOCATION. SEE 1/M210 FOR NEW LOCATION.



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SHEET TITLE

MECHANICAL DEMOLITION PLAN

ISSUED FOR:

CONSTRUCTION DOCUMENTS

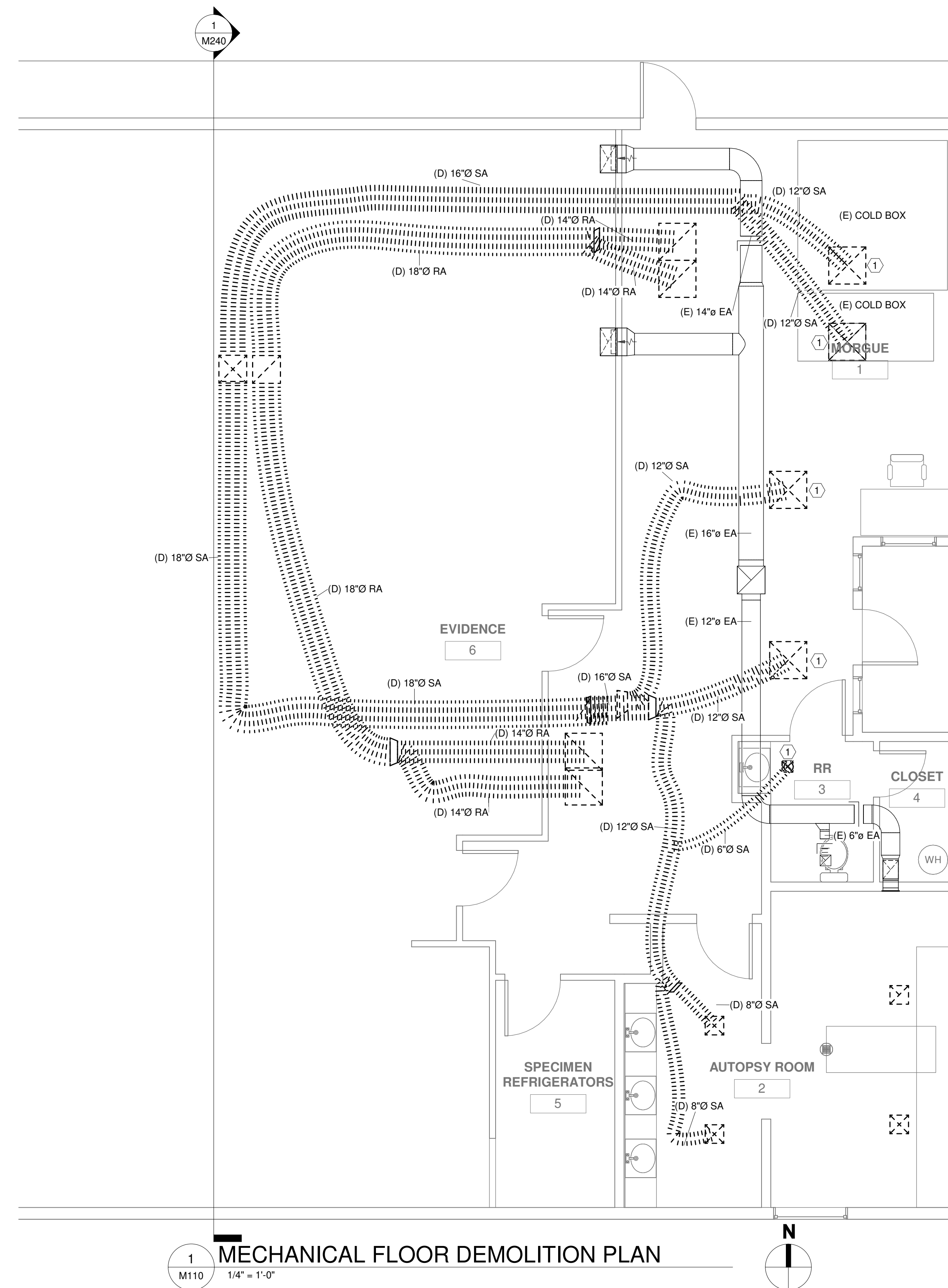
DATE: 3/30/2025

DRAWN BY: GK

REVIEWED BY: BA

SCALE: 1/4" = 1'-0"

PROJECT NO: 24049



MECHANICAL FLOOR DEMOLITION PLAN

1 M110 1/4" = 1'-0"

M110

KEYED NOTES:

- ① REMOVE EXISTING RTU. REMOVE EXISTING CURB ADAPTER.
- ② REMOVE EXISTING EXHAUST FAN. CAP EXISTING CURB WITH GSM CAP. SEAL WATERTIGHTS.



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MECHANICAL ROOF DEMOLITION PLAN

ISSUED FOR:

CONSTRUCTION DOCUMENTS

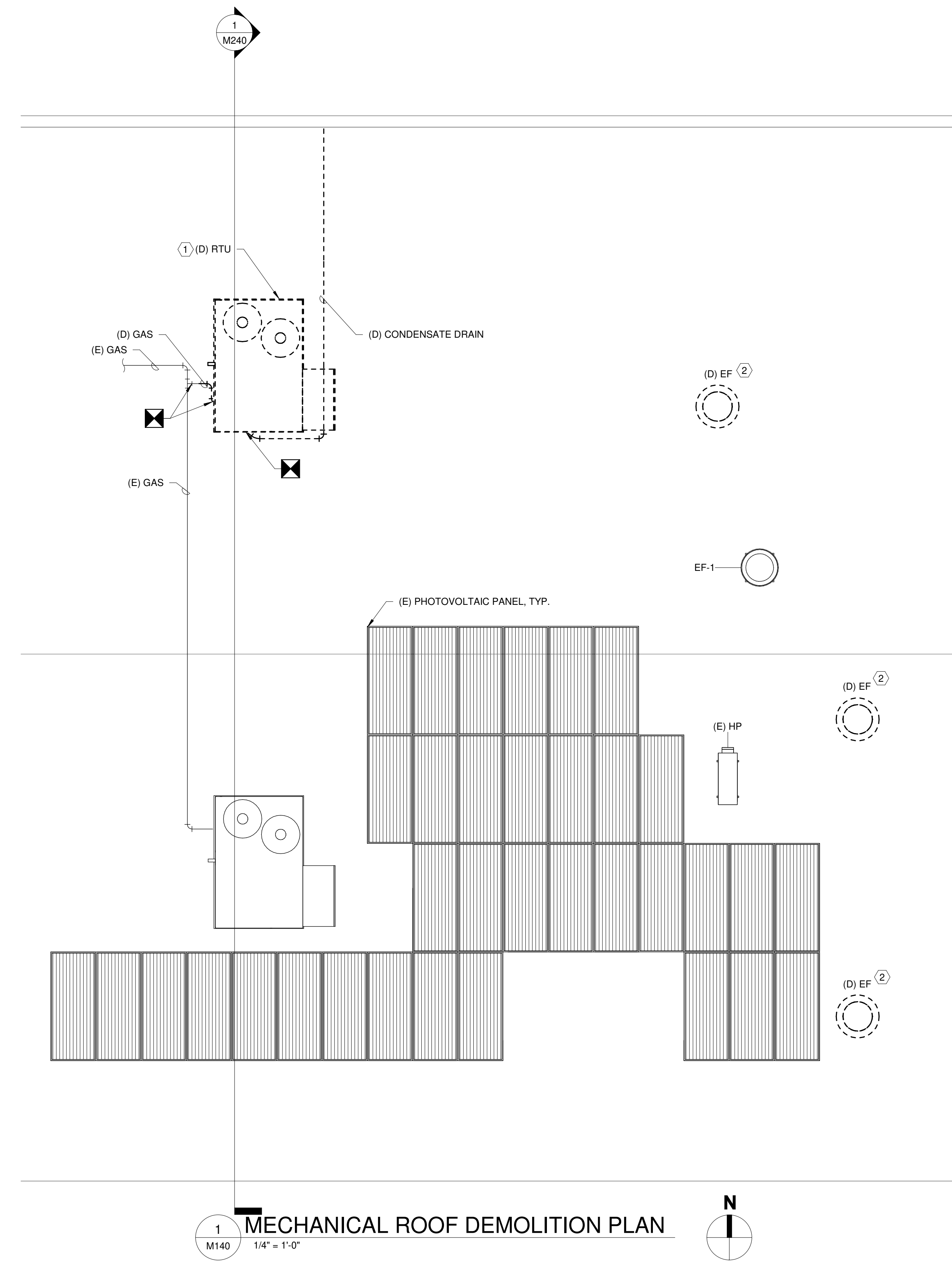
DATE: 3/30/2025

DRAWN BY: GK

REVIEWED BY: BA

SCALE: 1/4" = 1'-0"

