

# BIDDING INSTRUCTIONS FOR SEALED BIDS



Sealed bids will be accepted at the Grand River Dam Authority Administrative Headquarters located at 226 West Dwain Willis Avenue, Vinita, Oklahoma. Bids received after the bid opening time and date will not be opened or considered.

<b>RFQ or RFP Number:</b>	<b>17513</b>
<b>Bid Opening Time &amp; Date:</b>	<b>8/28/14 2:00 PM CT</b>
<b>Description:</b>	<b>Control House for Tahlequah West Substation</b>
<b>Contracting &amp; Acquisitions Agent:</b>	<b>Monica Fowler</b>

***Bids must be enclosed in a sealed envelope or package and addressed as follows:***

**PURCHASING UNIT  
SEALED BID No. 17513  
GRAND RIVER DAM AUTHORITY  
226 WEST DWAIN WILLIS AVE  
VINITA OK 74301**

***Express Mail/Overnight packages must also be addressed as above.***

Bids not addressed as instructed above negate the confidentiality of the sealed bid and, therefore, will be rejected and returned to the bidder without being considered.

All bids responses shall be typewritten or handwritten in ink, and any corrections to bids shall be initialed in ink. Bids and proposals submitted in pencil will not be accepted.

All bids and proposals shall include an original signature of the bidder and shall be accompanied by a properly executed non-collusion affidavit with original signatures and notary seal.

Bid responses are to include payment terms and delivery information. Bids and proposals shall be quoted FOB: Destination/Freight Allowed unless stated otherwise within the Request for Quote. All packaging, handling, shipping and delivery charges shall be included in the unit price quoted for each line item. No exceptions will be granted unless approved by the guidelines of the Chief Financial Officer or designee.

***Fax or e-mail Bids will not be accepted.***

Bidders opting to decline the bid offering are requested to submit a response with a brief explanation.



Grand River Dam Authority is an agency of the State of Oklahoma, fully supported by customer revenues instead of taxes.  
Administrative Headquarters • 226 West Dwain Willis Avenue • Vinita, Oklahoma 74301 • Phone: 918-256-5545 • Fax: 918-256-1051

RFQ # 17513  
ENG

Quotation Due By: 08/28/2014  
Bid Due Time: 2:00:00 PM

REPLY TO:

VENDOR INFO: \_\_\_\_\_  
NAME: \_\_\_\_\_  
CONTACT: \_\_\_\_\_  
ADDRESS 1: \_\_\_\_\_  
ADDRESS 2: \_\_\_\_\_  
CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_  
EMAIL: \_\_\_\_\_  
PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

VENDOR #: 99999.00

Monica Fowler  
PURCHASING DEPARTMENT  
Grand River Dam Authority  
226 W DWAIN WILLIS AVE  
PO BOX 409  
VINITA OK 74301  
PHONE: 405-297-9963 x4650  
FAX: 405-840-1390  
EMAIL: mfowler@grda.com

- NOTE:
- 1.The bid opening date for this RFQ is August 28, 2014. Each bid response must be received by 2:00 pm Central Time so it can be recorded as received prior to the bid opening time.
  - 2.The outside envelope for each bid must be marked as "Sealed Bid No. 17513". See instructions on the Sealed Bid cover sheet.
  - 3.A completed non-collusion affidavit is required and must be submitted with your bid.
  - 4.This form must be signed by an authorized representative of your company in the space provided in the lower right hand corner of this form.
  - 5.The award to the successful bidder will be based on the lowest and best bid received that meets the specifications listed below and the requirements herein. Preference may be given to E-pay vendors if analysis estimates that such appears to result in a lower cost to GRDA.
  - 6.The brand names, model(s), part number(s) provided herein are for comparable quality and identification purposes only and equivalent bids may be submitted.
  7. All questions and correspondence prior to award should be directed to Monica Fowler, Assistant Superintendent of Purchasing in writing via email no later than August 22, 2014.
  8. Vendor to submit one (1) original copy and one "computer readable" version (e.g., CD-ROM, CD-R, etc.) of the entire proposal.

Bidders should list the cost to provide these units by:

- 1) November 30, 2014, and
- 2) bidder's optimum delivery date.

Bidders should specify their optimum delivery date in their bid response.

\*\*\*\*\* Read the General Bidding Instructions attached to this RFQ for further instructions.\*\*\*\*\*

**GRDA Visa Payment**

GRDA provides a Visa payment program which invoices payment by a secure Visa account number assigned to the supplier after award of contract. Notification of payments and required invoice information are issued to your designated Accounts Receivable contact by e-mail remittance payment. Preference may be shown during the evaluation process to bidders that agree to accept the Visa payment of invoices. To learn more about the benefits of the Visa payment program, and to obtain answers to FAQ, click or copy and paste the following URL into your browser: [www.bankofamerica.com/epayablesvendors](http://www.bankofamerica.com/epayablesvendors).

Will accept payment by Visa: Yes \_\_\_\_ No \_\_\_\_ (check one)

Visa acceptance signature: \_\_\_\_\_



# REQUEST FOR QUOTE # 17513

Designated Accounts Receivable Contact for Visa remittance advices:

Name: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

LINE ITEM	DESCRIPTION	NUMBER OF UNITS	UNIT OF MEASURE	UNIT PRICE	LINE COST	LEAD TIME
1	Control house, delivered to Tahlequah West Substation, Per attached specifications and drawings. Delivery on or before 11-30 - 2014. The control house should have no floor and be suitable for installation on a concrete slab.  1.Unit Price for delivery by November 30, 2014  Line Cost for delivery by November 30, 2014  2.Unit Price for delivery by the bidder's optimum date.  Line Cost for delivery by the bidders optimum date.  Bidders optimum delivery date	1.0		_____	_____	_____

*NOTE: All prices must be quoted FOB: Destination. All freight charges to delivery point must be included in the unit price quoted for each line item. All packaging, handling, delivery and any other surcharges must also be included in the price quoted for each line item.*

PAYMENT TERMS: \_\_\_\_\_

QUOTE EXPIRATION DATE: \_\_\_\_\_

QUOTATION NUMBER: \_\_\_\_\_

QUOTED BY (please print): \_\_\_\_\_

COMPANY NAME: \_\_\_\_\_

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

DATE OF QUOTE: \_\_\_\_\_

SHIP TO: Grand River Dam Authority  
TRANSMISSION & ENGINEERING HDQTRS  
635 HWY 69A  
PO Box 1128  
PRYOR OK 74362

**THIS IS NOT AN ORDER.** We would be pleased to receive your quotation for furnishing the above. This form must be completed **in full** (including signature) and returned by the due date above. You may attach additional pages if necessary. If attached, the Non-Collusion form must be completed and returned with your quotation. **NO PARTIAL SHIPMENTS OR PARTIAL PAYMENTS WILL BE ALLOWED WITHOUT PRIOR APPROVAL.**

All articles purchased hereunder shall be in accordance with the Bidding Procedures and General Terms & Conditions contained on the attached sheets.

\_\_\_\_\_

**A Non-Collusion Affidavit shall be included with any competitive bid or contract submitted for goods or services exceeding \$50,000.00, or for any competitive bid or contract submitted for the purpose of repairs and improvements to GRDA facilities exceeding \$5,000.00.**

A. For purposes of competitive bid or contract, being of lawful age and first duly sworn on oath, I certify:

1. I am the duly authorized agent of \_\_\_\_\_, (Company Name) the bidder submitting the competitive bid which is attached to this statement, for the purpose of certifying the facts pertaining to the existence of collusion among bidders and between bidders and state officials or employees, as well as facts pertaining to the giving or offering of things of value to government personnel in return for special consideration in the letting of any contract pursuant to said bid;
2. I am fully aware of the facts and circumstances surrounding the making of the bid to which this statement is attached and have been personally and directly involved in the proceedings leading to the submission of such bid; and
3. Neither the bidder, nor contractor, nor anyone subject to the bidder's or contractor's direction or control, has been a party:
  - a. to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding,
  - b. to any collusion with any state official or employee as to quantity, quality or price in the prospective contract, or as to any other terms of such prospective contract, nor
  - c. in any discussions between bidders and any state official concerning exchange of money or other thing of value for special consideration in the letting of a contract, nor, whether competitively bid or not, has paid, given or donated or agreed to pay, give or donate to any officer or employee of the State of Oklahoma any money or other thing of value, either directly or indirectly, in procuring this contract herein.

B. The contractor further certifies that no person who has been involved in any manner in the development of said contract while employed by the State of Oklahoma shall be employed to fulfill any of the services provided for under said contract.

C. If any contract pursuant to this bid is for professional services as defined in 74 O.S. § 85.2.25, and if the final product is a written proposal, report or study, the contractor further certifies that (s)he has not previously provided the state agency or any other state agency with a final product that is a substantial duplication of the final product of the proposed contract.