PROJECT NO: 24049



MECHANICAL ROOF DEMOLITION PLAN

1 M140 1/4" = 1'-0"

M140

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TEHAMA COUNTY

22840 Antelope Blvd
Red Bluff, CA 96080

NO. REVISIONS DATE

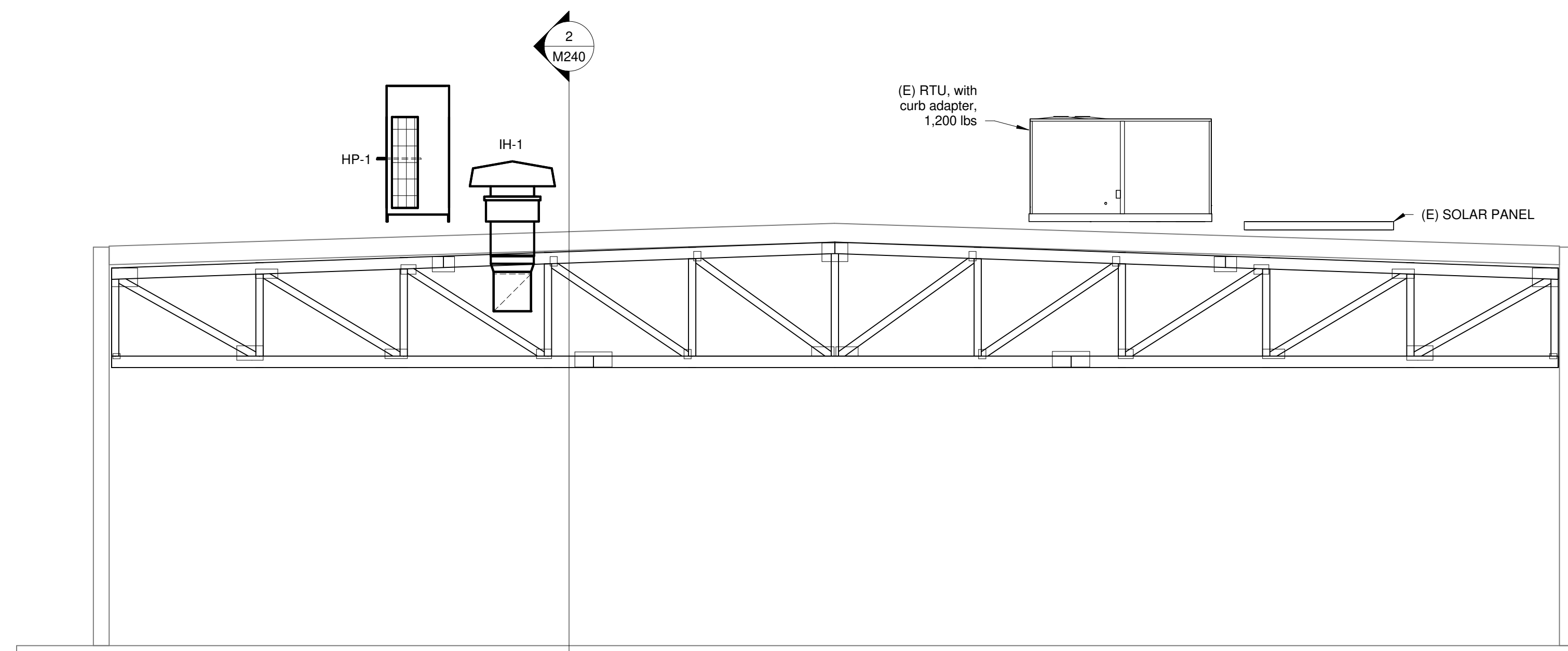
SHEET TITLE

MECHANICAL ROOF PLAN

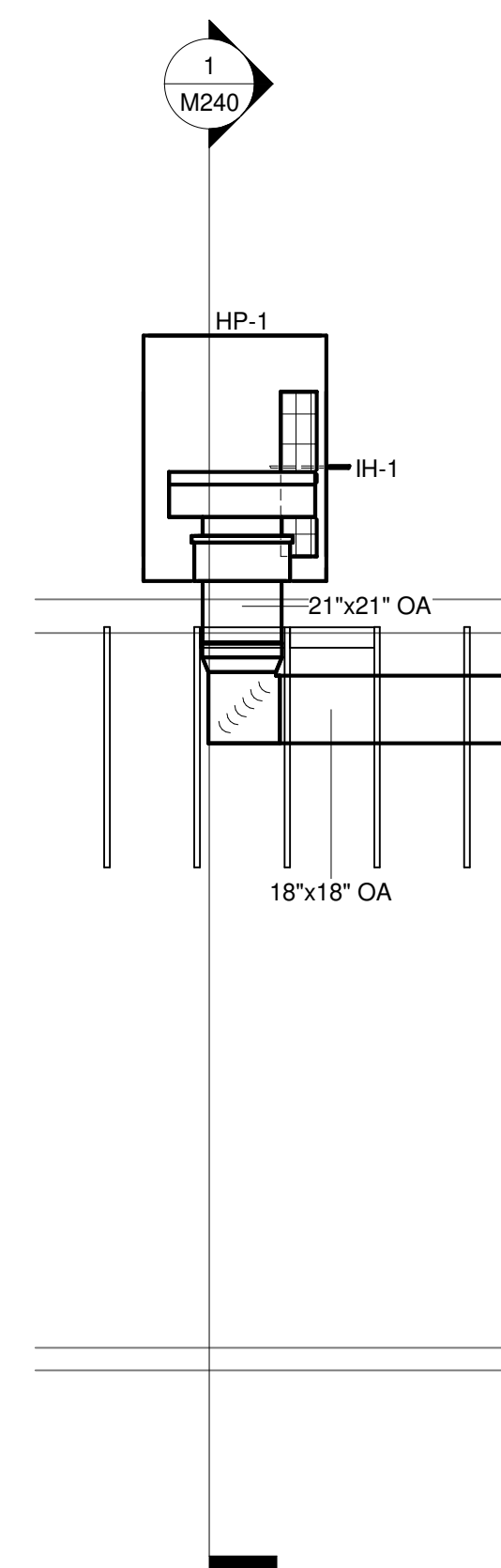
ISSUED FOR:
CONSTRUCTION DOCUMENTS

DATE: 3/30/2025
DRAWN BY: GK
REVIEWED BY: BA
SCALE: 1/4" = 1'-0"
PROJECT NO: 24049

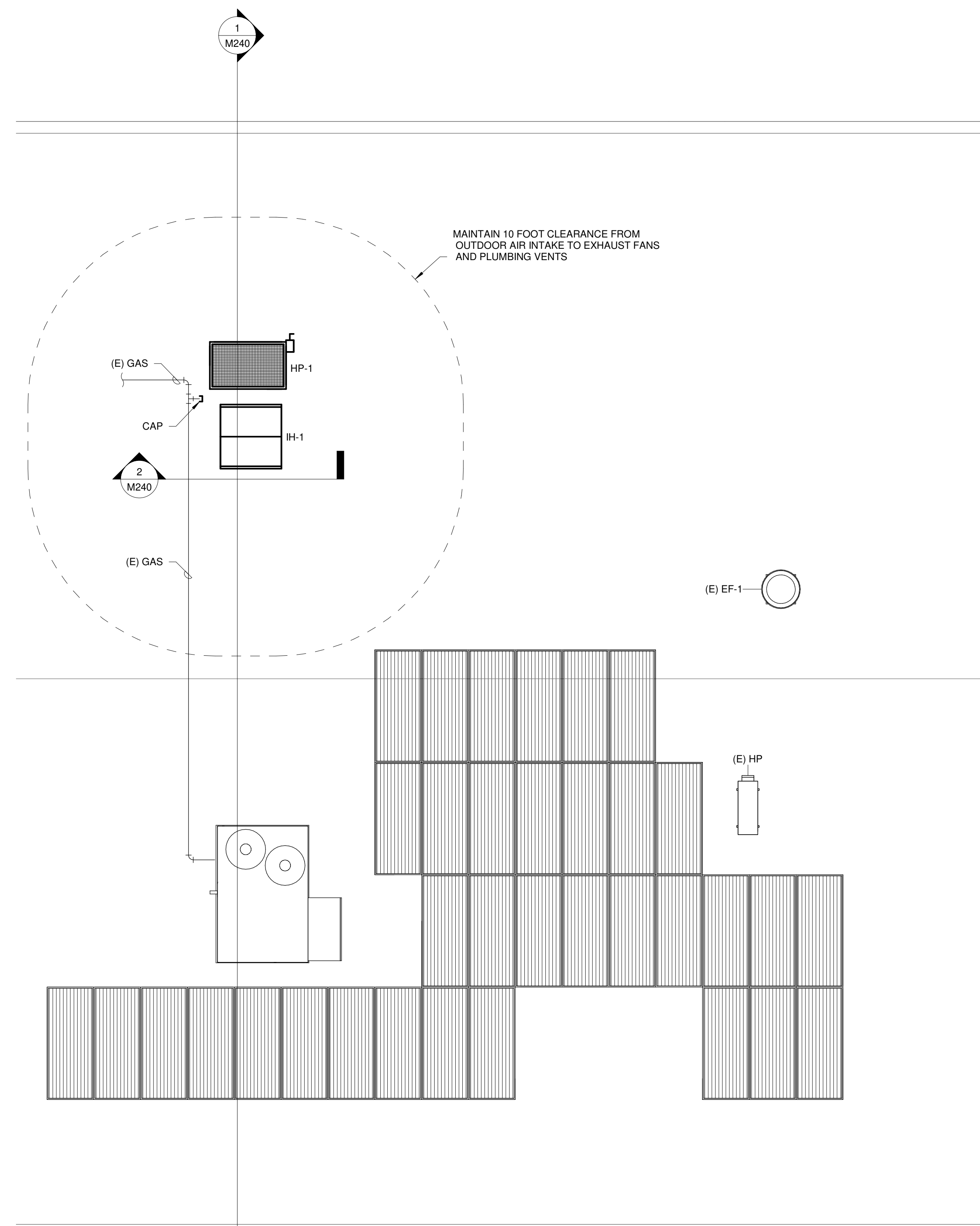
M240



1 MECHANICAL SECTION - EAST
M240 NOT TO SCALE

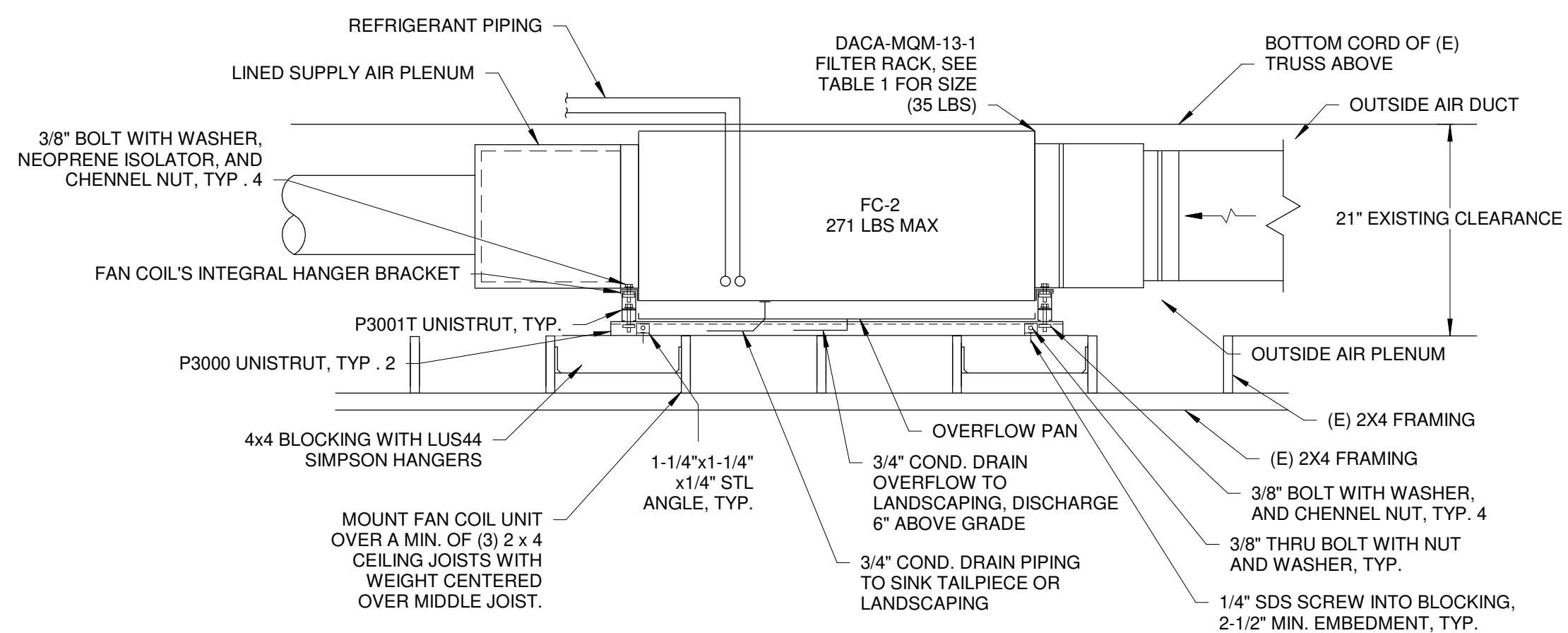


2 MECHANICAL SECTION - NORTH
M240 1/4" = 1'-0"



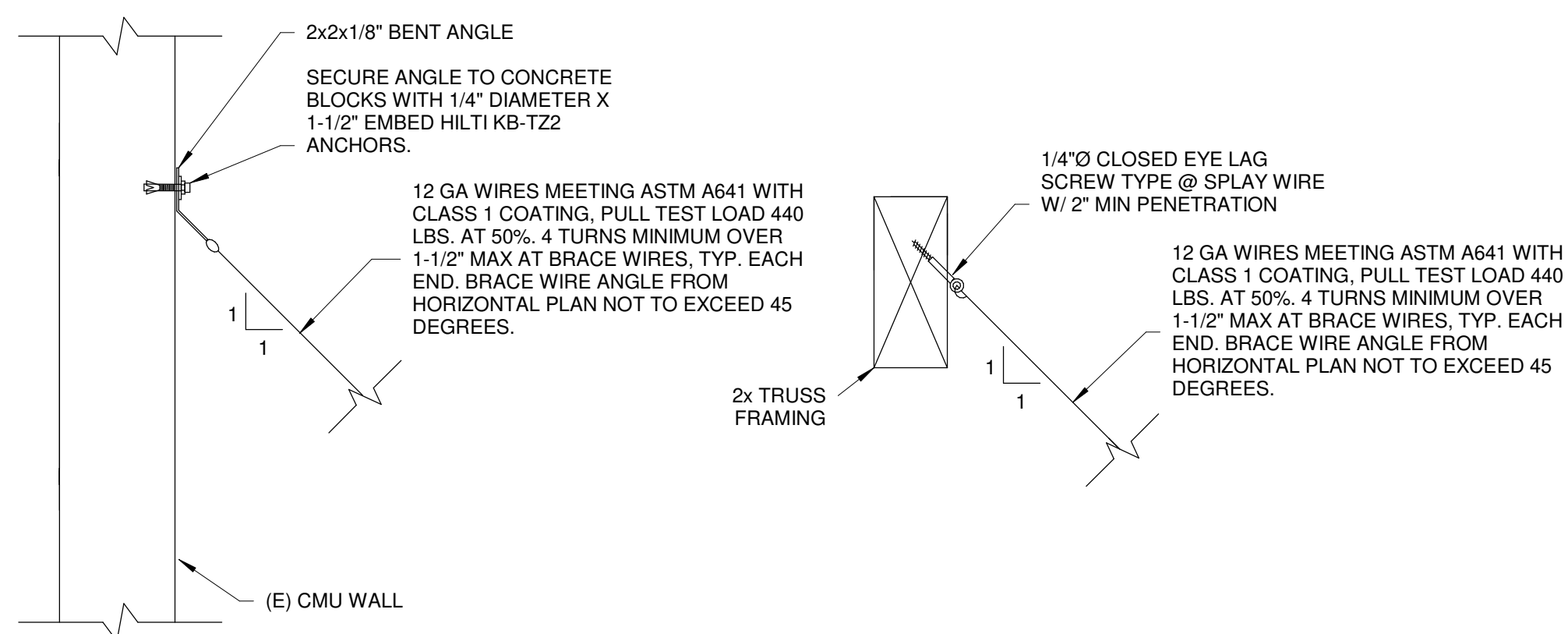
3 MECHANICAL ROOF PLAN
M240 1/4" = 1'-0"

TABLE 1				
AIRFLOW (MAX)	FILTER EFFICIENCY	FILTER SIZE	FILTER DEPTH	INITIAL P.D. (INCHES W.G.)
800	MERV 13	18"X24"	4"	0.39
1400	MERV 13	(2) 18"X24"	4"	0.39

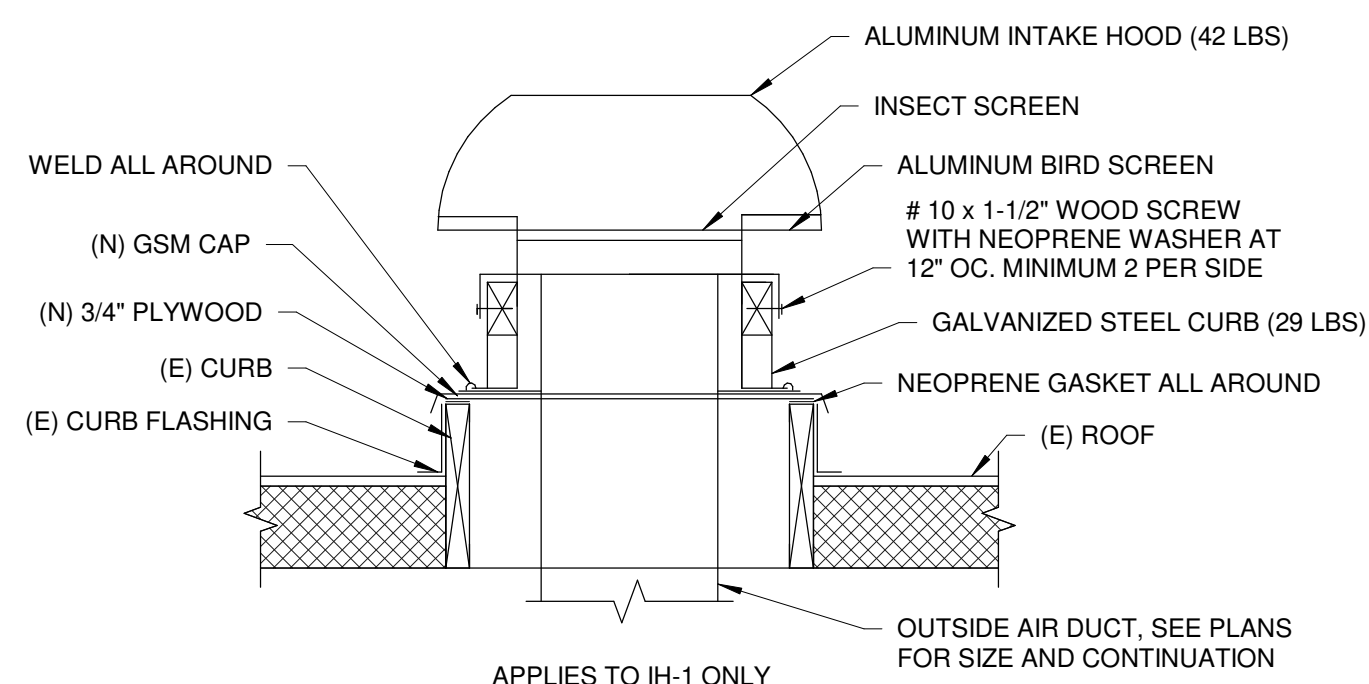


APPLIES TO FC-2 ONLY

2 FAN COIL DETAIL
M300 NOT TO SCALE



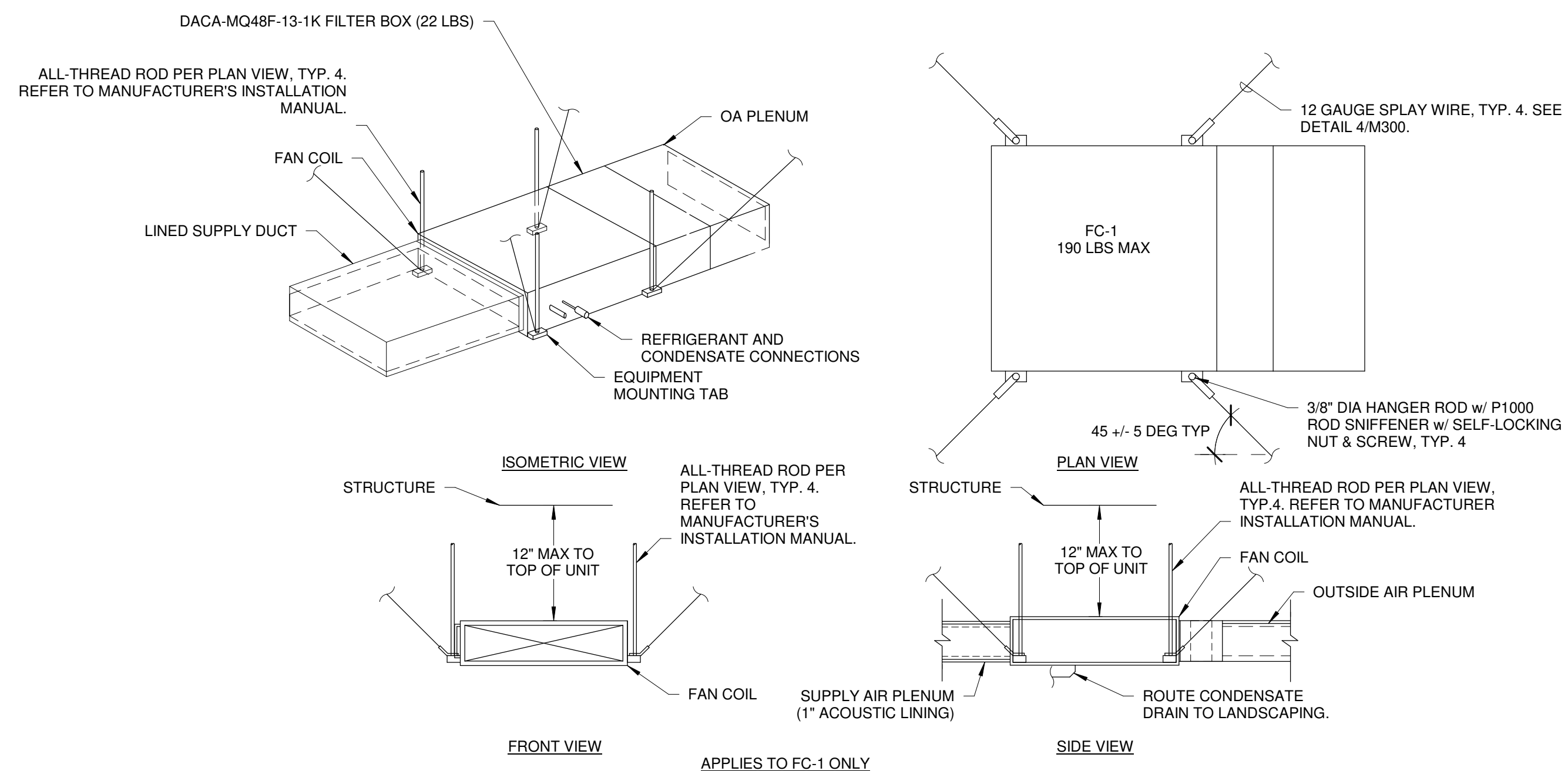
4 SPLAY BRACING ATTACHMENT DETAIL
M300 NOT TO SCALE



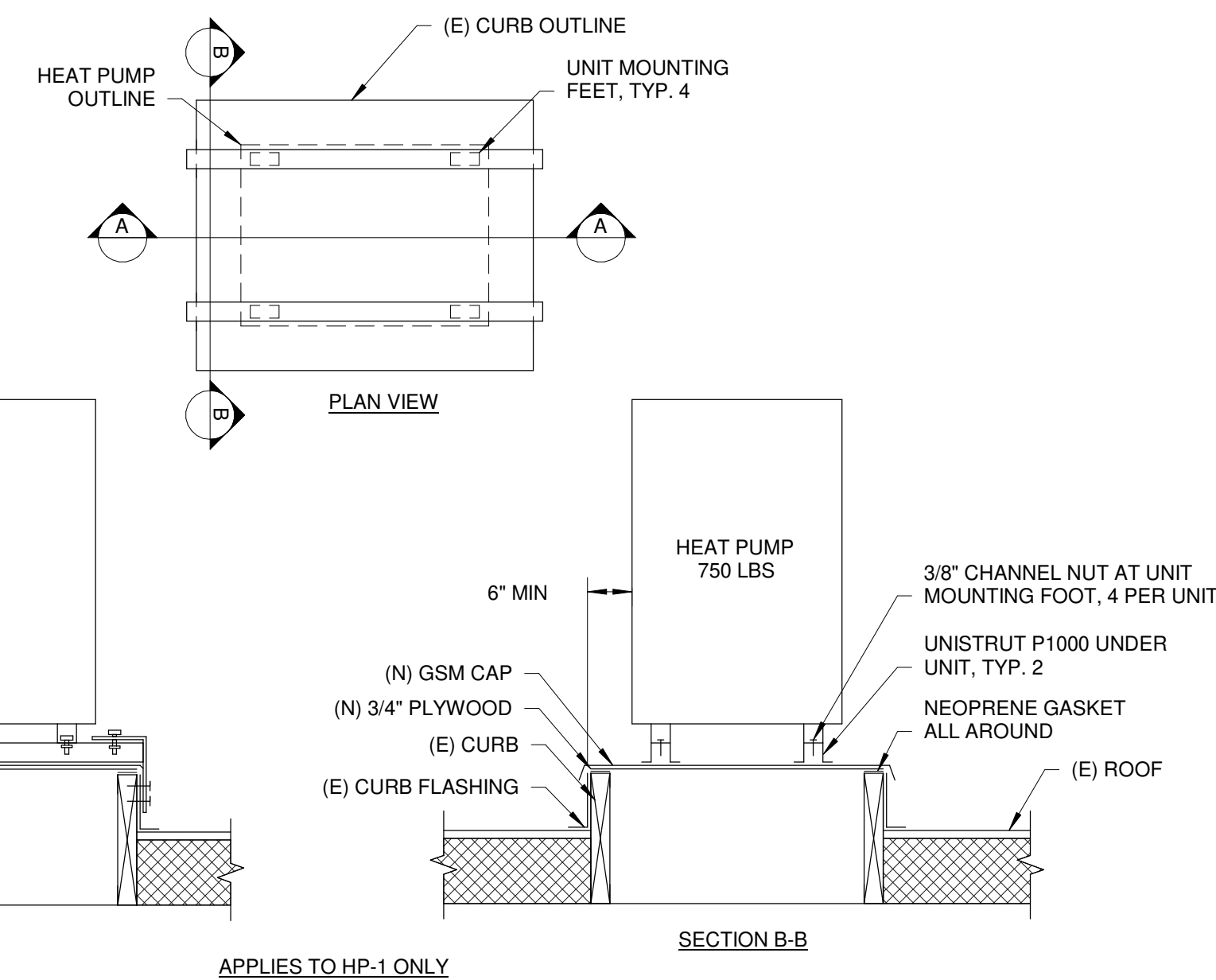
APPLIES TO IH-1 ONLY

NOTES:
1. CONTRACTOR SHALL VERIFY THE WATERPROOFING OF ROOF EQUIPMENT INSTALLATIONS TO ENSURE THAT NO LEAKS INTO THE BUILDING CAN OCCUR.

6 INTAKE HOOD DETAIL
M300 NOT TO SCALE



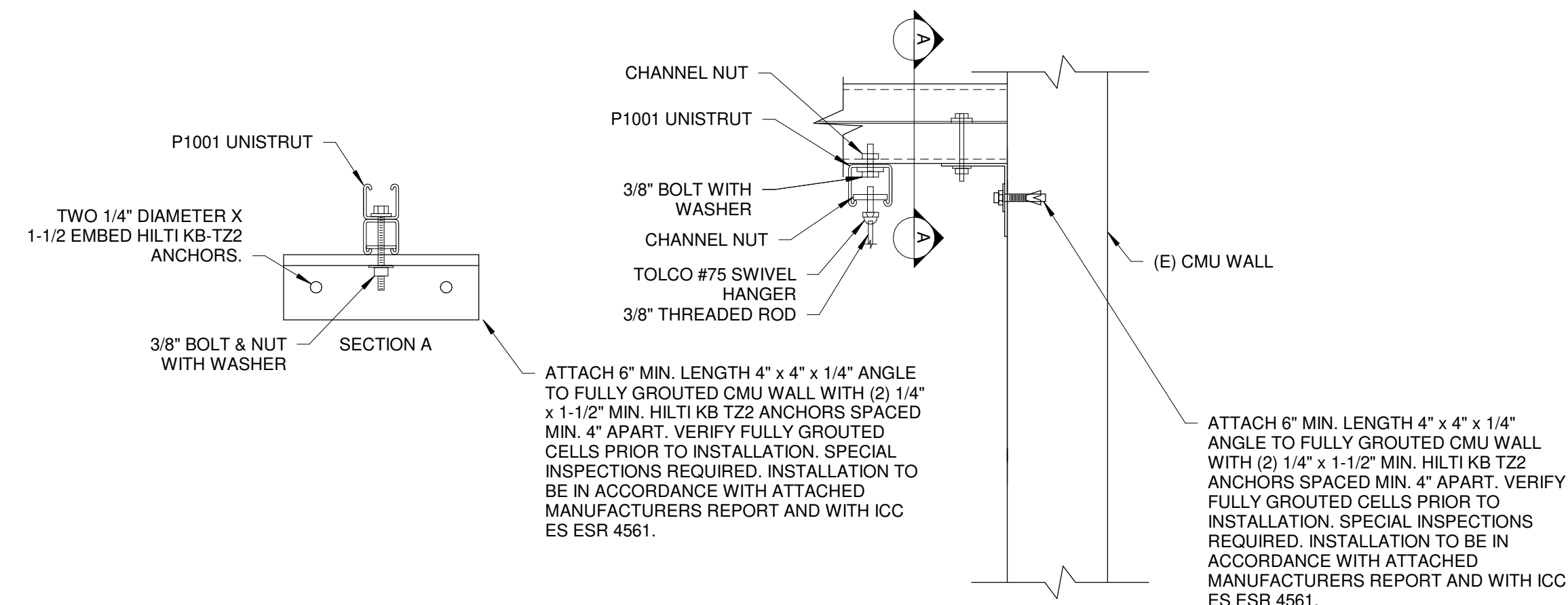
5 FAN COIL DETAILS
M300 NOT TO SCALE



APPLIES TO HP-1 ONLY

NOTES:
1. CONTRACTOR SHALL VERIFY THE WATERPROOFING OF ROOF EQUIPMENT INSTALLATIONS TO ENSURE THAT NO LEAKS INTO THE BUILDING CAN OCCUR.

1 ROOFTOP HEAT PUMP MOUNTING DETAIL
M300 NOT TO SCALE



3 FAN COIL HANGER ATTACHMENT DETAIL
M300 NOT TO SCALE

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LICENSE STAMP



CONSULTANTS

PROJECT NAME

MORGUE HVAC UPGRADES

FOR

TEHAMA COUNTY

22840 Antelope Blvd
Red Bluff, CA 96080

NO. REVISIONS DATE

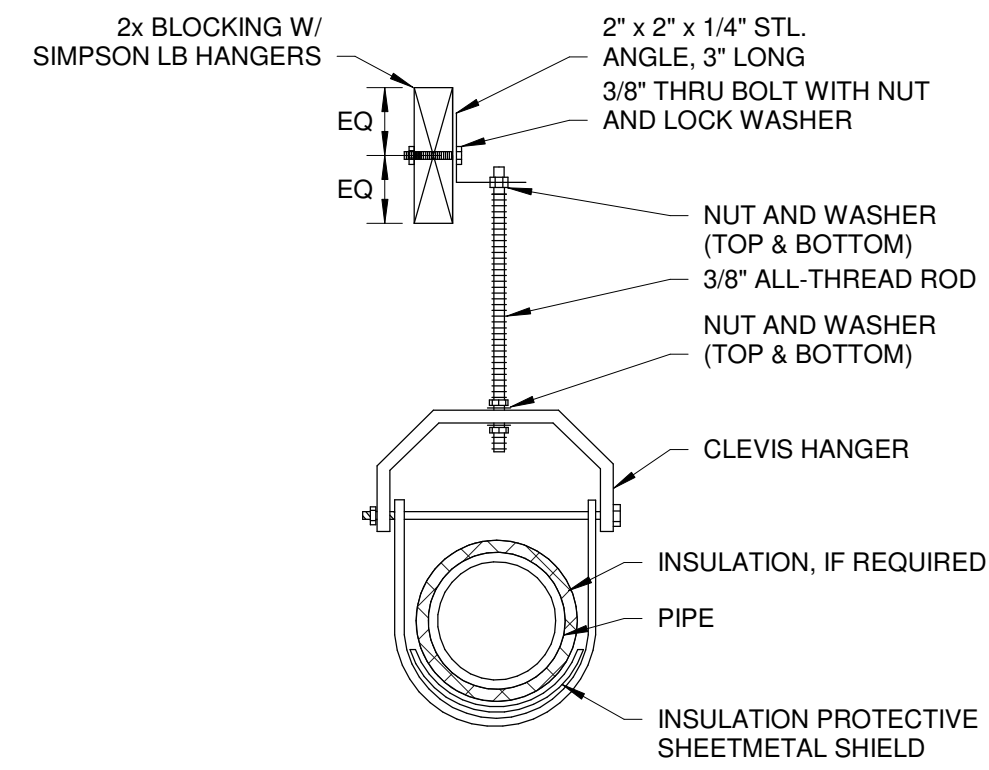
SHEET TITLE

MECHANICAL DETAILS

ISSUED FOR:
CONSTRUCTION DOCUMENTS

DATE: 3/30/2025
DRAWN BY: GK
REVIEWED BY: BA
SCALE: 1/8" = 1'-0"
PROJECT NO: 24049

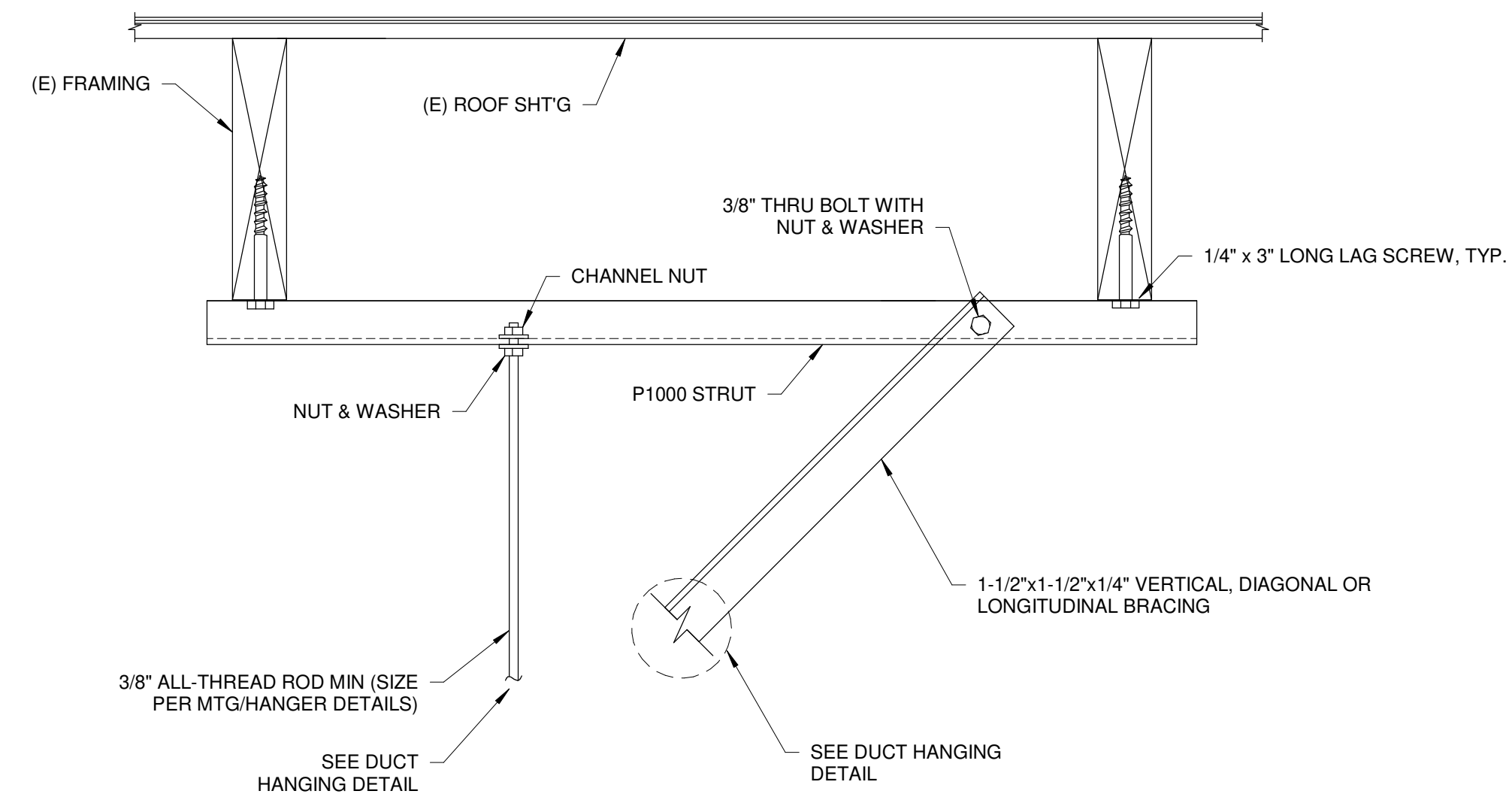
M300



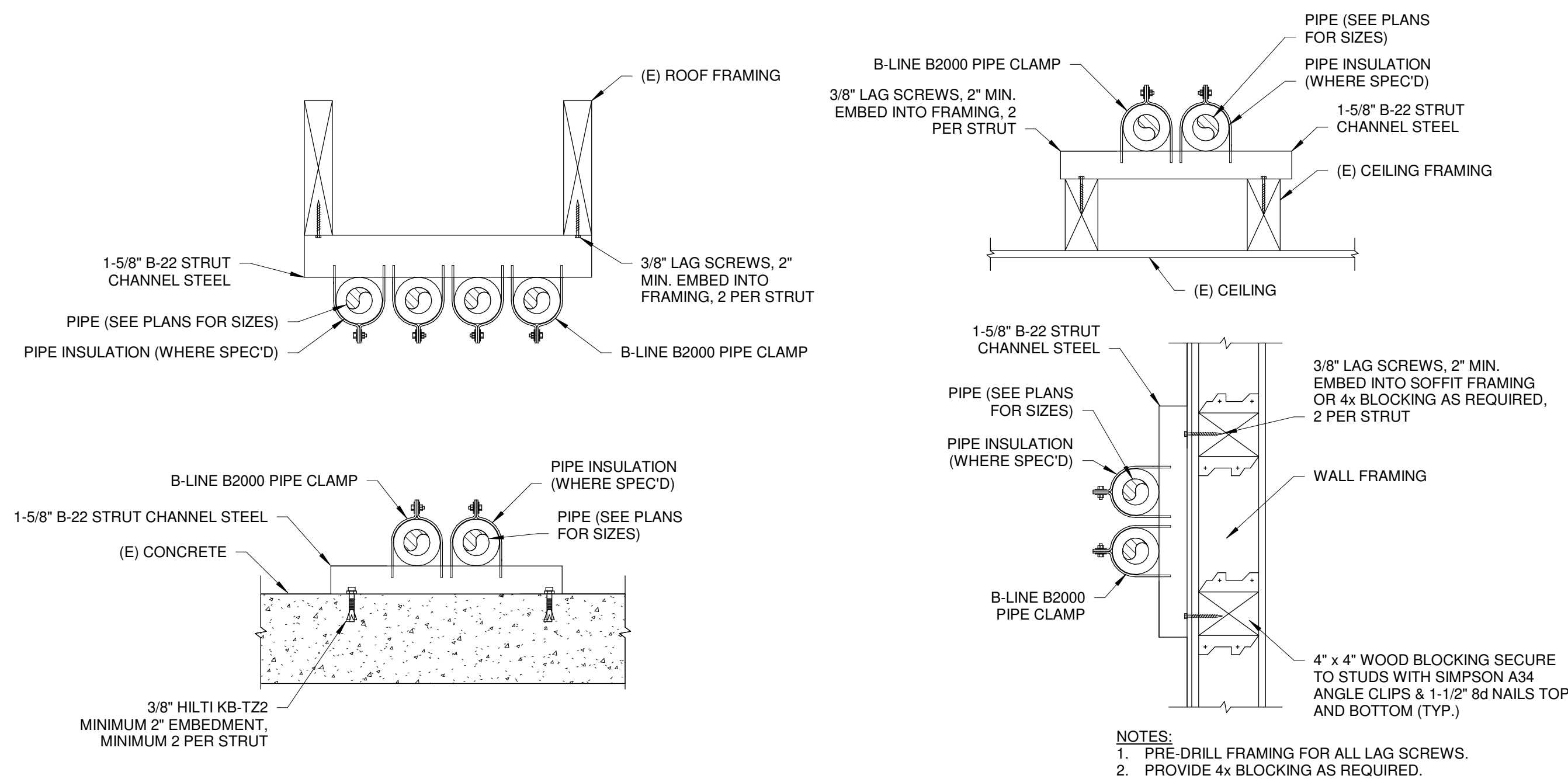
NOTE:
SUSPENDED PIPING SHALL BE SUPPORTED AT
INTERVALS NOT TO EXCEED THOSE SHOWN IN
TABLE 313.3 (CPC SECTION 313).

HANGERS AND SUPPORTS		
MATERIAL	HORIZONTAL	VERTICAL
COPPER & COPPER ALLOYS	1-1/2 INCHES AND SMALLER, 6 FEET; 2 INCHES AND LARGER, 10 FEET	EACH FLOOR, NOT TO EXCEED 10 FEET
SCHEDULE 40 PVC AND ABS DWV	ALL SIZES, 4 FEET; ALLOW FOR EXPANSION EVERY 30 FEET	BASE AND EACH FLOOR; PROVIDE MID-STORY GUIDES; PROVIDE FOR EXPANSION EVERY 30 FEET

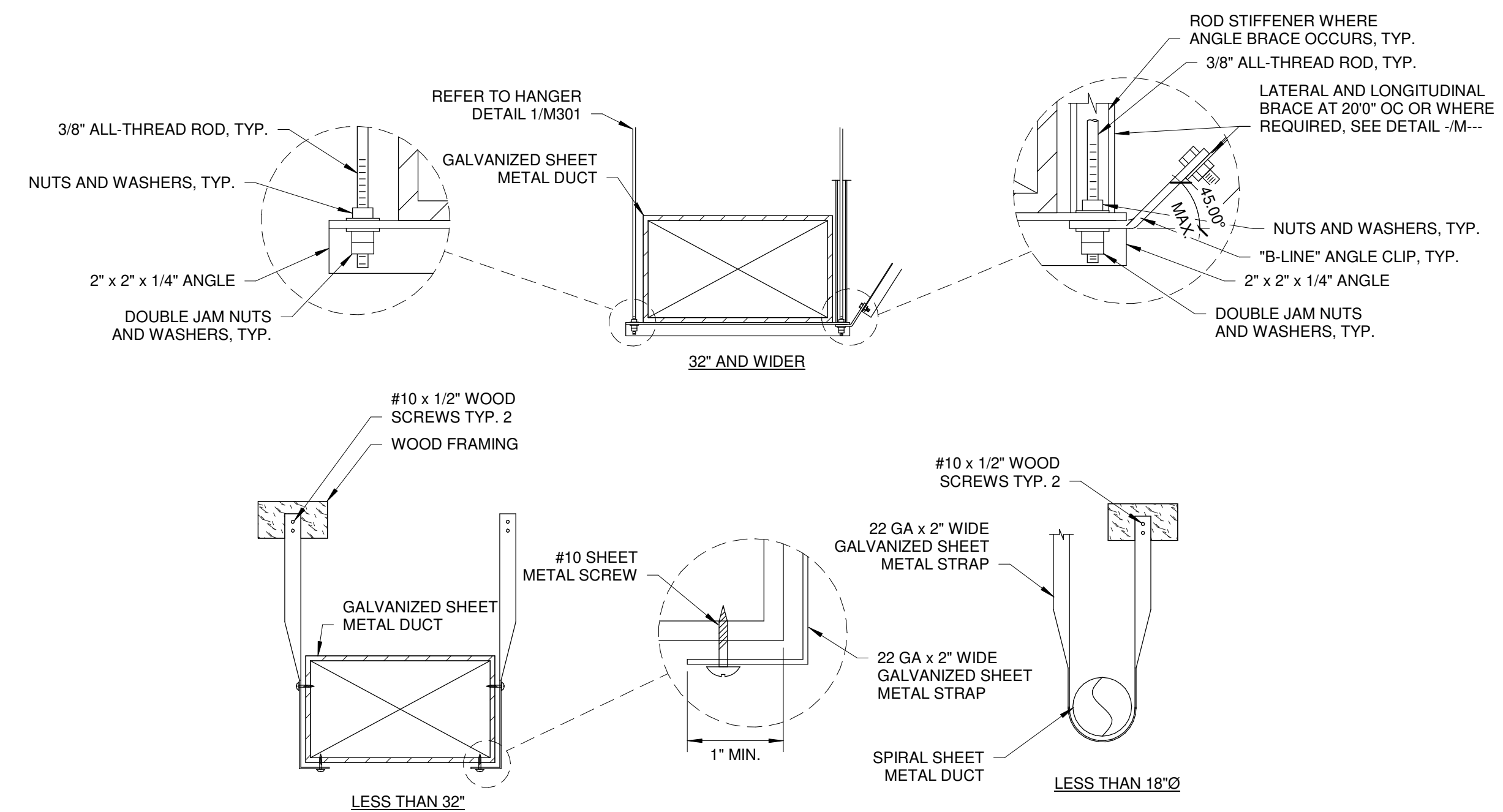
2 PIPE HANGING DETAIL
M301 NOT TO SCALE



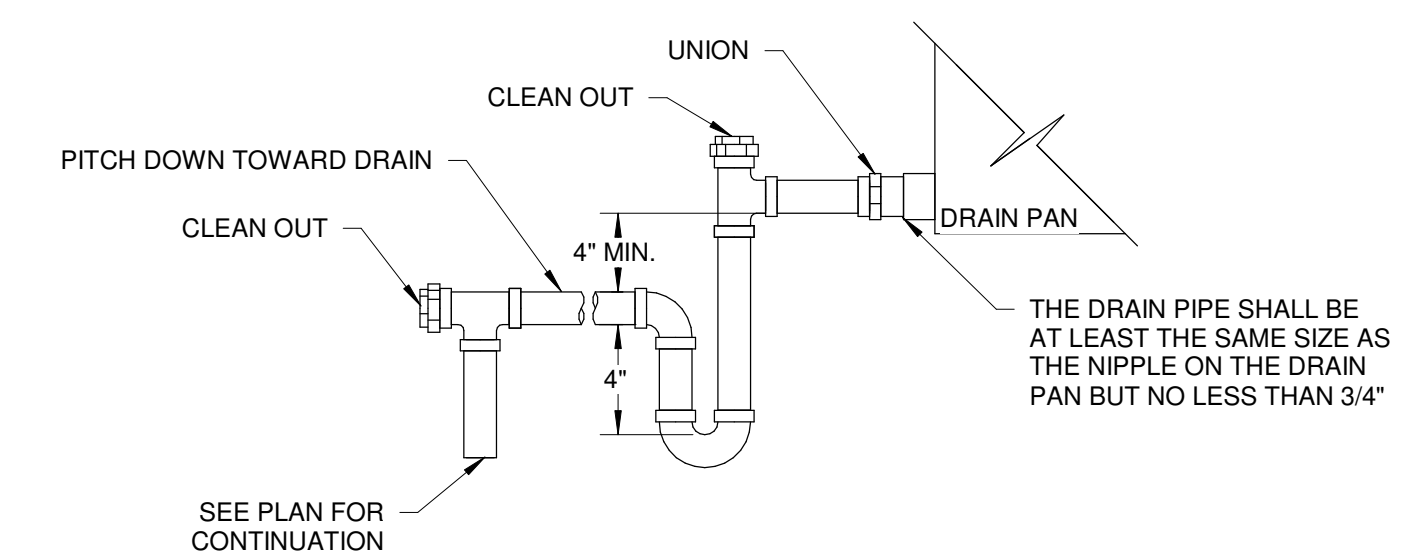
1 TYPICAL HANGER CONNECTION DETAILS
M301 NOT TO SCALE



4 PIPE SUPPORT DETAILS
M301 NOT TO SCALE



3 DUCT HANGING DETAILS
M301 1/8" = 1'-0"



5 HVAC CONDENSATE DRAIN DETAIL
M301 NOT TO SCALE

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THAN FOR THE PROJECT AND LOCATION SHOWN IS
PROHIBITED.

LICENSE STAMP



CONSULTANTS

PROJECT NAME

MORGUE HVAC
UPGRADES

FOR

TEHAMA COUNTY

22840 Antelope Blvd
Red Bluff, CA 96080

NO. REVISIONS DATE

SHEET TITLE

MECHANICAL DETAILS

ISSUED FOR:
CONSTRUCTION
DOCUMENTS

DATE: 3/30/2025
DRAWN BY: GK
REVIEWED BY: BA
SCALE: 1/8" = 1'-0"
PROJECT NO: 24049

M301

STATE OF CALIFORNIA Mechanical Systems		CALIFORNIA ENERGY COMMISSION	
CERTIFICATE OF COMPLIANCE		NRCC-MCH-4	
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H. FAN SYSTEMS & AIR ECONOMIZERS

This table is used to demonstrate compliance with prescriptive requirements found in 140.4(i), 140.4(j), 140.4(m), 170.2(i)(3), and 170.2(i)(4) for fan systems. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table H.

System Name	HP-1	Quantity	1	Fan System Status	New	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	1,900	Site Elevation	342	Economizer	Differential Temperature	
01	02	03	04	05	06	07	08	09	10	11	Design					
Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w/g)	Component Allowance	Fan Allowance (watt/cfm)	Design Electrical Input Power (kW)	Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)					
SF	Supply	1	Base Allowance for system serving spaces <=4 floors away MERV 13-16 Filter upstream of thermal conditioning equipment Hydramon cooling coil or heat pump coil 100% outdoor air system	100		441			Manufacturer provided		0.76					
Supply Fan Base Allowance (WV)				Exhaust/Return/Relief/Transfer Fan Base Allowance (WV)	Fan System Allowance (WV)	1.1	Fan System Electrical Output (kW)	0.76								

¹ FOOTNOTES: Fans serving spaces with design background noise goals below NC35
² Low-turnaround single-zone VAV fan system must be capable of and configured to reduce airflow to 50 percent of design airflow and use no more than 30 percent of the design wattage at that airflow. No more than 10 percent of the design load served by the equipment shall have fixed loads.
³ Fan system allowance includes fan system base allowance.
⁴ Filter pressure loss can only be counted once per fan system.
⁵ Complex fan system means a fan system that combines a single cabinet fan system with other supply fans, exhaust fans, or both.
⁶ Computer room economizers must meet requirements of 140.9(a) and will be documented on the NRCC-PRCC document.

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L. DISTRIBUTION (DUCTWORK AND PIPING)

01	02	03	04	05	06	07	08	09	10	11
Fan System Name	Qty	Hours of Operation per Year	Design Supply Airflow Rate	Outdoor Airflow	% Outdoor Air at Full Design Airflow	Exemptions to Exhaust Air Heat Recovery Requirement per 140.4(i) & 170.2(i)(4)	Exhaust Air Heat Recovery 140.4(i) & 170.2(i)(4)	Type Of Heat Recovery Rating	Required Recovery Ratio	Energy Recovery Bypass
Fan Energy Index (FEI) 01 Name or Item Tag 02 FEI Exception 03 Embedded Fan <5HP or <4.1kW										

M. COOLING TOWERS

This section does not apply to this project.