\_\_\_\_\_  
*Authorized Signature*

\_\_\_\_\_  
*Certified this Date*

\_\_\_\_\_  
*Printed Name*

\_\_\_\_\_  
*Title*

State of \_\_\_\_\_

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

Subscribed and sworn to me this \_\_\_\_\_

day of \_\_\_\_\_, 20 \_\_\_\_\_

\_\_\_\_\_  
*Notary Public Signature*

**Notary Seal:**

*My commission expires:* \_\_\_\_\_

*My commission number:* \_\_\_\_\_

# GENERAL BIDDING INSTRUCTIONS FOR SEALED BIDS



GRAND RIVER DAM AUTHORITY

1. Bids shall be opened by the Purchasing Unit at the Grand River Dam Authority (hereinafter referred to as “GRDA” or “the Authority”) Administrative Headquarters, 226 West Dwain Willis Avenue, Vinita, Oklahoma 74301 on the date (and time, if applicable) shown on the attached RFQ or RFP form. Bids shall be in conformity with these and any additional instructions to bidders and shall be submitted on GRDA’s form. **The RFQ (Request for Quote) or RFP (Request for Proposal) form must be completed in full and signed by the bidder.** If your bid response necessitates additional space, you may attach additional pages; however, the RFQ or RFP form shall be completed, signed and reference the additional pages. All bid responses shall be typewritten or handwritten in ink, and any corrections to bids shall be initialed in ink. Quotations or proposals submitted in pencil shall not be accepted.
2. Sealed bids shall be submitted to the GRDA Purchasing Unit in a properly marked envelope or package, and shall be sealed. The name and address of the bidder shall be printed on the exterior of the envelope or package. The RFQ or RFP number and bid opening date shall be referenced on the face of the sealed envelope or package. Unmarked bids shall be rejected and returned to the bidder. Neither fax nor e-mail submissions shall be accepted for sealed bid requirements, as they negate the confidentiality of the bid. Any bid received via fax or e-mail for a sealed bid requirement shall be rejected and returned to the bidder. Bid opening time extensions shall not be granted. Bids received after the opening time and date shall not be considered. This is a formal bidding procedure with all bid packets recorded upon receipt and held unopened under lock until the bid opening at the time, date and location listed on the RFQ or RFP. At public bid openings, a short description of the item and the bid price will be read. The information shall be recorded on a bid tabulation to be used during the subsequent bid evaluation. Interested bidders may make an appointment to review quotations after an evaluation, recommendation and bid award has been made.
3. **Non-Collusion Certificate:** RFQs or RFPs anticipated to exceed a total amount of \$5,000 shall be accompanied by a Non-Collusion Certificate. This certificate shall be completed by the bidder and include an original signature in ink of an authorized company representative (preferably the bidder) with full knowledge and acceptance of the bid proposal. The Non-Collusion Certificate with original signature shall be mailed with the bid response to the attention of the Contracting & Acquisitions Agent listed on the RFQ or RFP. Purchase orders in excess of \$5,000 will not be released to the successful bidder without receipt of a properly signed certificate for the bid.
4. In the event the unit price and line total extension do not agree, the unit price shall be considered the quoted price accepted for evaluation.
5. **Freight Terms:** All prices shall be quoted FOB: Destination/Freight Allowed. All packaging, handling, shipping and delivery charges shall be included in the unit price quoted for each line item. No exceptions shall be granted unless approved by the guidelines of the GRDA Chief Financial Officer or designee.
6. **Other Surcharges:** Any additional surcharges (such as HazMat charges, fuel surcharges, set-up fees, etc.) shall be included in the unit price quoted for each line item. All additional charges are considered a part of the cost of the goods, and bids shall be evaluated to include these additional charges.
7. **Tax-Exempt Status:** GRDA is an agency of the state of Oklahoma and is specifically exempt from the payment of sales tax by Oklahoma state statute, Title 68 O.S.A. § 1356 (10). An excerpt from the statute shall be furnished upon request.
8. **Questions arising during the bidding process should be submitted in writing to the Contracting & Acquisitions Agent named on the RFQ or RFP.** The GRDA Contracting & Acquisitions Agent shall coordinate a reply from the end user to ensure that all potential bidders are provided the same information. Under no circumstances shall a bidder discuss pricing with any GRDA employee prior to the bid opening.
9. All bids submitted shall be subject to GRDA’s Purchasing Policy and Procedures, General Terms and Conditions, the bidding instructions and specifications, the Oklahoma Open Records Act, other statutory regulations as applicable, and any other terms and conditions listed or attached herein – all of which are made part of this Request for Quote or Request for Proposal.
10. GRDA reserves the right to reject any and all bids, and to contract as the best interests of the Authority may require. GRDA reserves the right to reject any bids that do not comply with the requirements and specifications of the Request for Quote or Request for Proposal. All bid responses become the property of GRDA and are subject to the Oklahoma Open Records Act. GRDA shall endeavor to protect technical information designated by the bidder as proprietary information; however, only technical information (i.e., “trade secrets”) may be considered proprietary – pricing and other non-technical aspects of the quote shall be considered non-proprietary.
11. **“Sole Brand” or “No Sub” Items:** Items with a “Sole Brand” or “No Sub” designation in the description shall be furnished as the specified manufacturer and model/part number. No exception may be taken to the specification, and no alternate shall be accepted. In those cases where a manufacturer has discontinued the specified model/part number, the bidder shall indicate so on the RFQ. If a replacement item is available, the new model/part number shall be indicated on the RFQ form and the price quoted. It shall also be noted whether the replacement item is a direct replacement for the obsolete part number originally requested. If not, or if the specifications differ in any way, the bidder shall explain in detail, and corresponding drawings or descriptive literature shall be included with the quote.

## GENERAL BIDDING INSTRUCTIONS FOR SEALED BIDS

12. **Approved Equivalents:** Unless an item is designated as a “Sole Brand” or “No Sub” item, any manufacturer’s name, brand name, information and/or catalog number listed in a specification is for informational or cross-reference purposes and is not intended to limit competition. Bidders may offer any brand/manufacturer for which they are an authorized representative, provided it meets or exceeds the specification of the listed item. However, if quoting an equivalent product, bidders shall indicate on the RFQ form the manufacturer’s name and part number. Bidder shall also submit any drawings, descriptive literature and specifications for evaluation purposes. Reference to literature submitted with a previous bid shall not satisfy this provision. The bidder shall also provide written confirmation that the proposed equivalent will meet the requested specifications and is not considered an exception. Bids which do not comply with these requirements may be rejected. GRDA warehouses are not permitted to accept any item with a part number differing from that quoted by the bidder. Bids lacking any written indication of intent to furnish an alternate brand, model or part number shall be considered to be in complete compliance with the specifications as listed on the RFQ.
13. **Insurance Certificates:** Any service to be performed that requires the vendor’s employee, vehicle or equipment to be on any GRDA property must be covered by minimum insurance requirements. The workscope to be performed for the Authority shall be evaluated and the minimum insurance requirements shall be provided to prospective bidders with the RFQ or RFP. Evidence of insurance coverage shall be furnished in the form of a Certificate of Insurance, and shall be submitted with the bid response. Bidders shall disclose any subcontractors to be used, and the Authority shall consider the supplier as the single point of contact. The supplier shall assume responsibility for the performance of the subcontractor. Policies shall remain current for the duration of the requested service period, and GRDA shall be notified of any cancellation or revision to policies. Purchase Orders shall not be released to the successful bidder without a current Certificate of Insurance naming GRDA as certificate holder on file. A Memorandum of Insurance shall not be acceptable for this requirement.
14. **MSDS:** Material Safety Data Sheets shall be furnished to GRDA’s Safety Department at the address noted on the PO prior to delivery of items.
15. **Purchase Orders** shall be awarded to the “lowest and best” or “best value” bidder. Line items may be split into multiple orders, taking low items from each respective bidder, or orders may be awarded on an “all or none” basis, whichever is in the best interests of the Authority. Award decisions are further subject to consideration of any additional terms and conditions contained in the bid proposal. Vendor protests must be submitted in writing to the Central Purchasing Unit of GRDA within thirty-six (36) hours of award of Contract or Purchase Order.
16. Successful vendor shall deliver the merchandise or perform the service as quoted. Substitutions or changes without prior approval of the GRDA Contracting & Acquisitions Agent shall be rejected and returned at the vendor’s expense.
17. **Bidder Responsibilities:** Bidders are to transact all phases of the purchasing function directly with the GRDA Contracting & Acquisitions Agent. Bidders are to conduct all written and verbal communication with the Authority through the GRDA Contracting & Acquisitions Agent. Bidders are to conduct negotiations ethically, without attempts to influence through offers of valuable personal gifts or entertainment. Bidders are to make available as requested any technical information which might be of benefit in the bid evaluation.
18. **Supplier List:** The Finance Department maintains a current listing of suppliers with a cross-reference as to products and services offered. Suppliers may have their names added to the list by submitting a completed Vendor Registration/Payee Application, and shall notify the Authority of any update information. If a supplier fails to respond to bid requests after four appropriate solicitations, that supplier may be removed from the active list. Suppliers who do not meet quoted shipping dates or lead times, supply products or services of poor quality, substitute items of unequal quality, continually over-ship or under-ship items, or do not invoice properly may be placed under suspension or disqualified from the active supplier list. Suppliers may voluntarily request to be removed from the supplier database.
19. **Service Contracts:** By submitting a bid for services, the bidder certifies that they, and any proposed subcontractors, are in compliance with 25 O.S. §1313 and participate in the Status Verification System. The Status Verification System is defined in 25 O.S. §1312 and includes, but is not limited to, the free Employment Verification Program (E-Verify) available at [www.dhs.gov/E-Verify](http://www.dhs.gov/E-Verify). This shall remain in effect through the entire term, including all renewal periods, of the contract. The State may request verification of compliance for any contractor or subcontractor. Should the State suspect or find the contractor or any of its subcontractors are not in compliance, the State may pursue any and all remedies allowed by law, including, but not limited to: suspension of work, termination of the contract for default, and suspension or debarment of the contractor. All costs necessary to verify compliance are the responsibility of the contractor.

# GENERAL TERMS AND CONDITIONS



Any contract or order issued by the Grand River Dam Authority (hereinafter referred to as GRDA) is expressly conditioned upon Seller's assent to these terms and conditions, unless otherwise agreed in writing. Any order issued or filled by Seller shall be deemed to constitute Seller's assent to these terms and conditions. Any additional or different terms submitted by the Seller are hereby expressly objected to by GRDA unless expressly agreed to in writing by GRDA.