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F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Dry System Equipment Sizing (includes air conditioners, condensers, heat pumps, VRF, furnaces and unit heaters and DOAS systems)

01	02	03	04	05	06	07	08	09	10	11
Name or Item Tag	Equipment Category per Tables 110.2, 140.4(a)(2) and 170.2(i)(3a)	Equipment Type per Tables 110.2 and Title 20	Smallest Size Available ¹ 140.4(a) and 170.2(i)(1)	Per Design (kBtu/h)	Rated (kBtu/h)	Supp. Heating Output (kBtu/h)	Sensible Per Design (kBtu/h)	Rated (kBtu/h)	Total Heating Load (kBtu/h)	Total Sensible Cooling Load (kBtu/h)
HP-1	Unitary Heat Pumps	Air-cooled, split (3 phase)	Yes	52.57	89	0	121.9	85.22	141.7	52.34

¹ FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building per 140.4(a) and 170.2(i). Healthcare facilities are exempt.
² It is a common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.
³ If equipment is heating only, show cooling output and load blank. If equipment is cooling only, show heating output and load blank.
⁴ Authority Having Jurisdiction may ask for load calculations used for compliance per 140.4(b) and 170.2(i).

Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)

01	02	03	04	05	06	07	08	09
Name or Item Tag	Size Category (Btu/h)	Rating Condition (°F)	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency
HP-1	>=135,000 and <240,000		COP	3.2	3.4	EER	10.6	11.7

G. PUMPS

This section does not apply to this project.

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STATE OF CALIFORNIA Mechanical Systems		CALIFORNIA ENERGY COMMISSION	
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J. VENTILATION AND INDOOR AIR QUALITY

¹ For lecture halls with fixed seating, the expected number of occupants shall be determined in accordance with the California Building Code.
² 120.2(i)(3) requires systems serving rooms that are required by 130.1(i) to have lighting occupancy sensing controls to also have occupancy sensing zone controls for ventilation. Examples of spaces which require lighting occupancy sensors include offices 250sqf or smaller, multipurpose rooms less than 1,000 ft², classrooms, conference rooms, restrooms, aisles and open areas in warehouses, library book stack aisles, corridors, stairwells, parking garages, and loading and unloading zones, unless excepted by 130.1(i).

K. TERMINAL BOX CONTROLS

This section does not apply to this project.

L. DISTRIBUTION (DUCTWORK AND PIPING)

This table is used to show compliance with mandatory pipe insulation requirements found in 120.3 and mandatory requirements found in 120.4(i) for duct sealing.

01	02	03	04	05	06	07
System Name	HP-1	System Design CA CFM Airflow ¹	1900	System Design Transfer Air CFM	0	Air Filtration per 120.1(c)(4) & 160.2(i)(2) ²
MORGUE/AU TROPHY	All others	1172		175.8	0	NA: Not required per 120.1(c)(4) & 160.2(i)(2)
Duct Leakage Testing The answers to the questions below apply to the following duct systems: HP-1, NR/ Common Use: Duct leakage testing shall not exceed 6% per NA/ 5.3 required for these systems? No						

¹ Uniform Mechanical Code may have more stringent ventilation requirements; the most stringent code requirement takes precedence.
² See Standards Tables 120.1-A and 120.1-B.

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C. COMPLIANCE RESULTS

This table will indicate if the project data input into the compliance document is compliant with mechanical requirements. This table is not editable by the user. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D, or the table indicated as not compliant for guidance.

01	02	03	04	05	06	07	08	09
System Summary	AND	Pumps 140.4(a) 170.2(i)(4)	AND	Fans/Economizers 140.4(e) 140.4(f), 170.2(i)(2)	AND	System Controls 110.2, 120.2 140.4(f), 170.2(i)(3)	AND	Ventilation 120.1, 160.2 120.1, 160.2
110.1, 110.2, 140.4, 170.2(i)	AND	170.2(i)(4)	AND	140.4(e), 140.4(f), 170.2(i)(2)	AND	110.2, 120.2 140.4(f), 170.2(i)(3)	AND	120.1, 160.2
(See Table F)	(See Table G)	(See Table H)	(See Table I)	(See Table J)	(See Table K)	(See Table L)	(See Table M)	(See Table N)
Yes	AND	AND	Yes	AND	Yes	AND	Yes	AND
Mandatory Measures Compliance (See Table Q for Details) COMPLIES								

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Space Conditioning System Information

01	02	03	04	05	06
System Name	Quantity	System Serving	System Status	Space Type	Utilizing Recovered Heat
HP-1	1	Single zone	New/ Addition		<input type="checkbox"/>

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J. VENTILATION AND INDOOR AIR QUALITY

This table is used to demonstrate compliance with mandatory ventilation requirements in 120.1, 120.2(i)(3), 140.4(a) and 140.4(j) for all non-residential and hotel/motel and 120.2(i)(3) requires systems serving rooms that are required by 130.1(i) to have lighting occupancy sensing controls to also have occupancy sensing zone controls for ventilation. Examples of spaces which require lighting occupancy sensors include offices 250sqf or smaller, multipurpose rooms less than 1,000 ft², classrooms, conference rooms, restrooms, aisles and open areas in warehouses, library book stack aisles, corridors, stairwells, parking garages, and loading and unloading zones, unless excepted by 130.1(i).

Nonresidential and Hotel/ Motel Multifamily Common Use Ventilation Systems

01	02	03	04	05	06	07
System Name	HP-1	System Design CA CFM Airflow ¹	1900	System Design Transfer Air CFM	0	Air Filtration per 120.1(c)(4) & 160.2(i)(2) ²
MORGUE/AU TROPHY	All others	1172		175.8	0	NA: Not required per 120.1(c)(4) & 160.2(i)(2)
Duct Leakage Testing The answers to the questions below apply to the following duct systems: HP-1, NR/ Common Use: Duct leakage testing shall not exceed 6% per NA/ 5.3 required for these systems? No						

¹ FOOTNOTES: System CFM should include both mechanical and natural ventilation for the zone/system
² Air filtration requirements apply to the following three system types per 120.1(i)(1): space conditioning systems utilizing ducts to supply air to occupiable space; supply only ventilation systems providing outside air to occupiable space; supply side of balanced ventilation systems including heat recovery and energy recovery ventilation systems providing outside air to occupiable space.
³ Uniform Mechanical Code may have more stringent ventilation requirements; the most stringent code requirement takes precedence.
⁴ See Standards Tables 120.1-A and 120.1-B.

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Project Name: MORGUE HVAC UPGRADES	Report Page: (Page 10 of 10)	Date Prepared: 3/11/2025	

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: NATHANIEL WARFIELD
 Company: Frontier Consulting Engineering, Inc.
 Address: 2727 BECHELLI LANE
 City/State/Zip: REDDING CA 96002
 Phone: 530-232-6160

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury under the laws of the State of California:

- The information provided on this Certificate of Compliance is true and correct.
- I am eligible under Division 9 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
- The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
- The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
- I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: NATHANIEL WARFIELD
 Date Signed: 2025-03-11
 Address: 2727 BECHELLI LANE
 City/State/Zip: REDDING CA 96002
 Phone: 530-232-6160

Q. MANDATORY MEASURES DOCUMENTATION LOCATION

This table is used to indicate where mandatory measures are documented in the plan set or construction documentation.

01	02
Compliance with Mandatory Measures documented through MCH	Plan sheet or construction document location
Mandatory Measures Note Block	Yes M-Sheets

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A. GENERAL INFORMATION

This table is used to demonstrate compliance for mechanical systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, or 141.0(b)(2) for alterations.

01 Project Location (city)	RED BLUFF	04 Total Conditioned Floor Area	1172
02 Climate Zone	11	05 Total Unconditioned Floor Area	0
03 Occupancy Types Within Project:		06 # of Stories (Habitable Above Grade)	1

• All Other Occupancies

B. PROJECT SCOPE

This table includes mechanical systems or components that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, 170.2(b) or 141.0(b)(2) and 160.2(b)(2) for alterations.

01	02	03
Air System(s)	Wet System Components	Dry System Components
<input checked="" type="checkbox"/> Heating Air System	<input type="checkbox"/> Water Economizer	<input type="checkbox"/> Air Economizer
<input checked="" type="checkbox"/> Cooling Air System	<input type="checkbox"/> Pumps	<input type="checkbox"/> Electric Resistance Heat
<input type="checkbox"/> Mechanical Controls	<input type="checkbox"/> Fan Systems	<input type="checkbox"/> Fan Systems
<input checked="" type="checkbox"/> Mechanical Controls (existing to remain, altered or new)	<input type="checkbox"/> Cooling Towers	<input checked="" type="checkbox"/> Ductwork (existing to remain, altered or new)
<input type="checkbox"/> Chillers	<input type="checkbox"/> Boilers	<input type="checkbox"/> Ventilation
<input type="checkbox"/> Boilers	<input type="checkbox"/> Chillers	<input type="checkbox"/> Zonal Systems/ Terminal Boxes

H. EXHAUST AIR HEAT RECOVERY 140.4(i), 170.2(i)(4)

01	02	03	04	05	06	07	08	09	10	11
Fan System Name	Qty	Hours of Operation per Year	Design Supply Airflow Rate	Outdoor Airflow	% Outdoor Air at Full Design Airflow	Exemptions to Exhaust Air Heat Recovery Requirement per 140.4(i) & 170.2(i)(4)	Exhaust Air Heat Recovery 140.4(i) & 170.2(i)(4)	Type Of Heat Recovery Rating	Required Recovery Ratio	Energy Recovery Bypass
Fan Energy Index (FEI) 01 Name or Item Tag 02 FEI Exception 03 Embedded Fan <5HP or <4.1kW										

I. SYSTEM CONTROLS

This table is used to demonstrate compliance with mandatory controls in 110.2 and 120.2 and prescriptive controls in 140.4(i) and (j), 170.2(i)(4) 170.2(i)(4) or requirements in 141.0(b)(2), 180.2(b)(2) for altered space conditioning systems.

01	02	03	04	05	06	07	08	09
System Name	System Zoning	Conditioned Floor Area Being Served (ft ²)	Thermostats 110.2(b) & (c), 130.2(a) 160.3(a)(2)(A) or 141.0(b)(2) & 180.3(a)(2)	Shut-Off Controls 120.2(i)(2) & 160.3(a)(2)	Isolation Zone 120.2(i)(2) & 160.3(a)(2)	Demand Response 110.12, 120.2(b) & 170.2(i)(2)	Supply Air Temp. Reset 140.4(i) & 170.2(i)(4)	Window Inertlocks per 140.4(j) & 170.2(i)(4)
HP-1	Single zone	<= 25,000 ft ²	Setback	NA: 7 day per 120.2(i)(1)	NA: Single Zone	NA: Serves temp. sensitive process	NA: Alteration	NA: No operable windows

¹ FOOTNOTES: Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to have setback thermostats.

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CERTIFICATE OF COMPLIANCE		NRCC-MCH-4	
Project Name: MORGUE HVAC UPGRADES	Report Page: (Page 5 of 10)	Date Prepared: 3/11/2025	

N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCA/

Form/Title

O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

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ELECTRICAL LEGEND

SYMBOLS	
	CONDUIT EXPOSED
	CONDUIT CONCEALED OR BURIED
	1/2" C - 2# 12.1 #12G
	CAT 5e LIGHTING CABLE
	HOME RUN-DESTINATION SHOWN
	CONDUIT DOWN
	CONDUIT UP
	CONNECTION POINT
	WALL SWITCH, 46" TO COD AFF UNLESS OTHERWISE NOTED
	INDICATES THREE-POLE WALL SWITCH
	INDICATES WALL SWITCH WITH INTEGRAL DIMMER
	INDICATES WALL SWITCH WITH INTEGRAL OCCUPANCY SENSOR
	INDICATES MOTOR RATED SWITCH
	JUNCTION BOX
	20A SPECIFICATION GRADE RECEPTACLE, COORDINATE CONFIGURATION W/ SUPPLIED EQUIPMENT
	20A SPECIFICATION GRADE GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE
	20A SPECIFICATION GRADE QUADRUPLIX RECEPTACLE
	208/240V RECEPTACLE 18" COD UNLESS OTHERWISE NOTED ON PLANS
	NON-FUSED DISCONNECT
	FUSED SWITCH

ELECTRICAL ABBREVIATIONS

A	-AMMETER, AMPERE
AC	-ALTERNATING CURRENT
AFF	-ABOVE FINISHED FLOOR
AIC	-AMPS INTERRUPTING CAPACITY
ATS	-AUTOMATIC TRANSFER SWITCH
CEC	-CALIFORNIA ELECTRICAL CODE
C/COND	-CONDUIT
CKT	-CIRCUIT
COD	-CENTER OF DEVICE
CT	-CURRENT TRANSFORMER
(E)	-EXISTING
G	-GROUND
GFCI	-GROUND FAULT CIRCUIT INTERRUPT
J	-JUNCTION BOX
MSB	-MAIN SWITCH BOARD
NEC	-NATIONAL ELECTRIC CODE
NEMA	-NATIONAL ELECTRIC MANUFACTURER'S ASSOCIATION
N	-NEUTRAL
(N)	-NEW
PNL	-PANELBOARD
RECEPT	-RECEPTACLE
(R)	-RELOCATE
SWBD	-SWITCHBOARD
TYP	-TYPICAL
V	-VOLTMETER, VOLT
W	-WATT
WP	-WEATHERPROOF (NEMA 3R)
XFMR	-TRANSFORMER

(N) BRANCH PANEL J

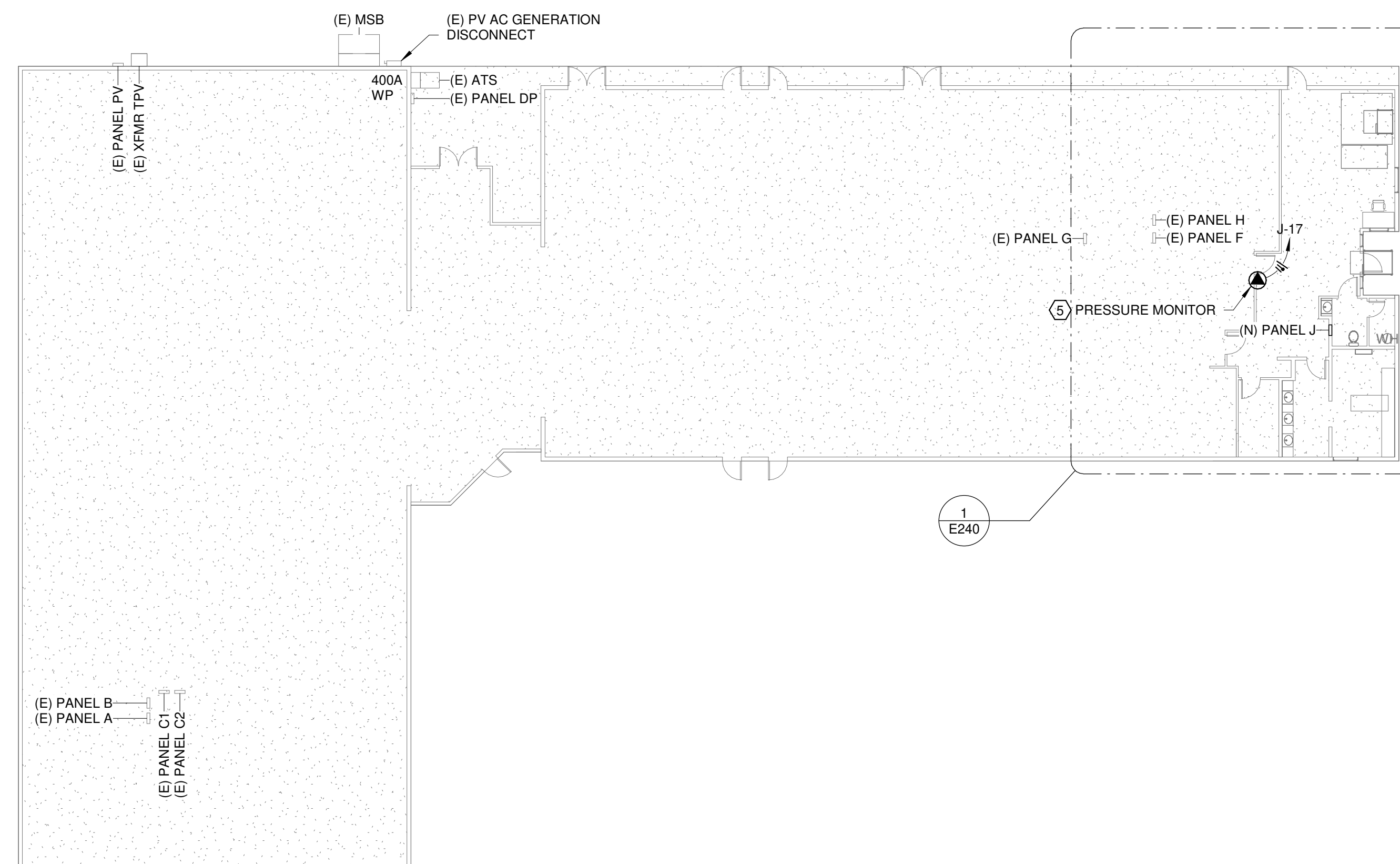
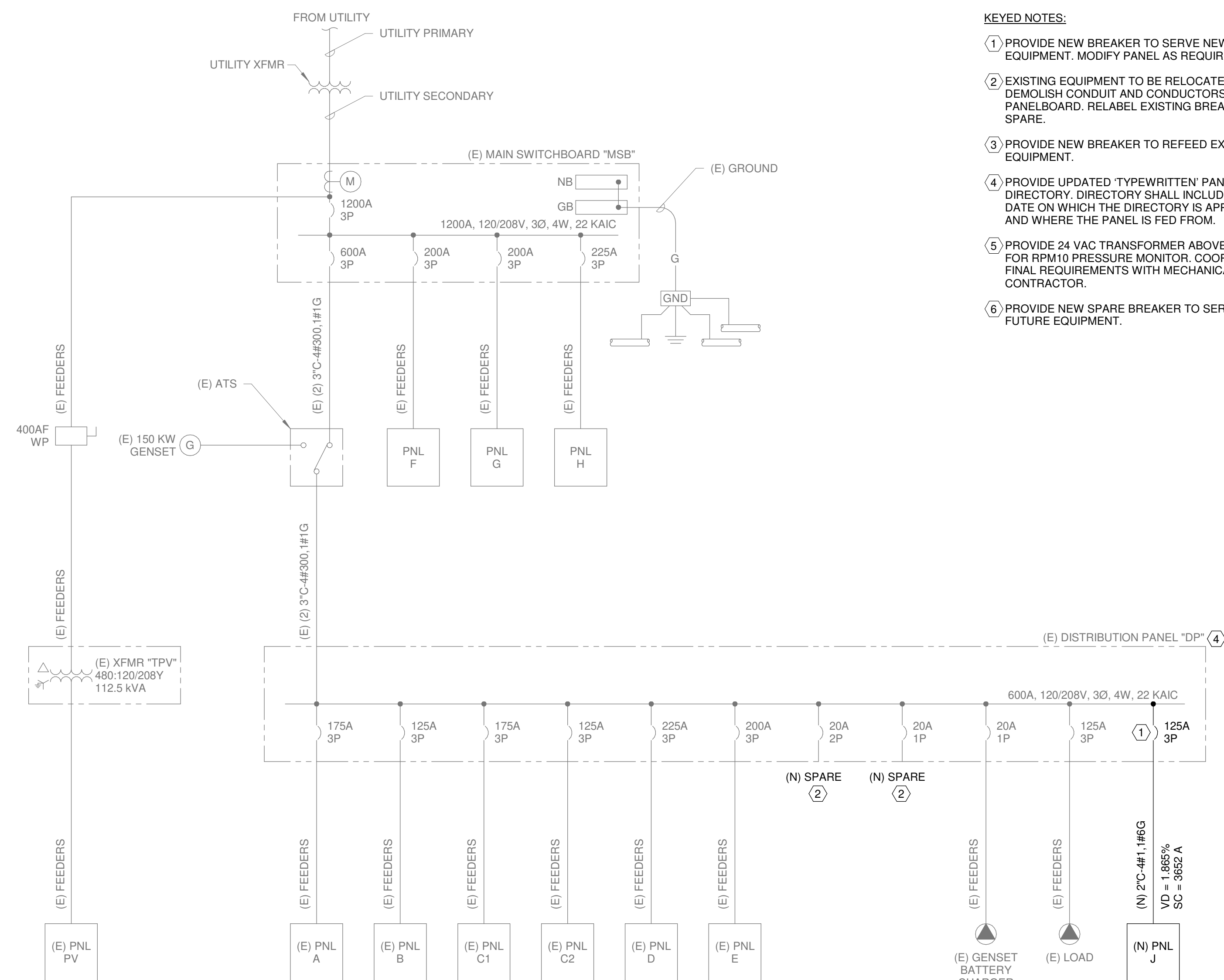
LOCATION: MORGUE 1	VOLTS: 120/208 Wye	A.I.C. RATING: 10 KAIC
SUPPLY FROM: DP	PHASES: 3	BUS RATING: 125 A
MOUNTING: RECESSED	WIRES: 4	MAIN: MLO
ENCLOSURE: NEMA 1	CIRCUITS: 30	