1. Mail or deliver all invoices or correspondence pertaining to the payment of this Purchase Order to: Accounts Payable Department, Grand River Dam Authority, P.O. Box 409, 226 West Dwain Willis Avenue, Vinita, Oklahoma 74301. Seller shall submit invoices, with one copy detailing each item with unit prices, with the top copy being distinguishable as an original, accompanied by one copy of complete shipping papers. If shipment is not made by routing instructions as specified on the face of this Purchase Order, GRDA reserves the right to deduct any excess transportation charges resulting therefrom. Copy of original freight bill must be supplied for payment. Time, in connection with any discount offered, will be computed from date of delivery of items, or from date the correct invoice is received in Vinita, Oklahoma, whichever period of time is the later date. No Oklahoma State Sales or Use Tax shall be included in payment of this Purchase Order.
2. All articles, materials, equipment and supplies (hereinafter referred to as "items") covered by this Purchase Order, unless otherwise specified, are purchased subject to inspection before and during manufacture and upon arrival at destination. GRDA reserves the right to return for full credit and/or refund, at Seller's sole risks and expense, including all transportation and storage charges, all items found defective or furnished contrary to instructions and/or specifications contained herein.
3. In case of default by Seller, GRDA may procure the items or services from other sources and hold Seller responsible for any excess cost occasioned thereby; provided, that if necessity requires the use of items not conforming to specifications, they may be accepted, and payment made at a proper reduction in price. Notwithstanding anything herein to the contrary, GRDA reserves the right to terminate this Purchase Order for its convenience. In the event of such termination, GRDA shall pay and Seller shall accept the reasonable value of all work performed and items delivered by Seller up through the effective date of such termination.
4. Seller warrants that all items covered by this Purchase Order will conform to the specifications, drawings, samples or other description furnished by GRDA, or any revisions thereof, and any items purchased pursuant to this Purchase Order shall be subject to all warranties expressed or implied by law, and will be merchantable of good material and fit and sufficient for the purpose intended, and shall satisfy any performance guarantee requirements as specified herein by GRDA. In the event the items and/or services purchased hereunder do not meet the warranty specified hereinabove, Seller shall promptly repair or replace any defective item at its expense, or re-perform any necessary services, and shall hold GRDA harmless from any and all costs and expenses incurred due to said defective item or performance of services, including the cost for removing any part or product to be repaired or replaced, as well as transportation and installation charges in connection with the repair, replacement or servicing of any parts or equipment. Seller further agrees that the manufacturer's warranties and guaranties of the items purchased hereunder extended to Seller shall extend to GRDA.
5. Seller shall indemnify and hold GRDA harmless from and against any and all loss, costs or expenses arising out of any liens or claims in any way related to the items or services furnished hereunder. Seller shall likewise indemnify and hold GRDA harmless from any patent, trademark or copyright infringement, except items supplied in accordance with design originating with GRDA. Seller shall be an independent contractor. Seller shall protect, defend, indemnify and hold GRDA harmless from any damage or injury to any persons, including Seller's employees or property, and from any claim, demand, action, cost or expense arising out of the activities hereunder as a result of Seller's negligent or intentional wrongful acts. In no event shall Seller's liability be limited under this Purchase Order for the negligent or intentional wrongful acts of the Seller.
6. Seller shall, before any items are shipped and/or any services are commenced, provide GRDA with certificates evidencing that the following minimum insurance will remain in force until Seller's obligations are completed: (a) Workmen's Compensation Insurance, including Employer's Liability Insurance, in accordance with the laws of the state in which Seller may be required to pay compensation; and (b) Public Liability Insurance with an individual limit of not less than \$100,000 and a total for any one accident of not less than \$300,000, unless otherwise specified herein.
7. This Purchase Order (including Seller's right to receive payments hereunder) shall not be assigned or subcontracted in whole or in part without GRDA's prior written consent. No assignment hereof shall relieve this assignor of its obligations hereunder.
8. Service Contracts: By submitting a bid for services, the Bidder certifies that they, and any proposed Subcontractors, are in compliance with 25 O.S. §1313 and participate in the Status Verification System. The Supplier/Contractor/Consultant/Construction Manager/etc. certifies that it and all proposed Subcontractors, whether known or unknown at the time a contract is executed or awarded, are in compliance with 25 O.S. §1313 and participate in the Status Verification System. The Status Verification System is defined in 25 O.S. §1312 and includes, but is not limited to, the free Employment Verification Program (E-Verify) available at [www.dhs.gov/E-Verify](http://www.dhs.gov/E-Verify). This shall remain in effect through the entire term, including all renewal periods, of the Contract. The State may request verification of compliance for any Contractor or Subcontractor. Should the State suspect or find the Contractor or any of its Subcontractors are not in compliance, the State may pursue any and all remedies allowed by law, including, but not limited to: suspension of work, termination of the Contract for default, and suspension or debarment of the Contractor. All costs necessary to verify compliance are the responsibility of the Contractor.
9. All Items shipped pursuant to this Purchase Order will conform with all municipal, state and federal laws, ordinances and regulations, and Seller will defend and save harmless GRDA from loss, costs or damage by reason of any actual or alleged violation thereof.
10. GRDA hereby notifies Seller that Seller must comply, and by acceptance of this Purchase Order, Seller represents that it has complied with, and will continue to comply with, all applicable federal, state and local laws, regulations or orders.
11. This Purchase Order shall be construed as being performed by both parties in Craig County, Oklahoma, and shall be governed in accordance with the laws of the State of Oklahoma.

*Grand River Dam Authority is an agency of the State of Oklahoma.*

**Administrative Headquarters • 226 West Dwain Willis Avenue • Vinita, Oklahoma 74301 • Phone: 918-256-5545 • Fax: 918-256-1051**

**GRDA**

**161kV Pawnee Switch Station**

Technical Specifications

For

Control Building

May 2013



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## 1.0 SCOPE

This specification presents a general description, design criteria and the construction requirements for factory fabricated Substation Control Building for housing control/monitoring equipment.

## 2.0 APPLICABLE STANDARDS

The design, material, manufacture, testing and performance of the Control Building shall meet the requirements of the applicable sections of the latest revisions of the standards listed below:

- ◆ ANSI American National Standards Institute
- ◆ AISC American Institute of Steel Construction
- ◆ NEMA National Electrical Manufacturers Association
- ◆ IEEE Institute of Electrical and Electronics Engineers, Inc.
- ◆ UBC Uniform Building Code
- ◆ NEC National Electric Code
- ◆ MBMA Metal Building Manufacturers Association
- ◆ NFPA National Fire Protection Association
- ◆ SSPC Steel Structures Painting Council
- ◆ OSHA Occupational Safety and Health Administration
- ◆ AISI American Iron and Steel Institute
- ◆ ICEA Insulated Cable Engineers Association
- ◆ ASTM American Society for Testing and Materials
- ◆ SBC Southern Building Code
- ◆ BOCA Building Officials & Code Administrators
- ◆ IBC International Building Code

## 3.0 GENERAL DESCRIPTION

3.1 The Control Building consists of a coordinated grouping of electrical distribution, control, and supervisory equipment contained within an all-weather enclosure. The Control Building is delivered to the customer's site as a pre-designed, factory assembled and tested unit.

3.2 The Control Building is a factory fabricated metal enclosure with environmental control, and is specifically designed to house selected Control/Monitoring equipment.

3.3 The completed Control Building shall be suitable for shipment to the customer's project site. The Control Building shall be designed and fabricated so the fieldwork at the installation site is minimized.

3.4 Construction of the Control Building shall be performed in the highest manner of workmanship using only new and unused, top quality materials. The Control Building shall be guaranteed against defects in materials and workmanship for one (1) year from the date of shipment.

## **4.0 DESIGN, CONSTRUCTION AND MATERIALS**

### **4.1 GENERAL**

- 4.1.1 The basic design and construction of the Control Building shall be as described in the following paragraphs. The Control Building dimensions and arrangement shall be as shown on Purchaser's drawing.
- 4.1.2 For seismic requirements the structure of the Control Building shall be designed and constructed to safely support the seismic loads specified in section 1605.4 of the 2000 International Building Code. A structural analysis report prepared by a Professional Engineer registered in the State of Oklahoma must be submitted.

### **4.2 SERVICE CONDITIONS**

The Control Building shall perform satisfactorily when installed outdoors. The Control Building shall be suitable for installation in a 49 Degree C (120 Degree F) maximum temperature, -10 Degree C (14 Degree F) minimum temperature, and at an elevation below 1000 feet.

### **4.3 BASE**

- 4.3.1 The Control Building base shall be all welded construction of ASTM A-36 structural steel members, sized and arranged for proper strength and durability, and shall be able to withstand the stress and loads which will result when lifting the completed factory fabricated Control Building. The base structural members shall not interfere with or obstruct the areas designated for routing of power cables or control wiring.
- 4.3.2 Deflection during lifting shall not exceed 0.50 inches per 10 feet. Base shall be designed for mounting on concrete piers provided by Purchaser.
- 4.3.3 The base shall have removable lifting/jacking devices to facilitate handling and installation. The normal lifting for transportation and installation shall be by means of a crane making a single point lift using suitable rigging.

### **4.4 FLOOR**

- 4.4.1 The Control Building floor shall be a minimum of 1/4-inch steel plate welded to the perimeter members and to the cross members of the base. The floor loading shall be rated not less than 100 pounds per square foot distributed load, or a 1300-pound load concentrated in a 2½ square foot area located anywhere in the Control Building.