CKT	Circuit Description	Rating	Poles	A	B	C	A	B	C	Poles	Rating	Circuit Description	CKT
1	(N) HVAC - HP-1	50 A	3	4592		480		1450		1	20 A	(E) BODY STORAGE CONTROLS - MORGUE	3
3					4592				1450	2	20 A	(E) BODY STORAGE - MORGUE	4
5						4592			1450	2	20 A	(F) BODY STORAGE - MORGUE	6
7	(E) HVAC - EF-1	25 A	1	1675		0		0		2	20 A	(F) BODY STORAGE - MORGUE	8
9	(N) HVAC - FC-1	15 A	2		175					1		SPACE	10
11						175				1		SPACE	12
13	(N) HVAC - FC-2	15 A	2	341						1		SPACE	14
15					341					1		SPACE	16
17	(N) RECEPT - ROOF, PRESSURE MONITOR	20 A	1			230				1		SPACE	18
19	SPACE		1							1		SPACE	20
21	SPACE		1							1		SPACE	22
23	SPACE		1							1		SPACE	24
25	SPACE		1							1		SPACE	26
27	SPACE		1							1		SPACE	28
29	SPACE		1							1		SPACE	30
TOTAL LOAD (VOLT-AMPS):				PHASE A	PHASE B	PHASE C							
				7088 VA	6558 VA	6447 VA							
TOTAL LOAD (AMPS):				59 A	55 A	54 A							

VOLTAGE DROP BRANCH CIRCUIT TABLE

VOLT	AMP	MAXIMUM ALLOWED RUN LENGTH (FT)				
		#12	#10	#8	#6	#4
120	2	500	800	1200	2000	3250
	4	250	400	600	1000	1625
	6	175	250	400	650	1100
	8	125	200	325	500	800
	10	100	150	250	400	650
	12	85	125	200	350	550
	14	75	110	175	300	450
16	60	100	150	250	400	

PANEL SCHEDULE BRANCH CIRCUIT SIZES SHALL ACCOUNT FOR VOLTAGE DROP. VOLTAGE DROP SHALL NOT EXCEED 3% FOR BRANCH CIRCUITS. COORDINATE BRANCH CIRCUIT LENGTH PER ACTUAL FIELD ROUTING WITH THE ABOVE VOLTAGE DROP TABLE. ADJUST BRANCH CIRCUIT CONDUCTOR SIZES AS REQUIRED. ADJUST CONDUIT SIZE AS REQUIRED FOR LARGER CONDUCTORS.



- #### KEYED NOTES:
- 1 PROVIDE NEW BREAKER TO SERVE NEW EQUIPMENT. MODIFY PANEL AS REQUIRED.
 - 2 EXISTING EQUIPMENT TO BE RELOCATED. DEMOLISH CONDUIT AND CONDUCTORS BACK TO PANELBOARD. RELABEL EXISTING BREAKER AS SPARE.
 - 3 PROVIDE NEW BREAKER TO REFEED EXISTING EQUIPMENT.
 - 4 PROVIDE UPDATED 'TYPEWRITTEN' PANEL DIRECTORY. DIRECTORY SHALL INCLUDE THE DATE ON WHICH THE DIRECTORY IS APPLIED AND WHERE THE PANEL IS FED FROM.
 - 5 PROVIDE 24 VAC TRANSFORMER ABOVE CEILING FOR RPM10 PRESSURE MONITOR. COORDINATE FINAL REQUIREMENTS WITH MECHANICAL CONTRACTOR.
 - 6 PROVIDE NEW SPARE BREAKER TO SERVE FUTURE EQUIPMENT.



ALL IDEAS, DESIGNS, AND PLANS REPRESENTED BY THIS DRAWING ARE THE EXCLUSIVE PROPERTY OF PROVIDER CONSULTING ENGINEERS, INC. AND SHALL NOT BE REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION. ANY UNAUTHORIZED REUSE OF THIS DRAWING SHEET OTHER THAN FOR THE PROJECT AND LOCATION SHOWN IS PROHIBITED.

LICENSE STAMP



CONSULTANTS

PROJECT NAME

MORGUE HVAC UPGRADES

FOR

TEHAMA COUNTY

22840 Antelope Blvd
Red Bluff, CA 96080

NO. REVISIONS DATE

SHEET TITLE

ELECTRICAL LEGEND AND SCHEDULES

ISSUED FOR:
CONSTRUCTION DOCUMENTS

DATE: 3/30/2025
DRAWN BY: JK
REVIEWED BY: NW
SCALE: As indicated
PROJECT NO: 24049

E100

ELECTRICAL SPECIFICATION

PART 1 - GENERAL

1.1 INCLUDED

A. THIS SECTION COVERS ELECTRICAL WORK, COMPLETE. WORK INCLUDES FURNISHING, INSTALLING, CALIBRATING, ADJUSTING, TESTING, DOCUMENTING, AND STARTING UP EQUIPMENT IN ACCORDANCE WITH THESE SPECIFICATIONS, THE ACCOMPANYING PLANS, AND THE DIRECTIONS OF THE ENGINEER.

1.2 LICENSES, PERMITS, AND FEES

A. THE CONTRACTOR SHALL PROVIDE, PROCURE, AND PAY FOR ALL LICENSES, PERMITS, FEES, ETC. AS REQUIRED TO CARRY ON AND COMPLETE THEIR WORK.

1.3 CODES AND STANDARDS

A. ALL WORK SHALL BE DONE IN CODE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL BUILDING SAFETY CODES, ORDINANCES, AND REGULATIONS. ADDITIONALLY, ALL WORK SHALL CONFORM TO THE LATEST EDITIONS OF THE FOLLOWING STANDARDS:

- NATIONAL FIRE PROTECTION ASSOCIATION.
- UNDERWRITERS LABORATORIES.
- TITLES 9, 17, 19, 21, 24 OF THE CALIFORNIA CODE OF REGULATIONS.
- CALIFORNIA ELECTRIC CODE.

B. WHEN THE CONTRACT DOCUMENTS CALL FOR MATERIALS OR CONSTRUCTION OF A HIGHER STANDARD THAN IS REQUIRED BY THE ABOVE, THE CONTRACT DOCUMENT REQUIREMENTS SHALL TAKE PRECEDENCE OVER THE REQUIREMENTS OF THE APPLICABLE LAWS, ORDINANCES, RULES, OR REGULATIONS. NOTHING IN THE CONTRACT DOCUMENTS SHALL BE INTERPRETED AS PERMITTING WORK IN VIOLATION OF SAID LAWS, RULES, AND/OR REGULATIONS.

C. THE CONTRACTOR FOR THIS WORK SHALL FURNISH, WITHOUT EXTRA CHARGE, ANY ADDITIONAL MATERIALS AND/OR LABOR AS MAY BE REQUIRED FOR COMPLIANCE WITH THESE LAWS, RULES, AND/OR REGULATIONS THOUGH SUCH MATERIALS AND/OR LABOR ARE NOT SPECIALLY SET FORTH IN THE CONTRACT DOCUMENTS.

1.4 LICENSING REQUIREMENTS

A. ALL WORK OF DIVISION 26 SHALL BE PERFORMED BY AN APPROPRIATELY LICENSED CONTRACTOR. THE LICENSES SHALL BE CURRENT, VALID THROUGH THE TERM OF THE CONTRACT AND IN THE NAME OF THE CONTRACTOR.

1.5 SUBMITTALS

A. GENERAL REQUIREMENTS

- SUBMITTAL LISTS AND DRAWINGS SHALL INCLUDE IDENTIFYING MARKS ASSIGNED BY THE DRAWINGS AND SPECIFICATIONS.
- REVIEW OF DRAWINGS AND OTHER MATERIAL SUBMITTED SHALL NOT BE CONSTRUED AS COMPLETE CHECK OR CONSTITUTE A WAIVER OF THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS, BUT WILL INDICATE THAT THE MATERIAL SUBMITTED IS ACCEPTABLE IN QUALITY AND UTILITY. THIS REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO FIT THE PROPOSED MATERIALS TO THE SPACES PROVIDED, AND TO EFFECT NECESSARY REARRANGEMENTS OR CONSTRUCTION OF OTHER WORK.
- ALL FIXTURES, MATERIALS, AND EQUIPMENT EQUAL IN QUALITY AND UTILITY TO THOSE HEREIN MENTIONED WILL BE ACCEPTED. WHEN SPECIFIC NAMES ARE USED IN DESCRIBING FIXTURES, MATERIALS, AND EQUIPMENT THEY ARE MENTIONED AS STANDARDS ONLY, BUT THIS IMPLIES NO RIGHT ON THE PART OF THE CONTRACTOR TO USE OTHER FIXTURES, MATERIAL, AND EQUIPMENT OR METHODS, UNLESS APPROVED AS EQUAL IN QUALITY AND UTILITY BY THE ARCHITECT.
- BEFORE ANY FIXTURES, MATERIALS, OR EQUIPMENT ARE PURCHASED, THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR APPROVAL, A COMPLETE LIST OF MATERIALS, FIXTURES, AND EQUIPMENT, GIVING THE MANUFACTURER'S NAMES, CATALOG NUMBER, CAPACITY, SIZE, POWER REQUIREMENTS, ETC.
- THE CONTRACTOR SHALL SUBMIT FOR THE APPROVAL OF THE ARCHITECT, SHOP DRAWINGS OF PROPOSED MATERIAL AND EQUIPMENT THAT DIFFER FROM THE SPECIFIED MATERIALS AND EQUIPMENT, AND OF ANY SPECIFIED MATERIALS AND EQUIPMENT WITH SPECIAL CONDITIONS AND/OR ARRANGEMENTS. THESE DRAWINGS SHALL SHOW NECESSARY MODIFICATIONS OF OWNER, PLUMBING, ELECTRICAL, AND MECHANICAL WORK REQUIRED BY THE PROPOSED MATERIALS AND EQUIPMENT.

B. SUBMITTAL - PRODUCT DATA

- SUBMIT MANUFACTURER'S PRODUCT DATA FOR ALL ELECTRICAL EQUIPMENT, IN COMPLIANCE WITH SPECIFICATIONS.

C. COORDINATION/LAYOUT SHOP DRAWINGS

- PREPARE COMPLETE COORDINATION LAYOUT DRAWINGS FOR ALL NEW SYSTEMS, AND FOR EXISTING SYSTEMS THAT ARE IN THE SAME AREAS. SHOP DRAWINGS SHALL BE PREPARED USING AUTOCAD 2004 OR NEWER AND SHALL BE DRAWN AT A MINIMUM 1/4" = 1' 0" SCALE. ALL DRAWINGS SHALL BE FULLY COORDINATED WITH HVAC, PLUMBING, FIRE PROTECTION, ELECTRICAL, STRUCTURAL, AND ARCHITECTURAL WORK.
- CLEARLY IDENTIFY AND DIMENSION THE PROPOSED LOCATIONS OF THE PRINCIPAL ITEMS OF EQUIPMENT AND ADEQUATE CLEARANCE FOR ALL EQUIPMENT, PIPING, PUMPS, VALVES, AND OTHER ITEMS. PROVIDE DETAILED LAYOUT OF ALL PIPING SYSTEMS SHOWING THE PROPOSED ROUTES.
- SHOW THE ACCESS MEANS FOR ALL ITEMS REQUIRING ACCESS FOR OPERATIONS AND MAINTENANCE.
- SUBMIT SHOP DRAWINGS TO ARCHITECT FOR APPROVAL, PRIOR TO FABRICATION OR INSTALLATION OF ANY WORK. DO NOT INSTALL EQUIPMENT OR PIPING UNTIL LAYOUT DRAWINGS HAVE BEEN APPROVED. ANY WORK INSTALLED WITHOUT PRIOR SHOP DRAWING APPROVAL SHALL BE REMOVED AT THE CONTRACTOR'S EXPENSE.

1.6 COOPERATION WITH OTHER TRADES

A. COOPERATE FULLY WITH OTHER TRADES DOING WORK ON THE PROJECT AS MAY BE NECESSARY FOR THE PROPER COMPLETION OF THE PROJECT. REFER TO THE STRUCTURAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR DETAILS OF THE BUILDING STRUCTURE AND EQUIPMENT INSTALLATION THAT WILL TEND TO OVERLAP. CONFLICT WITH OR REQUIRE COORDINATION WITH THE WORK OF THIS SECTION, AND SCHEDULE THIS WORK ACCORDINGLY.

B. ANY WORK DONE WITHOUT REGARD FOR OTHER TRADES SHALL BE MOVED, REPLACED, OR REDONE AS REQUIRED, WITHOUT EXTRA CHARGES TO OWNER.

1.7 DIVISION OF WORK BETWEEN DIVISIONS 23 AND 26

A. CLOSE COORDINATION BETWEEN THE ELECTRICAL AND MECHANICAL TRADES IS A PART OF THE WORK THAT IS REQUIRED BY THIS CONTRACT. NO ALLOWANCE WILL BE MADE FOR OMISSIONS BASED ON INCORRECTLY ASSUMING ANOTHER TRADE WILL BE PERFORMING YOUR WORK. CONFIRM YOUR SCOPE OF WORK WITH THE GENERAL CONTRACTOR.

THE DIVISION OF RESPONSIBILITIES BETWEEN TRADES SUPPLYING EQUIPMENT IN OTHER DIVISIONS MAY BE DIFFERENT. FOR INSTANCE, DIVISION 26 CONTRACTOR MAY BE REQUIRED TO SUPPLY DISCONNECT SWITCHES AND STARTERS FOR NON-HVAC MECHANICAL EQUIPMENT SUPPLIED UNDER OTHER DIVISIONS.

C. DIVISION 23 RESPONSIBILITIES

- ASSUME RESPONSIBILITY FOR THE PROPER FUNCTIONING OF THE HVAC SYSTEMS IN THEIR ENTIRETY.
- FURNISH AND INSTALL ALL CONDUCTORS AND CONDUIT REQUIRED FOR CONTROL OF HVAC EQUIPMENT.
- MAKE ALL TERMINATIONS WITH THE EXCEPTION OF POWER CONDUCTORS.
- FURNISH AND INSTALL ALL CONTROL PANELS AND DEVICES TO PROVIDE A COMPLETE AND FUNCTIONAL CONTROL SYSTEM, INCLUDING ALL CONTROLS TRANSFORMERS.
- FURNISH AND INSTALL MOTOR STARTERS FOR ALL EQUIPMENT SPECIFIED IN DIVISION 23.
- INSTALL DUCT SMOKE DETECTORS FURNISHED BY FIRE ALARM CONTRACTOR IN BUILDINGS WITH FIRE ALARM SYSTEMS.
- FURNISH AND INSTALL DUCT SMOKE DETECTORS IN BUILDINGS WITHOUT FIRE ALARM SYSTEMS.
- FURNISH AND INSTALL ALL CONTROL CONDUCTORS AND CONDUIT CONNECTING DUCT SMOKE DETECTORS TO SMOKE DAMPERS AND FAN START CONTROLS.
- ALL ELECTRICAL WORK PERFORMED UNDER DIVISION 23 SHALL CONFORM TO THE REQUIREMENTS OF DIVISION 26.

D. DIVISION 26 RESPONSIBILITIES

- FURNISH AND INSTALL ALL RACEWAYS, CONDUIT, DISCONNECT SWITCHES, AND CONDUCTORS NECESSARY FOR ELECTRICAL POWER SUPPLY.
- MAKE ALL POWER SUPPLY TERMINATIONS TO MOTORS, STARTERS, DISCONNECT SWITCHES, CONTROL TRANSFORMERS, AND OTHER MECHANICAL DEVICES.
- FIRE ALARM CONTRACTOR TO FURNISH DUCT SMOKE DETECTORS IN BUILDINGS WITH FIRE ALARM SYSTEMS.
- PROVIDE POWER TO ALL DUCT SMOKE DETECTORS AND SMOKE DAMPERS.
- COORDINATE ALL WORK WITH MECHANICAL CONTRACTORS.

1.8 AS-BUILT DRAWINGS

A. A COMPLETE SET OF CONTRACT DRAWINGS SHALL BE MAINTAINED AT THE WORK SITE, AND ALL CHANGES IN THE WORK SHALL BE RECORDED ON THIS SET, ON A DAILY BASIS. THE FINAL AS-BUILT DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL.

1.9 DESIGN DRAWINGS

A. THE DRAWINGS INDICATE DIAGRAMMATICALLY THE GENERAL LAYOUT OF THE ELECTRICAL SYSTEMS AND OTHER RELATED WORK. FIELD VERIFICATION OF SCALED DIMENSIONS TAKEN FROM THE DRAWINGS IS REQUIRED.

B. THE CONTRACTOR SHALL REVIEW AND COMPARE THE ARCHITECTURAL, STRUCTURAL, PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS AND ALL OWNER SUPPLIED EQUIPMENT DRAWINGS, AND ADJUST THEIR WORK TO BE IN CONFORMITY WITH THE CONDITIONS INDICATED THEREON. DISCREPANCIES BETWEEN DRAWINGS, BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS, OR BETWEEN DRAWINGS AND SPECIFICATIONS, SHALL PROMPTLY BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR A DETERMINATION OF THE MODIFICATIONS TO BE EFFECTED. IN THE EVENT THAT A MAJOR MODIFICATION IS REQUIRED, A CHANGE ORDER WILL BE PREPARED.

1.10 VERIFICATION OF EXISTING CONDITIONS AND DEMOLITION

A. BEFORE INSTALLATION OF ANY NEW WORK, VERIFY THE LOCATION, SIZE, AND OTHER CONDITIONS AT ALL POINTS OF CONNECTION TO SERVICES OR OTHER EXISTING PIPING, AND AT ALL LOCATIONS WHERE NEW WORK WILL CROSS OR PASS NEAR EXISTING PIPING, ELECTRICAL, OR OTHER FACILITIES.

B. REMOVE CONDUIT, CONDUCTORS, WIRING DEVICES, FIXTURES, AND EQUIPMENT THAT ARE NOT TO REMAIN IN SERVICE AS SHOWN ON THE DRAWINGS OR AS REQUIRED. THIS INCLUDES THE REMOVAL OF ASSOCIATED APPURTENANCES AND SUPPORTS.

C. DELIVER REMOVED MATERIAL TO THE OWNER AS DIRECTED BY THE ARCHITECT. DISPOSE OF ALL OTHER REMOVED MATERIAL OFFSITE.

D. INFORMATION SHOWN RELATIVE TO EXISTING SERVICES IS BASED UPON AVAILABLE RECORDS AND DATA DURING PREPARATION OF THE DRAWINGS, BUT SHALL BE VERIFIED. MAKE REASONABLE DEVIATIONS FOUND NECESSARY TO CONFORM TO ACTUAL LOCATIONS AND CONDITIONS, WITHOUT EXTRA CHARGE.

1.11 OPERATING AND MAINTENANCE INSTRUCTIONS

A. FURNISH THREE SETS OF TYPEWRITTEN INSTRUCTIONS COVERING MAINTENANCE, ADJUSTMENT, AND OPERATION OF EACH PIECE OF APPARATUS, BOUND IN A HARD COVER LOOSE-LEAF BINDER. NEATLY OBTAIN OR CROSS OUT INAPPLICABLE DATA FROM MANUFACTURER'S LITERATURE. SUBMIT DATA TO THE ARCHITECT.

B. OPERATING INSTRUCTIONS SHALL SHOW SEQUENCE OF OPERATIONS, LUBRICATION, CARE, AND MAINTENANCE REQUIREMENTS OF ALL EQUIPMENT. FINAL ACCEPTANCE OF THE WORK WILL NOT BE MADE UNTIL A SATISFACTORY SUBMISSION OF THIS MATERIAL IS RECEIVED AND APPROVED BY THE ARCHITECT.

C. THE OWNER'S AUTHORIZED REPRESENTATIVE SHALL BE INSTRUCTED IN THE OPERATION AND SERVICING OF ALL POWER AND LIGHTING.

1.12 ACCURACY OF DATA

A. THE DATA GIVEN HEREIN AND ON THE DRAWINGS ARE AS EXACT AS COULD BE REASONABLY SECURED, BUT ABSOLUTE ACCURACY IS NOT GUARANTEED. EXACT LOCATIONS, DISTANCES, ELEVATIONS, ETC. WILL BE GOVERNED BY SHOP DRAWINGS, THE BUILDING ITSELF, AND ACTUAL FIELD CONDITIONS.

1.13 DELIVERY, STORAGE, AND HANDLING

A. CONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERY, STORAGE, PROTECTION, AND PLACING OF ALL EQUIPMENT AND MATERIALS. CONTRACTOR SHALL PROTECT THE WORK AND MATERIALS FROM DAMAGE DURING CONSTRUCTION. EQUIPMENT STORED AT THE JOB SITE SHALL BE PROTECTED FROM DUST, WATER, OR OTHER DAMAGE, AND BE COVERED IF EQUIPMENT IS EXPOSED TO WEATHER. PROTECT INTERIORS OF NEW EQUIPMENT AND PIPING SYSTEMS AGAINST ENTRY OF FOREIGN MATTER. CLEAN BOTH INSIDE AND OUTSIDE BEFORE PAINTING OR PLACING EQUIPMENT IN OPERATION. ANY ITEMS DAMAGED SHALL BE REPAIRED OR REPLACED, AT NO ADDITIONAL COST TO THE OWNER.

1.14 WARRANTIES

A. EQUIPMENT WARRANTIES SHALL BE PROVIDED FOR ALL EQUIPMENT, WITH ALL NECESSARY INFORMATION FILLED IN, EXCEPT PURCHASE DATE, IN FAVOR OF THE OWNER.

B. THE CONTRACTOR SHALL GUARANTEE THAT ALL WORK UNDER THIS SECTION IS FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FILING THE NOTICE OF COMPLETION. REPLACEMENT OF DEFECTIVE WORK AND DAMAGE CAUSED TO WORK OF OTHER TRADES AS A RESULT OF SUCH DEFECTIVE WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE MADE AT NO COST TO THE OWNER.

1.15 ALTERNATIVE MATERIALS AND METHODS

A. THESE PLANS AND SPECIFICATIONS DESCRIBE THE GENERAL SCOPE OF THE ELECTRICAL SYSTEMS. THESE PLANS AND SPECIFICATIONS DO NOT PRECLUDE THE SUBMITTAL OF ALTERNATIVE METHODS OR MATERIALS. MANUFACTURER'S NAMES AND CATALOG NUMBERS ARE STATED TO IDENTIFY THE TYPE AND QUALITY OF THE EQUIPMENT OR MATERIALS REQUIRED FOR THE PROJECT.

B. THE CONTRACTOR MAY SUBMIT SHOP DRAWINGS AND/OR TECHNICAL INFORMATION ON ALTERNATIVE EQUIPMENT, MATERIALS OR INSTALLATION DETAILS TO ACCOMPLISH THE INTENT OF THE PLANS AND SPECIFICATIONS. APPROVAL OF THE ALTERNATIVE EQUIPMENT, MATERIALS OR INSTALLATION DETAILS SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR COMPLYING WITH THE INTENT OF THE PLANS AND SPECIFICATIONS. SUBMIT THE MANUFACTURER'S TECHNICAL INFORMATION, SHOP DRAWINGS, AND/OR WRITTEN DESCRIPTION OF ALTERNATIVE METHODS FOR EACH ITEM DESCRIBED BY MANUFACTURER'S NAME AND CATALOG NUMBER AND FOR EACH COMPONENT, EQUIPMENT, MATERIAL, OR INSTALLATION DETAIL REQUIRED.

1.16 SITE EXAMINATION

A. THOROUGHLY EXAMINE THE SITE AND VERIFY THE ACTUAL WORK CONDITIONS. NO EXTRA COMPENSATION WILL BE ALLOWED FOR EXPENSES DUE TO FAILURE TO DISCOVER SITE CONDITIONS WHICH AFFECT THE WORK.

PART 2 - PRODUCTS

2.1 GENERAL

A. UNLESS OTHERWISE INDICATED, PROVIDE ALL FIRST-QUALITY NEW MATERIALS, FREE FROM ANY DEFECTS, AND SUITABLE FOR THE INTENDED USE AND THE SPACE PROVIDED. PROVIDE MATERIALS APPROVED BY UL WHEREVER STANDARDS HAVE ITEMS NOT SPECIFICALLY SHOWN OR SPECIFIED WHICH ARE REQUIRED TO PROVIDE THE COMPLETE SYSTEMS SPECIFIED HEREIN. WHERE TWO OR MORE UNITS OF THE SAME CLASS OF MATERIAL OR EQUIPMENT ARE REQUIRED, PROVIDE PRODUCTS OF A SINGLE MANUFACTURER. COMPONENT PARTS OF MATERIALS OR EQUIPMENT NEED NOT BE PRODUCTS OF THE SAME MANUFACTURER.

B. EQUIPMENT FINISH: UNLESS OTHERWISE INDICATED, FINISH FOR ELECTRICAL EQUIPMENT AND ENCLOSURES SHALL BE MANUFACTURER'S STANDARD GRAY OR ANSI 61 GRAY OVER A PRIMER AND RUST INHIBITOR.

2.2 RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

A. METAL CONDUITS AND FITTINGS

- METAL CONDUIT:
 - EMT: COMPLY WITH ANSI C80.3 AND UL 797.
 - FMC: COMPLY WITH UL 1, ZINC-COATED STEEL.
 - LFMC: FLEXIBLE STEEL CONDUIT WITH PVC JACKET AND COMPLYING WITH UL 360.

2. METAL FITTINGS

- COMPLY WITH NEMA FB 1 AND UL 514B.
- FITTINGS FOR EMT:
 - MATERIAL: STEEL.
 - TYPE: SETSCREW.
- EXPANSION FITTINGS: PVC OR STEEL TO MATCH CONDUIT TYPE, COMPLYING WITH UL 651, RATED FOR ENVIRONMENTAL CONDITIONS WHERE INSTALLED, AND INCLUDING FLEXIBLE EXTERNAL BONDING JUMPER.

B. NON-METALLIC CONDUITS AND FITTINGS

- NONMETALLIC CONDUIT
 - LFNC: COMPLY WITH UL 1660.
- NONMETALLIC FITTINGS
 - FITTINGS FOR LFNC: COMPLY WITH UL 514B.
 - SOLVENTS AND ADHESIVES: AS RECOMMENDED BY CONDUIT MANUFACTURER.

C. BOXES, ENCLOSURES, AND CABINETS

- GENERAL REQUIREMENTS FOR BOXES, ENCLOSURES, AND CABINETS: BOXES, ENCLOSURES, AND CABINETS INSTALLED IN WET LOCATIONS SHALL BE LISTED FOR USE IN WET LOCATIONS.
- SHEET METAL OUTLET AND DEVICE BOXES: COMPLY WITH NEMA OS 1 AND UL 514A.
- METAL FLOOR BOXES: RECTANGULAR, SHEET METAL, FULLY ADJUSTABLE, LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
- LUMINAIRE OUTLET BOXES: NONADJUSTABLE, DESIGNED FOR ATTACHMENT OF LUMINAIRE WEIGHING 50 LB. OUTLET BOXES DESIGNED FOR ATTACHMENT OF LUMINAIRES WEIGHING MORE THAN 50 LB SHALL BE LISTED AND MARKED FOR THE MAXIMUM ALLOWABLE WEIGHT.
- SMALL SHEET METAL FULL AND JUNCTION BOXES: NEMA OS 1.
- DEVICE BOX DIMENSIONS: 4 INCHES SQUARE BY 2-1/8 INCHES DEEP.

2.3 LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

A. COPPER BUILDING WIRE

- DESCRIPTION: FLEXIBLE, INSULATED AND UNINSULATED, DRAWN COPPER CURRENT-CARRYING CONDUCTOR WITH AN OVERALL INSULATION LAYER OR JACKET, OR BOTH, RATED 600 V OR LESS.
- STANDARDS:
 - LISTED AND LABELED AS DEFINED IN CEC, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND USE.
 - RHOS COMPLIANT.
 - CONDUIT AND CABLE MARKING: COMPLY WITH WIRE AND CABLE MARKING ACCORDING TO UL'S "WIRE AND CABLE MARKING AND APPLICATION GUIDE."
- CONDUCTORS: COPPER, COMPLYING WITH ASTM B3 FOR BARE ANNEALED COPPER AND WITH ASTM B8 FOR STRANDED CONDUCTORS.
- CONDUCTOR INSULATION: TYPE THHN AND TYPE THWN-2: COMPLY WITH UL 83, 90°C DRY OR 75°C WET.

B. CONNECTORS AND SPLICES

- DESCRIPTION: FACTORY-FABRICATED CONNECTORS, SPLICES, AND LUGS OF SIZE, AMPACITY RATING, MATERIAL, TYPE, AND CLASS FOR APPLICATION AND SERVICE INDICATED; LISTED AND LABELED AS DEFINED IN CEC BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND USE.
- JACKETED CABLE CONNECTORS: FOR STEEL AND ALUMINUM JACKETED CABLES, ZINC DIE-CAST WITH SET SCREWS, DESIGNED TO CONNECT CONDUCTORS SPECIFIED IN THIS SECTION.
- LUGS: ONE PIECE, SEAMLESS, DESIGNED TO TERMINATE CONDUCTORS SPECIFIED IN THIS SECTION.
 - MATERIAL: COPPER.
 - TYPE: TWO HOLE WITH STANDARD BARRELS.
 - TERMINATION: COMPRESSION.

2.4 CONDUCTOR ACCESSORIES

A. LABELS

- VINYL WRAPAROUND LABELS: PREPRINTED, FLEXIBLE LABELS LAMINATED WITH A CLEAR, WEATHER- AND CHEMICAL-RESISTANT COATING AND MATCHING WRAPAROUND CLEAR ADHESIVE TAPE FOR SECURING LABEL ENDS.
- SELF-ADHESIVE LABELS: POLYESTER, THERMAL, TRANSFER-PRINTED, 3-MIL-THICK, MULTICOLOR, WEATHER- AND UV-RESISTANT, PRESSURE-SENSITIVE ADHESIVE LABELS, CONFIGURED FOR INTENDED USE AND LOCATION:
 - MINIMUM NOMINAL SIZE:
 - 1-1/2 BY 6 INCHES FOR RACEWAY AND CONDUCTORS.
 - 3-1/2 BY 5 INCHES FOR EQUIPMENT.
 - AS REQUIRED BY AUTHORITIES HAVING JURISDICTION.

B. TAPE

- GENERAL PURPOSE, FLAME RETARDANT: 7 MIL, VINYL PLASTIC, RATED FOR 90°C MINIMUM, MEETING REQUIREMENTS OF UL 510.
- FLAME RETARDANT, COLD AND WEATHER RESISTANT: 8.5 MIL, VINYL PLASTIC.

C. TAGS

- NONMETALLIC PREPRINTED TAGS: POLYETHYLENE TAGS, 0.015 INCH THICK, COLOR-CODED FOR PHASE AND VOLTAGE LEVEL, WITH FACTORY SCREENED PERMANENT DESIGNATIONS; PUNCHED FOR USE WITH SELF-LOCKING CABLE TIE FASTENER.

D. SIGNS

- BAKED-ENAMEL SIGNS:
 - PREPRINTED ALUMINUM SIGNS, HIGH-INTENSITY REFLECTIVE, PUNCHED OR DRILLED FOR FASTENERS, WITH COLORS, LEGEND, AND SIZE REQUIRED FOR APPLICATION.
 - 1/4-INCH GROMMETS IN COVERS FOR MOUNTING.
 - NOMINAL SIZE: 7 BY 10 INCHES.

E. CABLE TIES: NYLON, ADJUSTABLE, AND SELF-LOCKING.

2.5 WIRING DEVICES

A. GENERAL REQUIREMENTS

- LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND USE.
- COMPLY WITH NFPA 70.
- RHOS COMPLIANT.
- COMPLY WITH NEMA WD 1.
- DEVICE COLOR: WHITE.
- WALL PLATE COLOR: FOR PLASTIC COVERS, MATCH DEVICE COLOR.

B. WALL PLATES

- SINGLE AND COMBINATION TYPES SHALL MATCH CORRESPONDING WIRING DEVICES.
 - PLATE-SECURING SCREWS: METAL WITH HEAD COLOR TO MATCH PLATE FINISH.
 - MATERIAL FOR FINISHED SPACES: SMOOTH, HIGH-IMPACT THERMOPLASTIC.
 - MATERIAL FOR UNFINISHED SPACES: SMOOTH, HIGH-IMPACT THERMOPLASTIC.
 - MATERIAL FOR DAMP LOCATIONS: THERMOPLASTIC WITH SPRING-LOADED LIFT COVER AND LISTED AND LABELED FOR USE IN WET AND DAMP LOCATIONS.

2. WET-LOCATION, WEATHERPROOF COVER PLATES: NEMA 250, COMPLYING WITH TYPE 3R, WEATHER-RESISTANT THERMOPLASTIC WITH LOCKABLE COVER.

2.6 PANELBOARDS

A. GENERAL REQUIREMENTS:

- ENCLOSURES: FLUSH AND SURFACE-MOUNTED, DEAD-FRONT CABINETS.
 - RATED FOR ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATION.
 - AS INDICATED ON THE DRAWINGS.
- HEIGHT: 84 INCHES MAXIMUM.
- HINGED FRONT COVER: ENTIRE FRONT TRIM HINGED TO BOX AND WITH STANDARD DOOR WITH HINGED TRIM COVER. TRIMS SHALL COVER ALL LIVE PARTS AND SHALL HAVE NO EXPOSED HARDWARE.
- FINISHES:
 - PANELS AND TRIM: STEEL AND GALVANIZED STEEL, FACTORY FINISHED IMMEDIATELY AFTER CLEANING AND PRETREATING WITH MANUFACTURER'S STANDARD TWO-COAT, BAKED-ON FINISH CONSISTING OF PRIME COAT AND THERMOSETTING TOPCOAT.
 - BACK BOXES: GALVANIZED STEEL.
- INCOMING MAINS:
 - LOCATION: CONVERTIBLE BETWEEN TOP AND BOTTOM.
 - MAIN BREAKER: MAIN LUG INTERIORS UP TO 400 AMPERES SHALL BE FIELD CONVERTIBLE TO MAIN BREAKER.
- PHASE, NEUTRAL AND GROUND BUSSES:
 - MATERIAL: TIN-PLATED COPPER.
 - INTERIORS SHALL BE FACTORY ASSEMBLED INTO A UNIT, REPLACING SWITCHING AND PROTECTIVE DEVICES SHALL NOT DISTURB ADJACENT UNITS OR REQUIRE REMOVING THE MAIN BUS CONNECTORS.
 - EQUIPMENT GROUND BUS: ADEQUATE FOR FEEDER AND BRANCH-CIRCUIT EQUIPMENT GROUNDING CONDUCTORS; BONDED TO BOX.
 - FULL-SIZED NEUTRAL: EQUIPPED WITH FULL-CAPACITY BONDING STRAP FOR SERVICE ENTRANCE APPLICATIONS. MOUNT ELECTRICALLY ISOLATED FROM ENCLOSURE. DO NOT MOUNT NEUTRAL BUS IN GUTTER.
- CONDUCTOR CONNECTORS: SUITABLE FOR USE WITH CONDUCTOR MATERIAL AND SIZES.
 - MATERIAL: TIN-PLATED COPPER.
 - TERMINATIONS SHALL ALLOW USE OF 75 DEG C RATED CONDUCTORS WITHOUT DERATING.
 - SIZE: LUGS SUITABLE FOR INDICATED CONDUCTOR SIZES, WITH ADDITIONAL GUTTER SPACE, IF REQUIRED, FOR LARGER CONDUCTORS.
 - MAIN AND NEUTRAL LUGS: COMPRESSION TYPE, WITH A LUG ON THE NEUTRAL BAR FOR EACH POLE IN THE PANELBOARD.
 - GROUND LUGS AND BUS-CONFIGURED TERMINATORS: COMPRESSION TYPE, WITH A LUG ON THE BAR FOR EACH POLE IN THE PANELBOARD.

8. PANELBOARD SHORT-CIRCUIT CURRENT RATING: FULLY RATED TO INTERRUPT SYMMETRICAL SHORT-CIRCUIT CURRENT AVAILABLE AT TERMINALS. ASSEMBLY LISTED BY AN NRTL FOR 100 PERCENT INTERRUPTING CAPACITY.

- PANELBOARDS AND OVERCURRENT PROTECTIVE DEVICES RATED 240 V OR LESS SHALL HAVE SHORT-CIRCUIT RATINGS AS SHOWN ON DRAWINGS, BUT NOT LESS THAN 10,000 A RMS SYMMETRICAL.

B. BRANCH CIRCUIT PANELBOARDS

- PANELBOARDS: NEMA PB 1, LIGHTING AND APPLIANCE BRANCH-CIRCUIT TYPE.
- MAINS: CIRCUIT BREAKER OR LUGS ONLY.
- BRANCH OVERCURRENT PROTECTIVE DEVICES: BOLT-ON CIRCUIT BREAKERS, REPLACEABLE WITHOUT DISTURBING ADJACENT UNITS.
- DOORS: DOOR-IN-DOOR CONSTRUCTION WITH CONCEALED HINGES; SECURED WITH MULTIPoint LATCH WITH TUMBLER LOCK, KEYPED ALIKE. OUTER DOOR SHALL PERMIT FULL ACCESS TO THE PANEL INTERIOR. INNER DOOR SHALL PERMIT ACCESS TO BREAKER OPERATING HANDLES AND LABELING, BUT CURRENT CARRYING TERMINALS AND BUS SHALL REMAIN CONCEALED.

2.7 CIRCUIT BREAKERS

A. COMPLY WITH UL 489, WITH INTERRUPTING CAPACITY TO MEET AVAILABLE FAULT CURRENTS.

B. 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.

C. ADJUSTABLE INSTANTANEOUS-TRIP CIRCUIT BREAKERS: MAGNETIC TRIP ELEMENT WITH FRONT-MOUNTED, FIELD-ADJUSTABLE TRIP SETTING.

D. MCCB FEATURES AND ACCESSORIES:

- STANDARD FRAME SIZES, TRIP RATINGS, AND NUMBER OF POLES.
- LUGS: MECHANICAL STYLE, SUITABLE FOR NUMBER, SIZE, TRIP RATINGS, AND CONDUCTOR MATERIAL.
- APPLICATION LISTING: APPROPRIATE FOR APPLICATION.
- GROUND-FAULT PROTECTION: INTEGRALLY MOUNTED RELAY AND TRIP UNIT WITH ADJUSTABLE PICKUP AND TIME-DELAY SETTINGS, PUSH-TO-TEST FEATURE, AND GROUND-FAULT INDICATOR.

2.8 ENCLOSED SWITCHES

A. NON-FUSIBLE SWITCHES

- TYPE HD, HEAVY DUTY, SINGLE THROW, THREE-POLE, 600V AC, 1200A AND SMALLER, HORSEPOWER RATED.
- UL 98 AND NEMA KS 1.
- LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT THREE PADLOCKS, AND INTERLOCKED WITH COVER IN THE CLOSED POSITION.

B. ACCESSORIES

- EQUIPMENT GROUND KIT: INTERNALLY MOUNTED AND LABELED FOR COPPER AND ALUMINUM GROUND CONDUCTORS.
- NEUTRAL KIT: INTERNALLY MOUNTED; INSULATED, CAPABLE OF BEING GROUNDED AND BONDED; LABELED FOR COPPER AND ALUMINUM NEUTRAL CONDUCTORS.