## **4.5 FRAME**

- 4.5.1 The Control Building shall have a complete, internal, self-supporting, structural steel frame which does not rely on the exterior panels or roof cover panels for any of its structural strength or framing. The entire building shall be framed with 4-inch structural grade steel to provide moment resisting welded connections at base to walls, side walls to end walls, and walls to roof, so as to minimize overall deflection, twisting, and elastic instability during lifting and transporting.
- 4.5.2 All wall openings, such as doors, windows, etc., shall be similarly framed with 4-inch steel. All frame connections shall be welded.

## **4.6 WALLS**

- 4.6.1 The height from floor to ceiling shall be 120 inches. The exterior and interior walls shall be 16 gauge paint quality galvanized steel, and shall consist of formed vertical panels. The nominal thickness of the wall, including the required frame structure shall be 4 inches.
- 4.6.2 The walls shall be designed to withstand wind loading of up to 125 miles per hour.
- 4.6.3 The walls shall be designed and assembled to allow for future lateral expansion of the Control Building.
- 4.6.4 The walls shall be designed to allow control and power cables to come into the building. Refer to control house layout drawing for hole locations. After cable installation, construction contractor shall seal the penetrations using materials provided by building contractor per Section 4.11.4.
- 4.6.5 Interior walls, supporting panels, and structurals, shall be designed so that interior loads of 400 pounds per linear foot of wall length may be attached to the wall without compromising the 125 MPH design wind loads.
- 4.6.6 Butted seams are not allowed. All openings in walls are to be structurally framed, sleeved, trimmed, and provided with external drip caps.
- 4.6.7 Should damaged exterior wall panels need to be replaced, the frame design will facilitate replacement without disrupting the integrity of the roof and adjoining wall panels or adjacent walls.

#### **4.7 ROOF AND CEILING**

- 4.7.1 The exterior roof shall be 12 gauge paint quality galvanized steel panels with fully welded seams. The roof design load (dead load and live load) shall be rated for a minimum of 80 PSF. The roof shall be gabled with a minimum of 3:12 pitch to both sides. The roof shall be designed to support interior or exterior equipment loads without compromising the roof load design. The roof is to include a matching, die-formed ridge cap, and a fully supported 3” overhang.
- 4.7.2 Roof trusses shall consist of formed 12 gauge (up to 12 Ft. Wide) or 10 gauge steel sections. Trusses shall be sloped to provide a minimum 3:12 pitch and have a 1-1/2” upper and lower horizontal flange for attachment of equipment.
- 4.7.3 The ceiling shall consist of formed 16 gauge paint quality galvanized steel panels attached to the trusses. The ceiling assembly shall be designed to retain the insulation and to provide a smooth ceiling surface.
- 4.7.4 Two (2) louvered ventilation openings shall be provided, one at each end of the Control Building roof structure, to prevent condensation in the attic space.

#### **4.8 DOORS**

- 4.8.1 The Control Building shall have one (1), 96 by 48-inch single doors. When specified, different size doors and/or removable wall sections above doors shall be provided to allow for future addition or removal of equipment.
- 4.8.2 All doors shall open outward and have a minimum swing of 105 degrees.
- 4.8.3 Doors shall be 18 gauge, double wall steel construction with R-15 thermal insulation, reinforced for closure and rim, and hinge preps for three 4” x 4” hinges per door. Doors shall have a fire rating of 1-1/2 hour class B.
- 4.8.4 Provide “Sergeant” brand low-profile rim device type panic interior openers, with cylinder lock keyed entry and thumb latch exterior for each door.
- 4.8.5 All locks shall be keyed to match the standard GRDA substation building key. Lock and door hardware shall be stainless steel.
- 4.8.6 Provide stainless steel ball bearing hinges, minimum of three (3) per door, and a hydraulic closer with hold-open arm for each door.
- 4.8.7 Provide weather-stripping around each door and a drip shield above the door.
- 4.8.8 Door shall be factory primed and painted with epoxy enamel to match the building or the trim.

#### **4.9 TRIM**

4.9.1 The exterior trim package shall include stepped or boxed eave, rake, fascia, base, corner, jamb, and header trim in 26 gauge galvanized steel material with owner's choice of standard colors.

4.9.2 The interior trim shall include a complete matching trim system including base, jamb, header, and ceiling trim.

#### **4.10 STAIRS AND LANDINGS**

The Manufacturer shall provide access stairs and landings with integral handrails for each exterior door per OSHA and NFPA 101B. The Control Building base will be set on piers approximately 12-24" above final substation grade.

#### **4.11 WEATHER PROOFING**

4.11.1 All Control Building joints shall be designed to minimize the loss of conditioned or pressurized air and to prevent entry of rain, sleet, snow or moisture.

4.11.2 All wall seams and areas where metal to metal contact is made shall be liberally caulked. All roof seams are completely welded.

4.11.3 All building openings shall be constructed, sealed, and protected in a manner that prohibits the entry of rodents, snakes, and other small animals.

4.11.4 Provide weatherproof exterior enclosures as required to cover vertical cable trays and cable tray entrances into the building. Enclosure shall be of the same wall panel and roofing materials as used for the remainder of the building. Provide extra insulation material (to be installed by others) for sealing the entry holes in the wall after cable installation is completed.

#### **4.12 INSULATION**

Three and one-half inch (3-1/2") fiberglass insulation providing R-14 value shall be provided in the walls with R-21 insulation in the ceiling or roof. Sagging of wall or roof insulation shall be prevented with metal retainer strapping fastened as required. R-21 floor insulation shall be provided using 6" batt insulation. The walls and ceiling shall have a vapor barrier.

#### **4.13 FINISHES**

Exterior and interior color coatings shall be baked on finishes. Exterior finish shall meet the following minimum performance standards after 10 years of continuous exposure.

4.13.1 Panels shall show no evidence of blistering, peeling or chipping.

4.13.2 Panels shall not show surface caulking in excess of the No. 8 rating when measured in accordance with ASTM D-4214.

4.13.3 Panels, after cleaning, shall not show color change in excess of seven (7) NBS units when measured in accordance with ASTM D-2244.

GRDA shall choose colors for the interior and exterior finishes from the standard colors available for the building. Bidder shall include color samples available for the building with the bid documents.

#### **4.14 HVAC**

Heating, ventilating, and air conditioning (HVAC) equipment shall be sized and provided by Manufacturer. HVAC equipment size shall be based on maintaining an interior temperature range of 60 - 80 degrees F, taking into consideration the heat load of present and future equipment and the site conditions. One unit shall be supplied and capable of maintaining an interior temperature range of 60 - 80 degrees F. HVAC equipment shall consist of self contained wall mount units, complete with supply and return grilles, lockable circuit breaker or disconnect switch, manual thermostat, barometric fresh air damper, and a one-inch disposable air filter. The following controls shall be supplied: high-pressure controls, low pressure control, low ambient control, compressor anti-cycle relay, and alarm relay. Condenser and evaporator coils shall be phenolic coated, when specified. The design calculations shall be submitted with the bid.

### **5.0 ELECTRICAL**

The Manufacturer shall provide all electrical equipment and associated material as described in this article, and as shown on the control building layout drawing, and the AC and DC drawings.

All electrical equipment, and associated wiring, shall be designed and installed in accordance with the provisions of the National Electrical Code. All material shall be UL listed.

#### **5.1 AC SYSTEM**

The AC system shall include two AC panel boards and one Manual Transfer Switch.

### 5.1.1 AC Panel board

All AC panel boards provided shall be Square D. I-line type HCN series, single-phase, three-wire, top fed, and rated for service entrance use. Each panel board shall be rated 240V with 120 tap service 200 amps, and 65kA IC. AC panel boards shall be provided with 200 amp main lugs, and positions for sixty single-pole branch circuit breakers. Branch circuit breakers shall be rated as shown on the AC drawing. Buses shall be copper. One bolted ground bar and one insulated neutral bus shall also be provided. The cabinet shall be NEMA Type 1, suitable for indoor use and surface mounting.

Each circuit installed by the Manufacturer's electrical contractor shall have its corresponding breaker labeled by location and description on the inside panel cover.

There is one (1) AC panel board, see drawing S117SP03, required and mounted at the locations shown on the control building layout drawing. Each panel board will contain the following breakers:

200A – 2 pole – Quantity of 2  
40A – 2 pole – Quantity of 9  
40A – 1 pole – Quantity of 5  
30A – 2 pole – Quantity of 1  
20A – 1 pole – Quantity of 18  
20A – 2 pole – Quantity of 6  
90A – 2 pole – Quantity of 1

### 5.1.2 Manual Transfer Switch

One (1) Manual Transfer Switch (MTS) shall be furnished in accordance with the requirements of this section and the drawings. The switch, mounted against the wall within the control building shall be manually switched to the back up source upon loss of primary source. The MTS shall be suitable for operation with in the constraints of environmental conditions at the site. The MTS shall be an ASCO or proposed equal with Engineer's approval.

The MTS shall be rated for 120/240 VAC, 1Ø 600 amp, three pole, 60 hertz. The transfer switch shall be quick-break, "break-before-make." A full rated switched neutral bus shall be provided and shall include indicating lights, visible with out opening the door, to allow the operator to determine which source is selected and which sources are available.



Two three-inch conduits shall also be provided between the Manual Transfer Switch and the cable tray for the wiring of power cables to the AC panels and alarms to the termination box.

## 5.2 *DC SYSTEM*

The DC system will have a DC battery bank, battery charger, and fuse disconnect switch.

### 5.2.1 DC Panel board

DC panel boards shall be Square D. HCN series, two-wire, top fed, and rated for service entrance use. Panel board shall be rated 125/250 volts DC, 300 amps, and 10kA IC. DC panel board shall be provided with main 225 A lugs only, and with positions for sixty-two single-pole branch circuit breakers. All branch circuit breakers provided shall be two-pole, "bolt-on", and rated as shown below. Buses shall be copper. One ground bar shall also be provided. The cabinet shall be NEMA Type 1, suitable for indoor use and surface mounting.

There are two (2) DC panel boards, see drawings S117SP01 and S117SP02, required and mounted at the locations shown on the control building layout drawing. Each panel board will contain the following breakers:

#### DC Panelboard 1

225A – 2 pole – Quantity of 1  
40A – 2 pole – Quantity of 19  
20A – 2 pole – Quantity of 3

#### DC Panelboard 2

225A – 2 pole – Quantity of 1  
30A – 2 pole – Quantity of 6  
20A – 2 pole – Quantity of 7  
40A – 2 pole – Quantity of 7

### 5.2.2 DC Battery Charger

The battery charger shall be 240VAC – 1 Phase Input – 130VDC 50 amp output. Unit shall be designed for float and equalization charging modes. Charger shall be manufactured by C&D and suitable for wall mounting. The unit shall have at least the following alarms:

- a. High DC voltage
- b. Low DC voltage
- c. Loss of AC source
- d. Any additional alarms that come standard with the unit

### 5.2.3 DC Distribution Batteries

The DC batteries shall be of the lead-acid type rated 100A for one minute to 1.75VPC with a 200AH rating. The DC batteries shall be mounted in a battery rack installed upon an acid-impervious plastic or fiberglass containment tray. Battery rack shall be placed along one wall of the control building. Battery rack shall be two-tiered and stepped. Rack shall not be anchored to the wall.

## 5.3 *LIGHTING AND RECEPTACLES*

5.3.1 Interior lighting shall consist of open type, 4 ft., two-tube industrial grade fluorescent fixtures that provide 40 foot candles of light at a level three feet above the floor. This lighting shall be controlled by a three-way switches located near the door. Florescent light fixtures shall not be installed above the cable trays.

5.3.2 Exterior lighting shall be provided above each personnel door. Exterior light fixtures shall be wall mounted 70W HPS suitable for use in wet locations.

5.3.3 Emergency lighting shall be a self-contained battery powered unit with two directionally adjustable illuminating heads. The unit shall switch on automatically upon loss of AC power and provide 1.5 hours of continuous illumination, and then recharge when AC power is resumed. Units shall provide contacts for an alarm for loss of AC power. Two (2) units shall be provided and installed in the building.

5.3.4 Eleven (11) duplex receptacles rated 120VAC, 20A, spec grade, and shall be located approximately 18 inches above floor level, vendor to show on the approval drawings.

Two (2) GFI receptacles rated 120VAC, 20A, and two (2) 240VAC, 30A receptacle shall be located on the exterior of the control building, vendor to show on the approval drawings.

Where receptacles are wired in a branch circuit, the first receptacle in the circuit shall be a ground fault current interrupter.

5.3.5 Receptacles and lighting switches shall be located outside of battery areas.

## **5.4 WIRING**

All Control Building lighting and power wiring shall be single conductor, stranded copper, with THHN/THWN 600V insulation with a minimum size of No. 12 AWG. Control, instrumentation, and alarm wiring shall be no smaller than No. 18 AWG. All wiring shall be installed in the 4" x 4" perimeter wire way, EMT conduit, or other approved raceway in accordance with the National Electric Code.

## **6.0 AUXILIARY EQUIPMENT**

### **6.1 BATTERY EXHAUST FAN**

The Manufacturer shall supply one (1) battery exhaust fan, complete with timer. The exhaust fan shall be rated 120 volts AC, have a minimum diameter of eight inches, a minimum capacity of 700 cubic feet per minute, and capable of cyclic operation. The fan shall be explosion-proof, or have a shaded pole (non-sparking) motor. The thermal overload shall be wired such that it is operational.

The exhaust fan shall be supplied with a replaceable dust filter, perimeter weather-stripping, and bird screen.

The timer shall be rated at 120 volts AC, with contacts capable of switching 20 amps. It shall include a 24-hour dial, with skip feature, set to operate twenty minutes daily. The timer shall be located outside of battery areas.

### **6.2 DOOR ALARM SWITCH**

One security door alarm switch shall be provided for each door. The alarm shall have one "normally open" and one "normally closed" dry contact, each rated at 125 volts DC. The Purchaser will install the wiring between the door alarm and the RTU.

### **6.3 SMOKE/HEAT DETECTOR**

One photoelectric smoke and heat detector shall be furnished and located centrally in the building. The smoke/heat detector shall be powered by 120 volts AC, and be equipped with one "normally open" and one "normally closed" isolated dry contact. Both dry contacts shall be rated at 24 volts DC. The Manufacturer shall install the wiring between the AC panel board and the smoke/heat detector. The Purchaser will install the wiring between the smoke/heat detector and the RTU.

#### **6.4 EMERGENCY EYE WASH**

Building manufacturer shall install a wall mounted self contained emergency eye wash station containing, at a minimum, two 16 ounce bottles of sterile saline solution near the battery system location.

#### **6.5 FIRE EXTINGUISHERS**

Wall-mounted, 10# Dry Chemical ABC Rated Fire Extinguishers are to be provided and installed in a convenient location at each doorway.

#### **6.6 CARD READER JUNCTION BOXES**

Manufacture shall provide and install ¾” conduits from the cable tray through the exterior wall for the installation of junction boxes for card readers to be installed on each door in the locations shown on the drawings. Card readers and junction boxes shall be installed by GRDA.

### **7.0 GROUNDING**

The Manufacturer shall provide two (2) NEMA standard 4-hole ground pads at opposite corners on the outside base of the control building for grounding the building to the substation ground grid. The Manufacturer shall supply a ¼” X 4” ground bus bar around the inside of the building perimeter approximately six (6”) inches below the building ceiling. The bus bar shall be connected to the ground pads mounted on the exterior of the building base. There shall be 4/0 bare copper ground conductors installed in all cable tray and it shall be attached to the bus bar near the location where the cable tray enters the building.

### **8.0 CABLE TRAY**

The Manufacturer shall furnish aluminum all ladder cable trays inside the control building and cable risers out side the control building. Tray design shall conform to the requirements of NEMA Publication VE 1, Metallic Cable Tray Systems Standard. Installation shall meet all applicable requirements of the *National Electrical Code*.

The cable tray shall be constructed of aluminum alloy grade 6063-T6, and shall be designed to support a cable load of 75 pounds per linear foot. All cable tray and risers inside the building shall be twenty four (24) inches wide and six (6) inches deep, with nine (9) inch rung spacing. Cable riser outside the building shall be thirty six (36) inches wide and eighteen (18) inches deep. The minimum radius of all transitions between vertical and horizontal tray systems and for all horizontal tray connectors shall be twelve (12) inches. The rungs of the vertical tray, when installed, shall be mounted on the side of the tray closest to the building. The vertical cable tray shall be offset from the wall as shown on the control building layout drawing, and covered using a solid aluminum flanged panel.

Two hanger rods, suspended from the ceiling or roof steel, shall be used to support the cable tray at intervals no greater than eight (8) feet. When “Hanger mate” stud connectors are used to support the tray, the tray support interval shall not exceed four (4) feet. The rods shall have a protective sheath covering at least the lower eight (8) inches of the hanger rod threads.

## **9.0 ERECTION/INSTALLATION**

Building erection shall be performed in accordance with the specifications of the AISC *Code of Standard Practice*. Electrical work shall be performed in accordance with the provisions of the *National Electrical Code*.

The constructed building shall be weather tight. Caulking, flashing, and weather stripping shall be used as required. However, caulking and flashing shall not be used to conceal poor workmanship.

## **10.0 TESTING AND CHECKOUT**

After the Control Building is fabricated and the electrical equipment is installed, Manufacturer will perform a wet spray test, an electrical inspection, and a quality inspection. Copies of completed test reports will be made available upon request.

## **11.0 SHIPMENT**

11.1 The Control Building shall be shipped to the NW Maid Substation job site, on south side of HWY 69A between Williams Street and Zarrow Street on Main Street in Pryor, Oklahoma after it has passed the tests and has been inspected for compliance to the specification.

11.2 The Contractor shall notify GRDA one week prior to shipment.

11.3 When shipping sections are necessary, the open area of each section shall be sealed with plywood and 2 x 4's, to provide adequate temporary bracing for the roof and wall structures to prevent damage during shipment.

11.3 Components that are not fastened to the Control Building structure at time of shipment will be securely packed inside the Control Building if possible. Each item will have an identifying tag and will be listed on the packing list.

## **12.0 DOCUMENTATION**

12.1 Manufacturer will prepare engineering documents using AutoCAD® 2004 and Microsoft WORD. Electronic copies of these documents will be made available on CD-ROM or e-mail.

12.2 Manufacturer shall submit for approval two copies of each of the following documents.

Outline-Plan View (general arrangement, center of gravity, weight, floor opening sizes and locations)

Outline-Elevation (general arrangement in elevation, recommended pier and tie down locations, wall opening sizes and locations)

Outline-Legend/Design Criteria (design criteria, drawing legend, and bill of material)

After approval drawings are returned, Manufacturer shall prepare structural fabrication detail drawings and electrical wiring drawings, as required.

12.3 All correspondence and drawing submittals shall be sent to GRDA:

Edwin Averill, Project Engineer  
Grand River Dam Authority  
Engineering Technology Center  
9933 E 16<sup>th</sup> Sreet  
Tulsa, Oklahoma 74128  
Email: [baverill@grda.com](mailto:baverill@grda.com)  
Office number: (918) 610-9702

Roman Montoya, Engineering Technical Superintendent  
Grand River Dam Authority  
Engineering Technology Center  
9933 E 16th Sreet  
Tulsa, Oklahoma 74128  
Email: [rmontoya@grda.com](mailto:rmontoya@grda.com)  
Office number: (918) 610-9712

12.4 Manufacture is requested to provide documentation by the following dates. If manufacture cannot provide documentation by the requested dates, manufacture will provide guaranteed dates for delivery with their bid.