A. ENCLOSURES

1. ENCLOSED SWITCHES AND CIRCUIT BREAKERS: UL 489, NEMA KS 1, NEMA 250, AND UL 50, TO COMPLY WITH ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATION.

PART 3 - EXECUTION

3.1 PROTECTION AND CLEANUP

A. PROTECTION AND RESTORATION: SUITABLY PROTECT EQUIPMENT PROVIDED UNDER THIS DIVISION DURING CONSTRUCTION. RESTORE DAMAGED SURFACES AND ITEMS TO "LIKE NEW" CONDITION BEFORE A REQUEST FOR SUBSTANTIAL COMPLETION INSPECTION.

B. HANDLING: MATERIALS SHALL BE PROPERLY PROTECTED AND RACEWAY OPENINGS SHALL BE TEMPORARILY CLOSED BY THE CONTRACTOR TO PREVENT OBSTRUCTION AND DAMAGE. POST NOTICE PROHIBITING THE USE OF SYSTEMS PROVIDED UNDER THIS CONTRACT, PRIOR TO COMPLETION OF WORK AND ACCEPTANCE OF SYSTEMS BY THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT HIS MATERIALS FROM DAMAGE AND THEFT.

C. SAFEGUARDS: THE CONTRACTOR SHALL FURNISH, PLACE AND MAINTAIN PROPER SAFETY GUARDS FOR THE PROTECTION OF INCIDENTS THAT MIGHT BE CAUSED BY THE WORKMANSHIP, MATERIALS, EQUIPMENT OR SYSTEMS PROVIDED UNDER THIS CONTRACT.

D. CLEANUP: KEEP THE JOB SITE FREE FROM DEBRIS AND RUBBISH. REMOVE DEBRIS AND RUBBISH FROM THE SITE AND LEAVE PREMISES IN CLEAN CONDITION ON A DAILY BASIS.

3.2 SYSTEMS GUARANTEE

A. GENERAL: PROVIDE A ONE-YEAR GUARANTEE. THIS GUARANTEE SHALL BE BY THE CONTRACTOR TO THE OWNER FOR ANY DEFECTIVE WORKMANSHIP OR MATERIAL, WHICH HAS BEEN PROVIDED UNDER THIS CONTRACT AT NO COST TO THE OWNER FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION OF THE SYSTEM. THE GUARANTEE SHALL INCLUDE LAMPS, FOR NINETY DAYS AFTER DATE OF SUBSTANTIAL COMPLETION OF THE SYSTEM. EXPLAIN THE PROVISIONS OF GUARANTEE TO THE OWNER AT THE "DEMONSTRATION OF COMPLETED SYSTEM".

3.3 FINAL OBSERVATION

A. GENERAL: WORK SHALL BE COMPLETED, AND FORMS AND OTHER INFORMATION SHALL BE SUBMITTED FOR ACCEPTANCE ONE WEEK PRIOR TO THE REQUEST FOR FINAL OBSERVATION OF THE INSTALLATION.

3.4 SPECIAL CONSIDERATIONS

A. COMPLY WITH SPECIAL REQUIREMENTS IMPOSED AT SITE BY OWNER. THIS MAY INCLUDE BADGING OF EMPLOYEES, PROHIBITION OF SMOKING, SPECIAL WORKING HOURS, OR SPECIAL WORKING CONDITIONS.

3.5 METHODS FOR RACEWAY INSTALLATION

A. RACEWAY APPLICATION

- OUTDOORS: APPLY RACEWAY PRODUCTS AS SPECIFIED BELOW UNLESS OTHERWISE INDICATED:
 - EXPOSED CONDUIT: GRG, RNC, OR TYPE EPC-40-PVC.
 - CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT): LFMC.
 - BOXES AND ENCLOSURES, ABOVEGROUND: NEMA 250, TYPE 4.

- INDOORS: APPLY RACEWAY PRODUCTS AS SPECIFIED BELOW UNLESS OTHERWISE INDICATED:
 - EXPOSED, NOT SUBJECT TO PHYSICAL DAMAGE: EMT.
 - EXPOSED, SUBJECT TO SEVERE PHYSICAL DAMAGE: EMT.
 - CONCEALED IN CEILINGS AND INTERIOR WALLS AND PARTITIONS: EMT.
 - CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT): FMC, EXCEPT USE LFMC IN DAMP OR WET LOCATIONS.
 - BOXES AND ENCLOSURES: NEMA 250, TYPE 1.

- MINIMUM RACEWAY SIZE: 1/2-INCH TRADE SIZE.

- RACEWAY FITTINGS: COMPATIBLE WITH RACEWAYS AND SUITABLE FOR USE AND LOCATION.

- RIGID AND INTERMEDIATE STEEL CONDUIT: USE THREADED RIGID STEEL CONDUIT FITTINGS UNLESS OTHERWISE INDICATED. COMPLY WITH NEMA FB 2.10.
- PVC EXTERNALLY COATED, RIGID STEEL CONDUITS: USE ONLY FITTINGS LISTED FOR USE WITH THIS TYPE OF CONDUIT. PATCH AND SEAL ALL JOINTS, NICKS, AND SCRAPES IN PVC COATING AFTER INSTALLING CONDUITS AND FITTINGS. USE SEALANT RECOMMENDED BY FITTING MANUFACTURER AND APPLY IN THICKNESS AND NUMBER OF COATS RECOMMENDED BY MANUFACTURER.
- EMT: USE SETSCREW, STEEL FITTINGS: COMPLY WITH NEMA FB 2.10.
- FLEXIBLE CONDUIT: USE ONLY FITTINGS LISTED FOR USE WITH FLEXIBLE CONDUIT. COMPLY WITH NEMA FB 2.20.

- DO NOT INSTALL ALUMINUM CONDUITS, BOXES, OR FITTINGS IN CONTACT WITH CONCRETE OR EARTH.

- DO NOT INSTALL NONMETALLIC CONDUIT WHERE AMBIENT TEMPERATURE EXCEEDS 120 DEG F. RACEWAY INSTALLATION.

- COMPLY WITH NECA 1 AND NECA 101 FOR INSTALLATION REQUIREMENTS EXCEPT WHERE REQUIREMENTS ON DRAWINGS OR IN THIS ARTICLE ARE STRICTER. COMPLY WITH NECA 102 FOR ALUMINUM CONDUITS. COMPLY WITH NFPA 70 LIMITATIONS FOR TYPES OF RACEWAYS ALLOWED IN SPECIFIC OCCUPANCIES AND NUMBER OF FLOORS.

- DO NOT FASTEN CONDUITS ONTO THE BOTTOM SIDE OF A METAL DECK ROOF.

- 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.

ELECTRICAL SPECIFICATION

16. RACEWAYS EMBEDDED IN SLABS:
- RUN CONDUIT LARGER THAN 1-INCH TRADE SIZE, PARALLEL OR AT RIGHT ANGLES TO MAIN REINFORCEMENT. WHERE AT RIGHT ANGLES TO REINFORCEMENT, PLACE CONDUIT CLOSE TO SLAB SUPPORT. SECURE RACEWAYS TO REINFORCEMENT AT MAXIMUM 10-FOOT INTERVALS.
 - ARRANGE RACEWAYS TO CROSS BUILDING EXPANSION JOINTS AT RIGHT ANGLES WITH EXPANSION FITTINGS.
 - ARRANGE RACEWAYS TO KEEP A MINIMUM OF 1 INCH OF CONCRETE COVER IN ALL DIRECTIONS.
 - DO NOT EMBED THREADLESS FITTINGS IN CONCRETE UNLESS SPECIFICALLY APPROVED BY ARCHITECT FOR EACH SPECIFIC LOCATION.
17. STUB-UPS TO ABOVE RECESSED CEILINGS:
- USE EMT OR RMC FOR RACEWAYS.
 - USE A CONDUIT BUSHING OR INSULATED FITTING TO TERMINATE STUB-UPS NOT TERMINATED IN HUBS OR IN AN ENCLOSURE.
18. THREADED CONDUIT JOINTS, EXPOSED TO WET, DAMP, CORROSIVE, OR OUTDOOR CONDITIONS: APPLY LISTED COMPOUND TO THREADS OF RACEWAY AND FITTINGS BEFORE MARKING UP JOINTS. FOLLOW COMPOUND MANUFACTURER'S WRITTEN INSTRUCTIONS.
19. COAT FIELD CUT THREADS ON PVC-COATED RACEWAY WITH A CORROSION-PREVENTING CONDUCTIVE COMPOUND PRIOR TO ASSEMBLY.
20. TERMINATE THREADED CONDUITS INTO THREADED HUBS OR WITH LOCKNUTS ON INSIDE AND OUTSIDE OF BOXES OR CABINETS. INSTALL BUSHINGS ON CONDUITS UP TO 1-1/4-INCH TRADE SIZE AND INSULATED THROAT METAL BUSHINGS ON 1-1/2-INCH TRADE SIZE AND LARGER CONDUITS TERMINATED WITH LOCKNUTS. INSTALL INSULATED THROAT METAL GROUNDING BUSHINGS ON SERVICE CONDUITS.
21. INSTALL RACEWAYS SQUARE TO THE ENCLOSURE AND TERMINATE AT ENCLOSURES WITH LOCKNUTS. INSTALL LOCKNUTS HAND TIGHT PLUS 1/4 TURN MORE.
22. DO NOT RELY ON LOCKNUTS TO PENETRATE NONCONDUCTIVE COATINGS ON ENCLOSURES. REMOVE COATINGS IN THE LOCKNUT AREA PRIOR TO ASSEMBLING CONDUIT TO ENCLOSURE TO ASSURE A CONTINUOUS GROUND PATH.
23. CUT CONDUIT PERPENDICULAR TO THE LENGTH, FOR CONDUITS 2-INCH TRADE SIZE AND LARGER, USE ROLL CUTTER OR A GUIDE TO MAKE CUT STRAIGHT AND PERPENDICULAR TO THE LENGTH.
24. INSTALL PULL WIRES IN EMPTY RACEWAYS. USE POLYPROPYLENE OR MONOFILAMENT PLASTIC LINE WITH NOT LESS THAN 200-LB TENSILE STRENGTH. LEAVE AT LEAST 12 INCHES OF SLACK AT EACH END OF PULL WIRE. CAP UNDERGROUND RACEWAYS DESIGNATED AS SPARE ABOVE GRADE ALONGSIDE RACEWAYS IN USE.
25. INSTALL RACEWAY SEALING FITTINGS AT ACCESSIBLE LOCATIONS ACCORDING TO NFPA 70 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 ACCORDING TO NFPA 70.
26. INSTALL DEVICES TO SEAL RACEWAY INTERIORS AT ACCESSIBLE LOCATIONS. LOCATE SEALS SO NO FITTINGS OR BOXES ARE BETWEEN THE SEAL AND THE FOLLOWING CHANGES OF ENVIRONMENTS. SEAL THE INTERIOR OF ALL RACEWAYS AT THE FOLLOWING POINTS:
- WHERE CONDUITS PASS FROM WARM TO COLD LOCATIONS, SUCH AS BOUNDARIES OF REFRIGERATED SPACES
 - WHERE AN UNDERGROUND SERVICE RACEWAY ENTERS A BUILDING OR STRUCTURE.
 - CONDUIT EXTENDING FROM INTERIOR TO EXTERIOR OF BUILDING.
 - CONDUIT EXTENDING INTO PRESSURIZED DUCT AND EQUIPMENT.
 - CONDUIT EXTENDING INTO PRESSURIZED ZONES THAT ARE AUTOMATICALLY CONTROLLED TO MAINTAIN DIFFERENT PRESSURE SET POINTS.
 - WHERE OTHERWISE REQUIRED BY NFPA 70.
27. COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS FOR SOLVENT WELDING RNC AND FITTINGS.
28. EXPANSION-JOINT FITTINGS:
- INSTALL IN EACH RUN OF ABOVEGROUND RNC THAT IS LOCATED WHERE ENVIRONMENTAL TEMPERATURE CHANGE MAY EXCEED 30 DEG F AND THAT HAS STRAIGHT-RUN LENGTH THAT EXCEEDS 25 FEET. INSTALL IN EACH RUN OF ABOVEGROUND RMC AND EMT CONDUIT THAT IS LOCATED WHERE ENVIRONMENTAL TEMPERATURE CHANGE MAY EXCEED 100 DEG F AND THAT HAS A STRAIGHT-RUN LENGTH THAT EXCEEDS 100 FEET.
 - INSTALL TYPE AND QUANTITY OF FITTINGS THAT ACCOMMODATE TEMPERATURE CHANGE LISTED FOR EACH OF THE FOLLOWING LOCATIONS:
 - OUTDOOR LOCATIONS NOT EXPOSED TO DIRECT SUNLIGHT: 125 DEG F TEMPERATURE CHANGE.
 - OUTDOOR LOCATIONS EXPOSED TO DIRECT SUNLIGHT: 155 DEG F TEMPERATURE CHANGE.
 - INDOOR SPACES CONNECTED WITH OUTDOORS WITHOUT PHYSICAL SEPARATION: 125 DEG F TEMPERATURE CHANGE.
 - ATTICS: 135 DEG F TEMPERATURE CHANGE.
 - INSTALL EXPANSION FITTINGS AT ALL LOCATIONS WHERE CONDUITS CROSS BUILDING OR STRUCTURE EXPANSION JOINTS.
 - INSTALL EACH EXPANSION-JOINT FITTING WITH POSITION, MOUNTING, AND PISTON SETTING SELECTED ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS FOR CONDITIONS AT SPECIFIC LOCATION AT TIME OF INSTALLATION. INSTALL CONDUIT SUPPORTS TO ALLOW FOR EXPANSION MOVEMENT.
 - PROVIDE EXPANSION/DEFLECTION FITTING PER NEC 300.4 (H) WHERE RACEWAY CROSSES STRUCTURAL JOINT INTENDED FOR EXPANSION/CONTRACTION/DEFLECTION TO ACCOMMODATE HORIZONTAL AND VERTICAL MOVEMENT.
29. FLEXIBLE CONDUIT CONNECTIONS: COMPLY WITH NEMA RV 3. USE A MAXIMUM OF 36 INCHES OF FLEXIBLE CONDUIT FOR RECESSED AND SEMI-RECESSED LUMINAIRES, EQUIPMENT SUBJECT TO VIBRATION, NOISE TRANSMISSION, OR MOVEMENT; AND FOR TRANSFORMERS AND MOTORS.
- USE LFMC IN DAMP OR WET LOCATIONS SUBJECT TO SEVERE PHYSICAL DAMAGE.
 - USE LFMC OR LFNC IN DAMP OR WET LOCATIONS NOT SUBJECT TO SEVERE PHYSICAL DAMAGE.
30. HORIZONTALLY SEPARATE BOXES MOUNTED ON OPPOSITE SIDES OF WALLS SO THEY ARE NOT IN THE SAME VERTICAL CHANNEL.
31. LOCATE BOXES SO THAT COVER OR PLATE WILL NOT SPAN DIFFERENT BUILDING FINISHES.
32. SUPPORT BOXES OF THREE GANGS OR MORE FROM MORE THAN ONE SIDE BY SPANNING TWO FRAMING MEMBERS OR MOUNTING ON BRACKETS SPECIFICALLY DESIGNED FOR THE PURPOSE.
33. FASTEN JUNCTION AND PULL BOXES TO OR SUPPORT FROM BUILDING STRUCTURE. DO NOT SUPPORT BOXES BY CONDUITS.
- A. INSTALLATION OF UNDERGROUND CONDUIT
- DIRECT-BURIED CONDUIT
 - EXCAVATE TRENCH BOTTOM TO PROVIDE FIRM AND UNIFORM SUPPORT FOR CONDUIT.
 - AFTER INSTALLING CONDUIT, BACKFILL AND COMPACT. START AT TIE-IN POINT, AND WORK TOWARD END OF CONDUIT RUN, LEAVING CONDUIT AT END OF RUN FREE TO MOVE WITH EXPANSION AND CONTRACTION AS TEMPERATURE CHANGES DURING THIS PROCESS. FIRMLY HAND TAMP BACKFILL AROUND CONDUIT TO PROVIDE MAXIMUM SUPPORTING STRENGTH. AFTER PLACING CONTROLLED BACKFILL TO WITHIN 12 INCHES OF FINISHED GRADE, MAKE FINAL CONDUIT CONNECTION AT END OF RUN AND COMPLETE BACKFILLING WITH NORMAL COMPACTION.
 - INSTALL MANUFACTURED DUCT ELBOWS FOR STUB-UPS AT POLES AND EQUIPMENT AND AT BUILDING ENTRANCES THROUGH FLOOR UNLESS OTHERWISE INDICATED. ENCASE ELBOWS FOR STUB-UP DUCTS THROUGHOUT LENGTH OF ELBOW.
 - INSTALL MANUFACTURED RIGID STEEL CONDUIT ELBOWS FOR STUB-UPS AT POLES AND EQUIPMENT AND AT BUILDING ENTRANCES THROUGH FLOOR.
 - COUPLE STEEL CONDUITS TO DUCTS WITH ADAPTERS DESIGNED FOR THIS PURPOSE, AND ENCASE COUPLING WITH 3 INCHES OF CONCRETE FOR A MINIMUM OF 12 INCHES ON EACH SIDE OF THE COUPLING.
 - FOR STUB-UPS AT EQUIPMENT MOUNTED ON OUTDOOR CONCRETE BASES AND WHERE CONDUITS PENETRATE BUILDING FOUNDATIONS, EXTEND STEEL CONDUIT HORIZONTALLY A MINIMUM OF 30 INCHES FROM EDGE OF FOUNDATION OR EQUIPMENT BASE. INSTALL INSULATED GROUNDING BUSHINGS ON TERMINATIONS AT EQUIPMENT.
 - WARNING PLANKS: BURY WARNING PLANKS APPROXIMATELY 12 INCHES ABOVE DIRECT-BURIED CONDUITS BUT A MINIMUM OF 6 INCHES BELOW GRADE. ALIGN PLANKS ALONG CENTERLINE OF CONDUIT.
- B. INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES
- INSTALL HANDHOLES AND BOXES LEVEL AND PLUMB AND WITH ORIENTATION AND DEPTH COORDINATED WITH CONNECTING CONDUITS TO MINIMIZE BENDS AND DEFLECTIONS REQUIRED FOR PROPER ENTRANCES.
 - UNLESS OTHERWISE INDICATED, SUPPORT UNITS ON A LEVEL BED OF CRUSHED STONE OR GRAVEL, GRADED FROM 1/2-INCH SIEVE TO NO. 4 SIEVE AND COMPACTED TO SAME DENSITY AS ADJACENT UNDISTURBED EARTH.
 - ELEVATION: IN PAVED AREAS, SET SO COVER SURFACE WILL BE FLUSH WITH FINISHED GRADE. SET COVERS OF OTHER ENCLOSURES 1 INCH ABOVE FINISHED GRADE.
 - INSTALL REMOVABLE HARDWARE, INCLUDING PULLING EYES, CABLE STANCHIONS, CABLE ARMS, AND INSULATORS, AS REQUIRED FOR INSTALLATION AND SUPPORT OF CABLES AND CONDUCTORS AND AS INDICATED. SELECT ARM LENGTHS TO BE LONG ENOUGH TO PROVIDE SPARE SPACE FOR FUTURE CABLES BUT SHORT ENOUGH TO PRESERVE ADEQUATE WORKING CLEARANCES IN ENCLOSURE.
 - FIELD-CUT OPENINGS FOR CONDUITS ACCORDING TO ENCLOSURE MANUFACTURER'S WRITTEN INSTRUCTIONS. CUT WALL OF ENCLOSURE WITH A TOOL DESIGNED FOR MATERIAL TO BE CUT. SIZE HOLES FOR TERMINATING FITTINGS TO BE USED, AND SEAL AROUND PENETRATIONS AFTER FITTINGS ARE INSTALLED.
- 3.6 METHODS FOR CONDUCTOR INSTALLATION
- A. MATERIALS APPLICATIONS
- FEEDERS: COPPER; SOLID FOR NO. 10 AWG AND SMALLER; STRANDED FOR NO. 8 AWG AND LARGER.
 - BRANCH CIRCUITS: COPPER; SOLID FOR NO. 12 AWG AND SMALLER; STRANDED FOR NO. 10 AWG AND LARGER.
- B. CONDUCTOR INSULATION AND WIRING METHODS
- SERVICE ENTRANCE: TYPE THHN/THWN-2, SINGLE CONDUCTORS IN RACEWAY.
 - FEEDERS: EXPOSED OR CONCEALED: TYPE THHN/THWN-2, SINGLE CONDUCTORS IN RACEWAY. BRANCH CIRCUITS; EXPOSED OR CONCEALED: TYPE THHN/THWN-2, SINGLE CONDUCTORS IN RACEWAY.
- C. INSTALLATION OF CONDUCTORS AND CABLES
- CONCEAL CABLES IN FINISHED WALLS, CEILINGS, AND FLOORS UNLESS OTHERWISE INDICATED.
 - 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.
 - USE PULLING MEANS, INCLUDING FISH TAPE, CABLE, ROPE, AND BASKET-WEAVE WIRE/CABLE GRIPS THAT WILL NOT DAMAGE CABLES OR RACEWAY.
 - INSTALL EXPOSED CABLES PARALLEL AND PERPENDICULAR TO SURFACES OF EXPOSED STRUCTURAL MEMBERS, AND FOLLOW SURFACE CONTOURS WHERE POSSIBLE.
- D. CONNECTIONS
- 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 489A-489B.
 - MAKE SPLICES, TERMINATIONS, AND TAPS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL AND THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN UNSPLICED CONDUCTORS.
 - USE OXIDE INHIBITOR IN EACH SPLICE, TERMINATION, AND TAP FOR ALUMINUM CONDUCTORS.
 - WIRING AT OUTLETS: INSTALL CONDUCTOR AT EACH OUTLET, WITH AT LEAST 12 INCHES OF SLACK.
- E. COLOR-CODING FOR PHASE- AND VOLTAGE-LEVEL IDENTIFICATION, 600 V OR LESS: USE COLORS LISTED BELOW FOR UNGROUNDED SERVICE FEEDER AND BRANCH-CIRCUIT CONDUCTORS.
- COLOR SHALL BE FACTORY APPLIED OR FIELD APPLIED FOR SIZES LARGER THAN NO. 8 AWG IF AUTHORITIES HAVING JURISDICTION PERMIT.
 - COLORS FOR 208/120 V CIRCUITS:
 - PHASE A: BLACK.
 - PHASE B: RED.
 - PHASE C: BLUE.
 - COLOR FOR NEUTRAL: WHITE.
 - COLOR FOR EQUIPMENT GROUNDS: BARE COPPER.
 - COLORS FOR ISOLATED GROUNDS: GREEN WITH WHITE STRIPE.
- 3.7 GROUNDING
- A. UNLESS OTHERWISE INDICATED, GROUND ALL EXPOSED NON-CURRENT-CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, RACEWAY SYSTEMS, AND THE NEUTRAL OF ALL WIRING SYSTEMS IN ACCORDANCE WITH THE CEC, STATE, AND OTHER APPLICABLE LAWS AND REGULATIONS.
- 3.8 SUPPORTS AND HANGERS
- A. ALL HANGERS, SUPPORTS, AND ATTACHMENTS TO THE STRUCTURE MUST BE CAPABLE OF WITHSTANDING THREE TIMES THE ANTICIPATED LOAD.
- 3.9 FIELD QUALITY CONTROL
- A. PERFORM THE FOLLOWING TEST AND INSPECTIONS:
- CONDUCTORS AND CABLES #6 AND LARGER:
 - INSPECT FOR PHYSICAL DAMAGE.
 - INSPECT FOR CORRECT IDENTIFICATION.
 - TEST BOLTED CONNECTIONS FOR HIGH RESISTANCE USING A LOW-RESISTANCE OHMMETER.
 - TEST INSULATION RESISTANCE ON EACH CONDUCTOR FOR GROUND AND ADJACENT CONDUCTORS.
 - APPLY A POTENTIAL OF 500V DC FOR 300V RATED CABLES FOR A ONE-MINUTE DURATION.
 - APPLY A POTENTIAL OF 1000V DC FOR 600V RATED CABLES FOR A ONE-MINUTE DURATION.
 - TEST CONDUCTORS FOR CONTINUITY.
 - TEST PARALLEL CONDUCTORS FOR UNIFORM RESISTANCE.
 - GROUNDING AND BONDING
 - AFTER INSTALLING GROUNDING SYSTEM BUT BEFORE PERMANENT ELECTRICAL CIRCUITS HAVE BEEN ENERGIZED, TEST FOR COMPLIANCE WITH REQUIREMENTS.
 - INSPECT PHYSICAL AND MECHANICAL CONDITION. VERIFY TIGHTNESS OF ACCESSIBLE, BOLTED, ELECTRICAL CONNECTIONS WITH A CALIBRATED TORQUE WRENCH ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
 - REPORT MEASURED GROUND RESISTANCES THAT EXCEED THE FOLLOWING VALUES:
 - POWER AND LIGHTING EQUIPMENT OR SYSTEM WITH CAPACITY OF 500 KVA AND LESS: 10 OHMS.
 - POWER AND LIGHTING EQUIPMENT OR SYSTEM WITH CAPACITY OF 500 TO 1000 KVA: 5 OHMS.
 - POWER AND LIGHTING EQUIPMENT OR SYSTEM WITH CAPACITY MORE THAN 1000 KVA: 3 OHMS.
 - POWER DISTRIBUTION UNITS OR PANELBOARDS SERVING ELECTRONIC EQUIPMENT: 3 OHM(S).
 - EXCESSIVE GROUND RESISTANCE: IF RESISTANCE TO GROUND EXCEEDS SPECIFIED VALUES, NOTIFY ARCHITECT PROMPTLY AND INCLUDE RECOMMENDATIONS TO REDUCE GROUND RESISTANCE.
 - WIRING DEVICES
 - LINE VOLTAGE: ACCEPTABLE RANGE IS 105 TO 132 V.
 - PERCENT VOLTAGE DROP UNDER 15 A LOAD: A VALUE OF 6 PERCENT OR HIGHER IS UNACCEPTABLE.
 - GFCI TRIP: TEST FOR TRIPPING VALUES SPECIFIED IN UL 1436 AND UL 943.
 - USING THE TEST PLUG, VERIFY THAT THE DEVICE AND ITS OUTLET BOX ARE SECURELY MOUNTED.
 - TESTS SHALL BE DIAGNOSTIC, INDICATING DAMAGED CONDUCTORS, HIGH RESISTANCE AT THE CIRCUIT BREAKER, POOR CONNECTIONS, INADEQUATE FAULT-CURRENT PATH, DEFECTIVE DEVICES, OR SIMILAR PROBLEMS. CORRECT CIRCUIT CONDITIONS, REMOVE MALFUNCTIONING UNITS AND REPLACE WITH NEW AND RETEST AS SPECIFIED ABOVE.
 - SWITCHES AND MOLDED CASE CIRCUIT BREAKERS
 - VISUAL AND MECHANICAL INSPECTION
 - INSPECT PHYSICAL AND MECHANICAL CONDITION.
 - INSPECT ANCHORAGE, ALIGNMENT, GROUNDING, AND CLEARANCES.
 - VERIFY MECHANICAL OPERATION INCLUDING BLADE ALIGNMENT, BLADE PENETRATION, TRAVEL STOPS, AND LUBRICATION OF MOVING PARTS.
 - VERIFY THAT FUSE SIZES AND TYPES MATCH THE SPECIFICATIONS AND DRAWINGS.
 - ELECTRICAL TESTS
 - PERFORM RESISTANCE MEASUREMENTS THROUGH BOLTED CONNECTIONS WITH A LOW-RESISTANCE OHMMETER. COMPARE BOLTED CONNECTION RESISTANCE VALUES TO VALUES OF SIMILAR CONNECTIONS. INVESTIGATE VALUES THAT DEVIATE FROM ADJACENT POLES OR SIMILAR SWITCHES BY MORE THAN 50 PERCENT OF THE LOWEST VALUE.
 - PERFORM INSULATION-RESISTANCE TESTS FOR ONE MINUTE ON EACH POLE, PHASE-TO-PHASE AND PHASE-TO-GROUND WITH SWITCH CLOSED, AND ACROSS EACH OPEN POLE. APPLY VOLTAGE IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED DATA. IN THE ABSENCE OF MANUFACTURER'S PUBLISHED DATA, USE TABLE 100.1 FROM THE NETA ATS. INVESTIGATE VALUES OF INSULATION RESISTANCE LESS THAN THOSE PUBLISHED IN TABLE 100.1 OR AS RECOMMENDED IN MANUFACTURER'S PUBLISHED DATA.
 - MEASURE FUSE RESISTANCE. INVESTIGATE FUSE-RESISTANCE VALUES THAT DEVIATE FROM EACH OTHER BY MORE THAN 15 PERCENT.
- 3.10 CLEAN UP
- A. UPON COMPLETION OF THE WORK OF THIS SECTION, REMOVE ALL MATERIAL, DEBRIS, AND EQUIPMENT ASSOCIATED WITH OR USED IN THE PERFORMANCE OF THIS WORK.