Arrangement drawings for approval: 3 Weeks ARO  
All other drawings for approvals: 4 weeks ARO  
Certified constructions drawings: 8 weeks ARO  
Instruction manuals: 12 weeks ARO

All documents shall be submitted in accordance with these dates or dates guaranteed by the manufacturer at bidding.

### **13.0 APPROVAL**

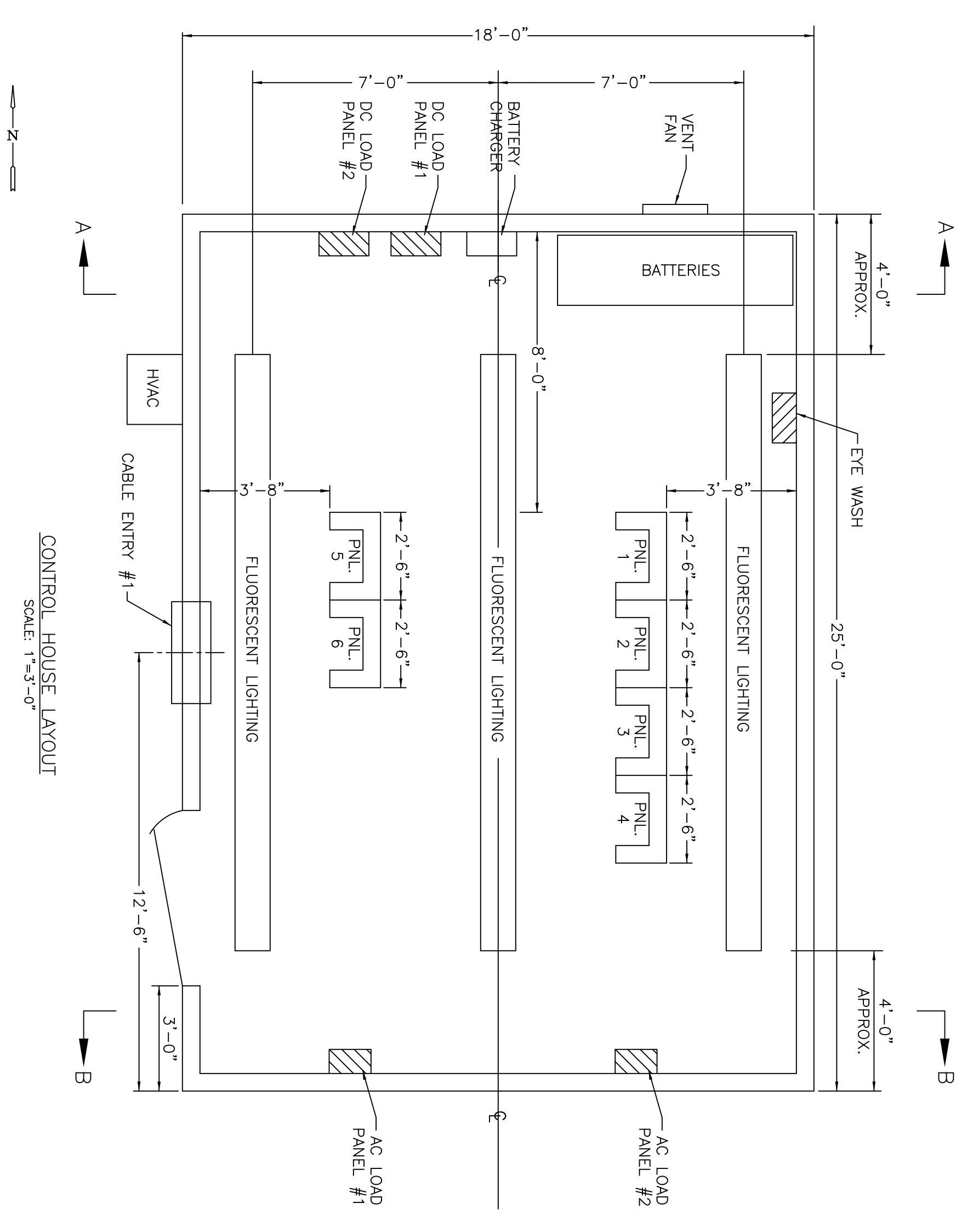
The Manufacturer shall comply with all requirements of this specification. Any exceptions taken by the Manufacturer shall be approved in writing by the Purchaser prior to fabrication.

All material, equipment, specifications, and drawings shall be approved by the Purchaser prior to shipment.

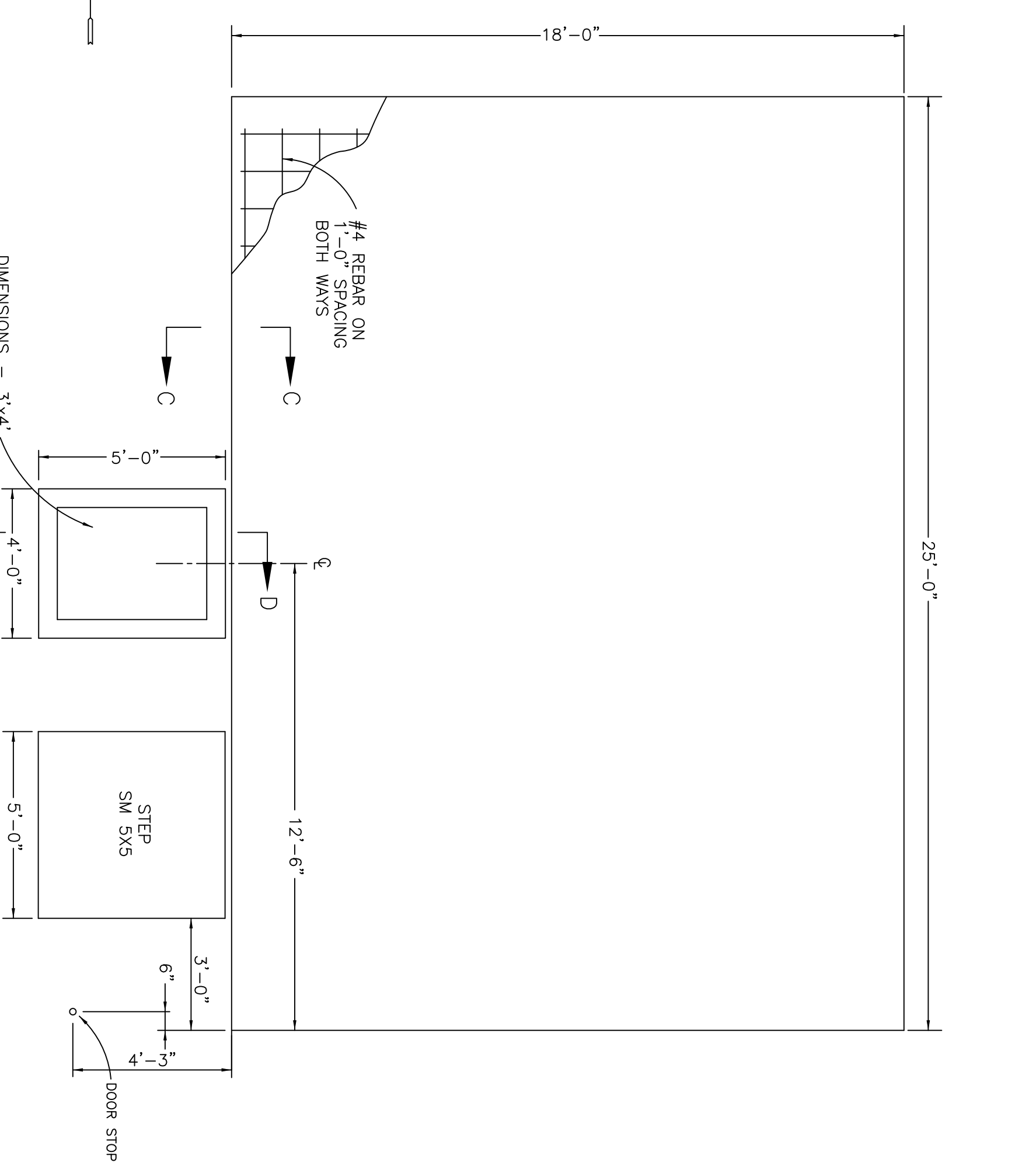
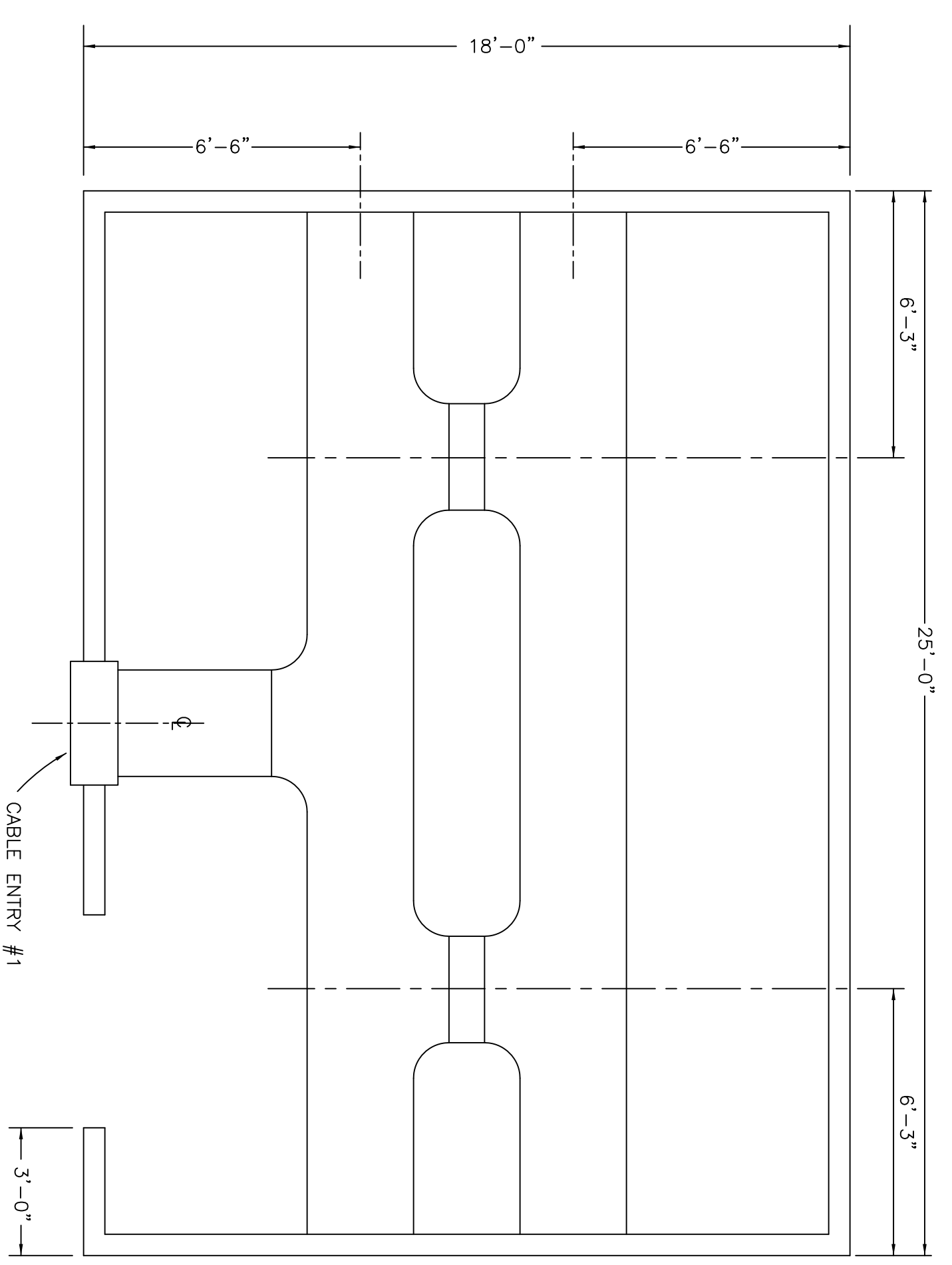
### **14.0 WARRANTY**