END OF SECTION



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LICENSE STAMP



CONSULTANTS

PROJECT NAME

MORGUE HVAC UPGRADES

FOR

TEHAMA COUNTY

22840 Antelope Blvd
Red Bluff, CA 96080

NO. REVISIONS DATE

SHEET TITLE

ELECTRICAL SPECIFICATIONS

ISSUED FOR:

CONSTRUCTION DOCUMENTS

DATE: 3/30/2025

DRAWN BY: JK

REVIEWED BY: NW

SCALE:

PROJECT NO: 24049

E111

KEYED NOTES:

① INDICATED EQUIPMENT IS LOCATED UNDERNEATH ROOF, ABOVE CEILING.



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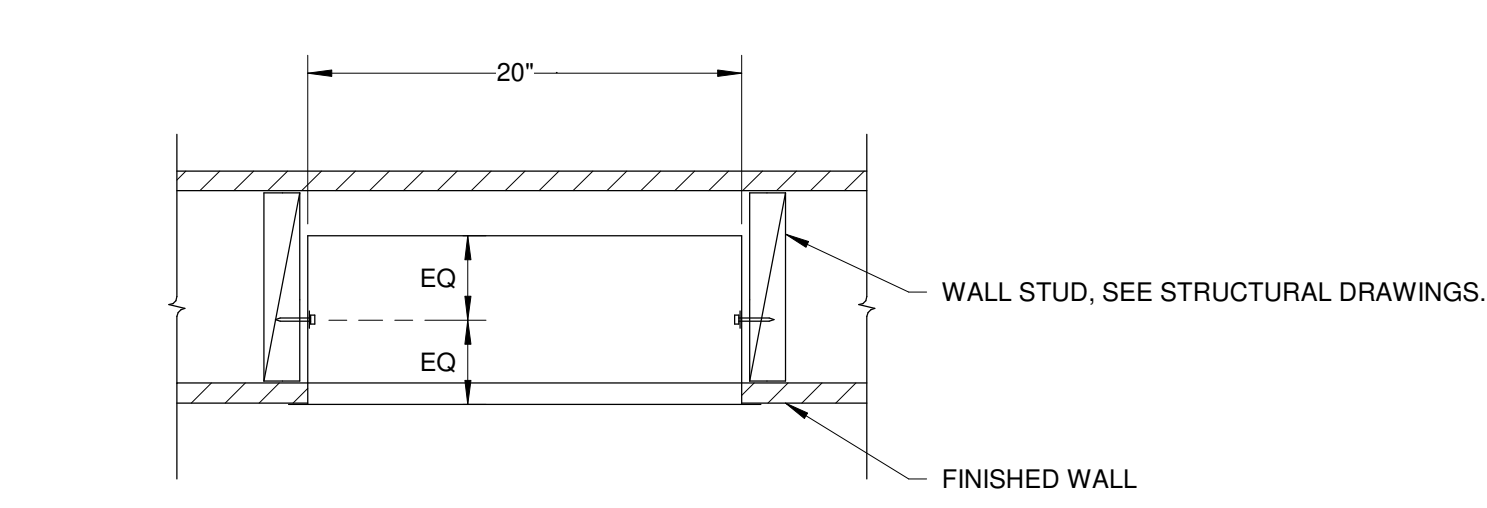
SHEET TITLE

ELECTRICAL ROOF PLAN

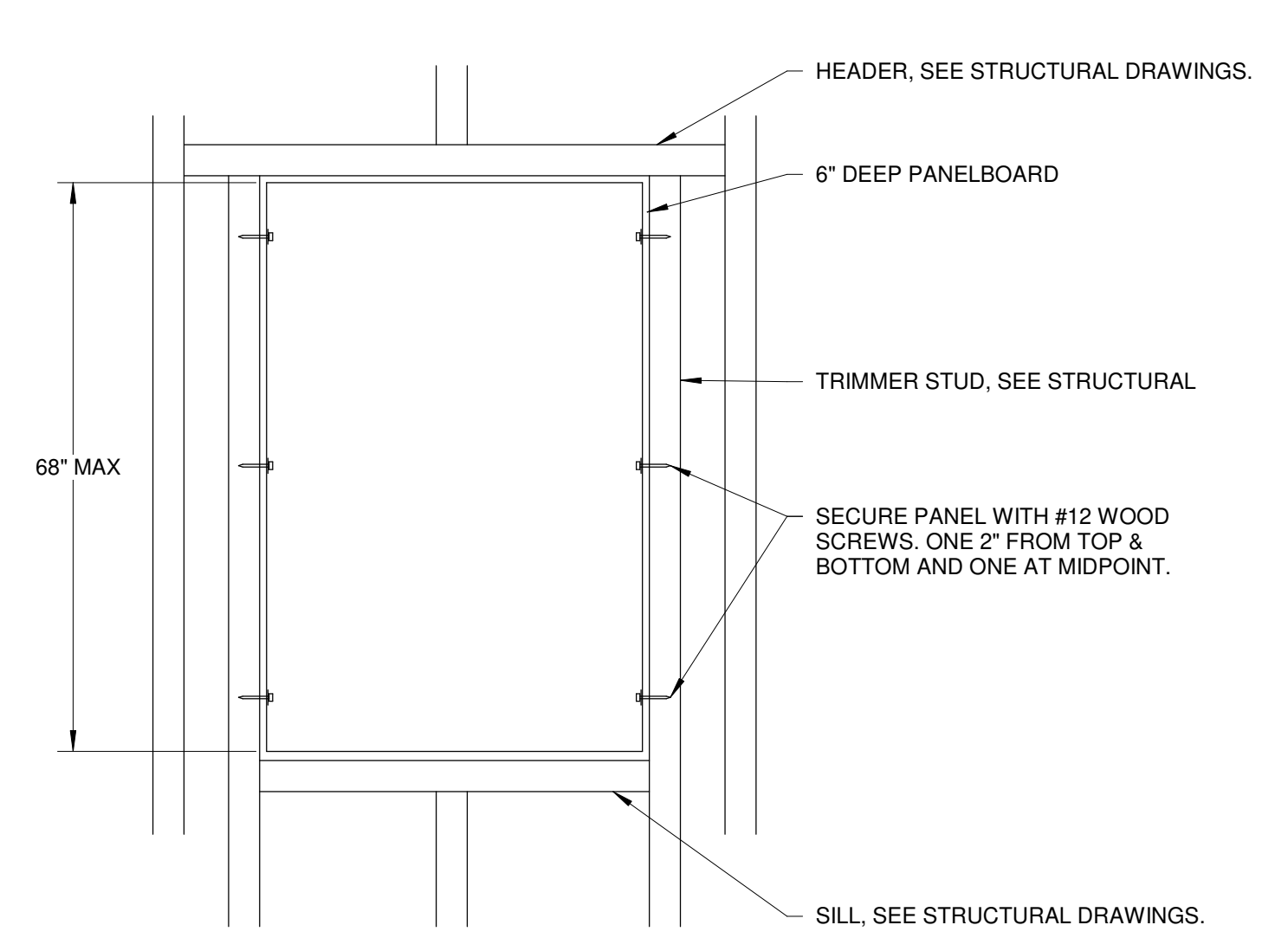
ISSUED FOR:

CONSTRUCTION DOCUMENTS

DATE: 3/30/2025
DRAWN BY: JK
REVIEWED BY: NW
SCALE: As indicated
PROJECT NO: 24049



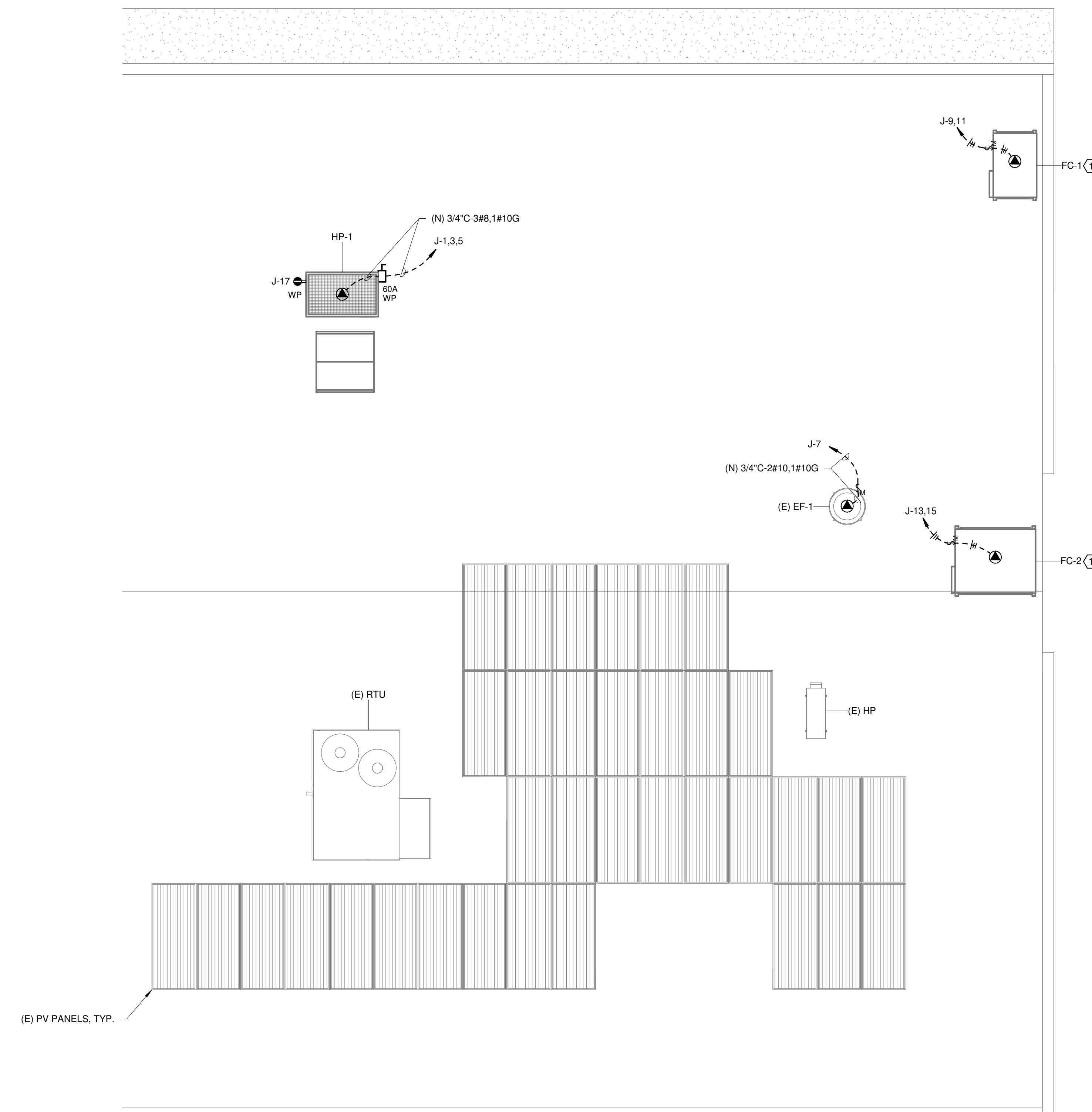
TOP VIEW



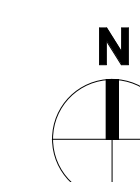
FRONT VIEW

NOTES:
1. USE FENDER WASHERS ON ALL SCREWS.
2. WEIGHT-150 LBS. MAXIMUM

2 RECESSED PANEL MOUNTING DETAIL
E240 NOT TO SCALE



1 ELECTRICAL ROOF PLAN
E240 1/4" = 1'-0"



E240