All parts and material shall be new and free from defects or imperfections. All workmanship shall meet or exceed accepted construction practices, resulting in a neat and professionally finished appearance.

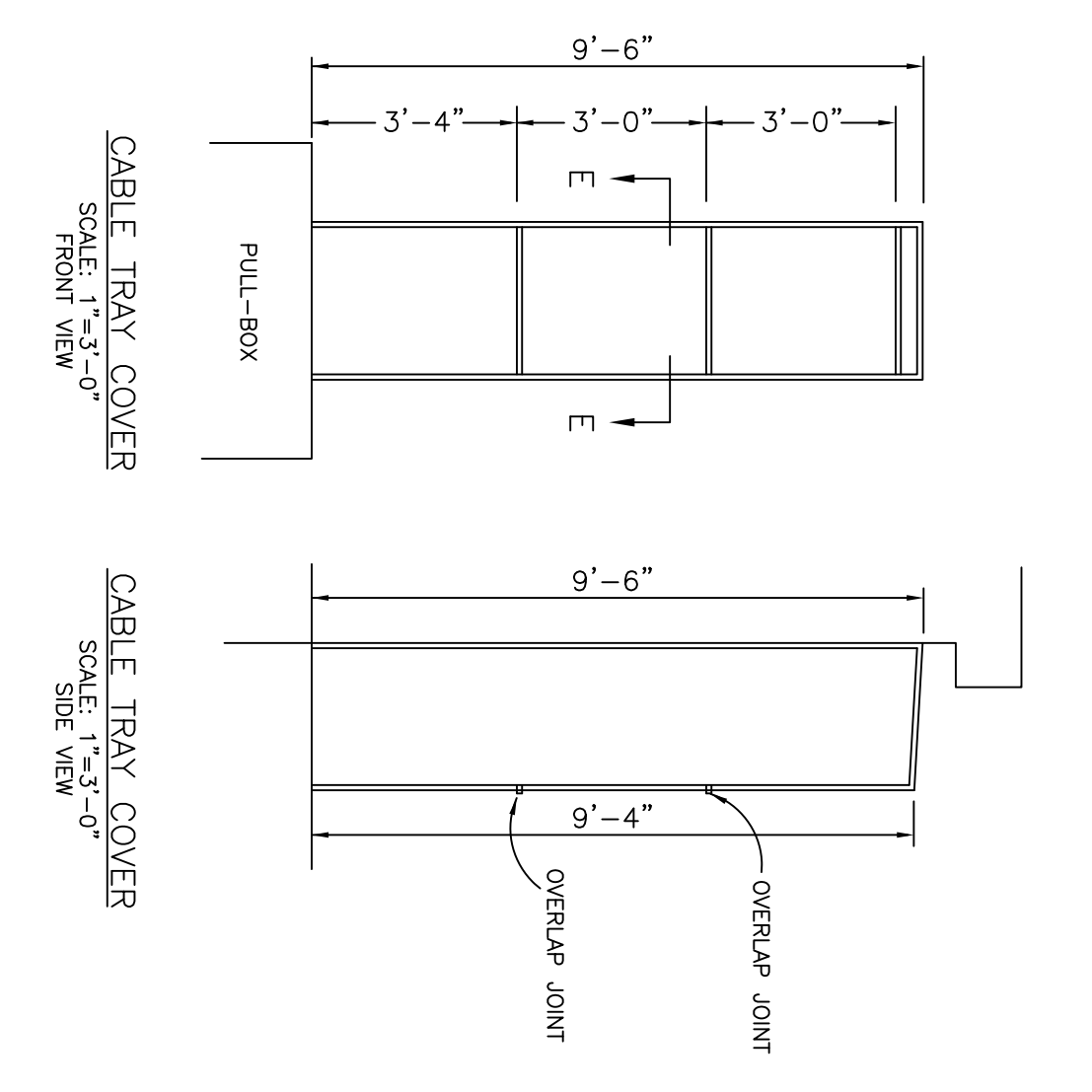
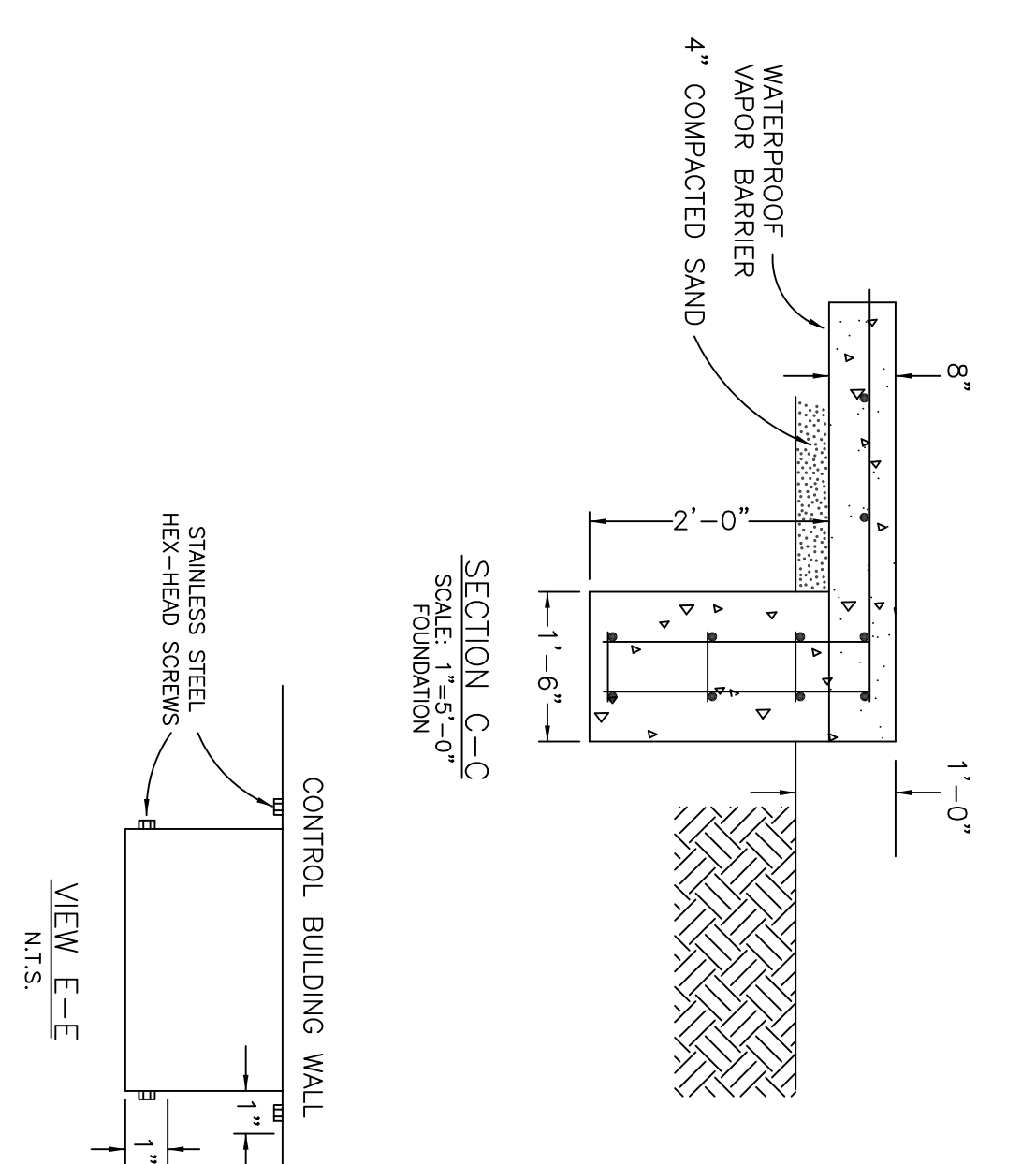
The Manufacturer shall be responsible for correcting any defects in material, equipment, and workmanship discovered within a minimum of one year after erection is completed. All manufacturers' warranties for equipment shall be transferred in their entirety to the Purchaser.



- NOTES:
1. CABLE TRAY RACK IS APPROX. 8' x 1'-5"
  2. CABLE TRAY EXTENDS FROM ENTRY TO FAR WALL
  3. TWO CROSS SECTIONS OF CABLE TRAY ARE TO BE INSTALLED BETWEEN THE TWO MAIN PANELS 1 & 6
  4. SEE CONTROL HOUSE SPECIFICATION FOR EXPLANATION OF CABLE TRAY ENTRY
  5. CABLE TRAY TO BE INSTALLED AS PER SPECIFICATIONS



- NOTES:
1. ALL REBAR TO BE #4
  2. REBAR TO BE ON 1'-0\"/>
  - 3. UNLESS OTHERWISE NOTED
  - 4. STEEL WALL AND FOOTING TO BE MONOLITHIC POUR



- NOTES:
1. COVER TO BE MADE OF 1/8\"/>
  - 2. USE HEX-HEAD STAINLESS STEEL METAL SCREWS FOR ALL CONNECTIONS.
  - 3. INSTALL SILICON AND/OR WEATHER STRIPPING BETWEEN CONTROL BUILDING COVER AND EXTERIOR WALL.
  - 4. THE TOP OF THE CABLE TRAY COVER RUNNING PARALLEL TO THE ROOF TO CONFORM TO THE SHAPE OF THE CONTROL BUILDING EXTERIOR WALL.

- NOTES:
1. POSITION CABLE TRAY TO SECURELY FASTEN CHANNEL TO CONTROL BUILDING WALL STUDS.
  2. LEAVE 1/2\"/>
  - 3. MANUFACTURER (FABRICATOR) TO PROVIDE FOR SEAL AT WALL OPENING AFTER CABLE TRAY AND CONTROL CABLE ARE INSTALLED.

REFERENCE DRAWINGS

S809PH02 18' X 25' CONTROL HOUSE DETAILS  
 S809PH03 18' X 25' CONTROL HOUSE SECTION A-A & B-B  
 S809PE01 ELECTRICAL LAYOUT  
 S809PG30 FOUNDATION PLAN

NO.	JOB NO.	DATE	ENGR.	DTR.	ISSUE	APPROV.
1	RF011-00444	10JUL14	RM	RC	BA	
0	RF011-00444	28FEB13	LJF	ESI	SIH	

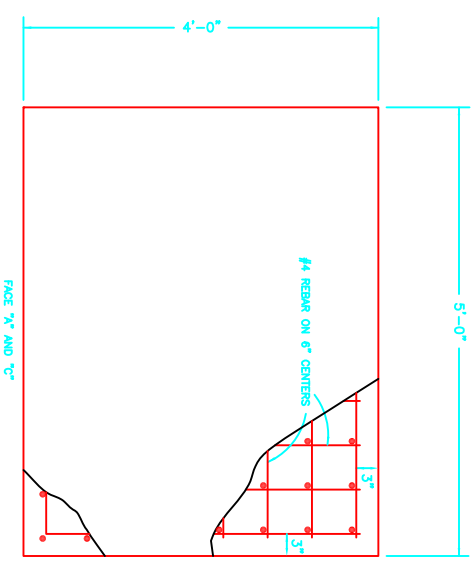
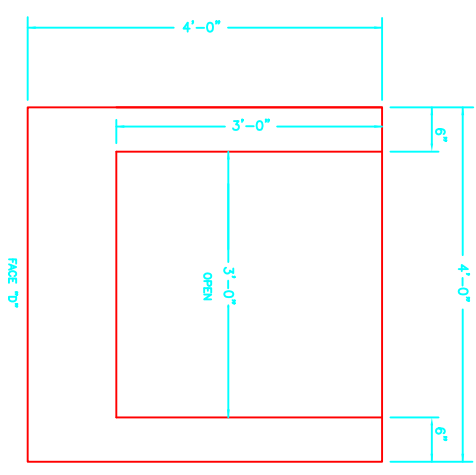
**FOR BID PURPOSE ONLY**

**GRAND RIVER DAM AUTHORITY**  
 TAHLEQUAH WEST SW, STATION S809  
 CHEROKEE COUNTY, OKLAHOMA  
 69KW

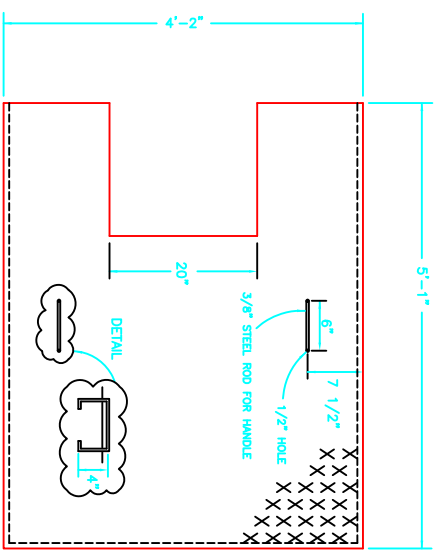
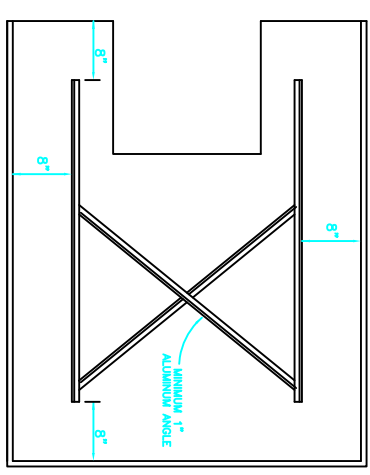
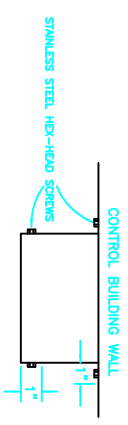
**18' x 25' CONTROL HOUSE LAYOUT AND FOUNDATION**

SCALE: AS NOTED DRAWN BY: ESI ENGR: LJF  
 CH: SIH DATE: 02/28/13  
 DRAWING No. S809PH01 REV. 1

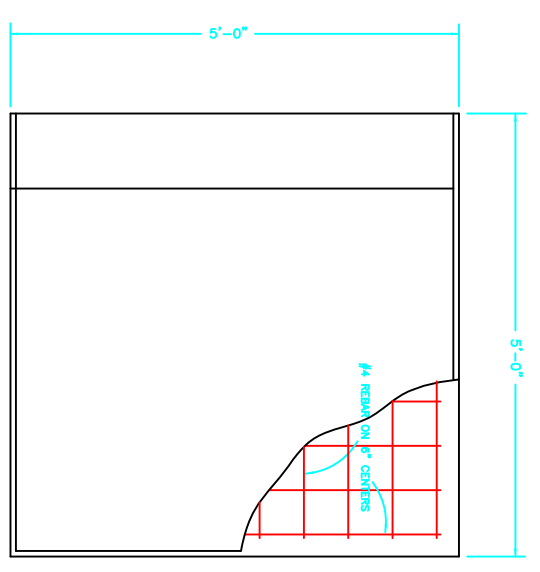
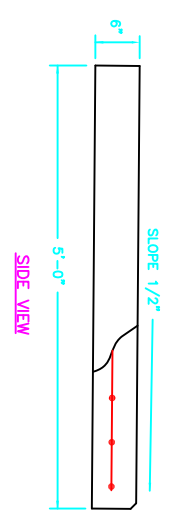




**NOTES:**  
 1. FACE "B" TO BE CONSTRUCTED FOR NO CONDUIT OPENING.  
 INSTALL REBAR IN ENTIRE FACE SECTION.



**NOTES:**  
 1. COVER TO BE CONSTRUCTED FROM "SKID-PROOF" ALUMINUM, 1/4" THICK.  
 2. ANGLE BRACING TO BE WELDED TO COVER PLATE AND TO EACH OTHER.  
 3. 1" "LIP" TO BE INSTALLED ON COVER PLATE ON FACES "A", "C" AND "D" FOR DRAINAGE EFFECT.  
 4. CONTRACTOR TO PROVIDE MANHOLE COVER.



**NOTES:**  
 1. LIGHT "BROOM" FINISH ON TOP OF CONCRETE FOR SKID RESISTANCE.  
 2. SLOPE STEP 1/2" AWAY FROM CONTROL BUILDING FOR DRAINAGE.

REFERENCE DRAWINGS  
 S809PH01 - CONTROL HOUSE LAYOUT & FOUNDATION

**PULL-BOX**  
 SCALE: 1"=1'-0"  
 SIDE VIEW

**PULL-BOX**  
 SCALE: 1"=1'-0"  
 TOP VIEW

**PULL-BOX COVER**  
 SCALE: 1"=1'-0"  
 TOP VIEW

**DOOR STEP**  
 FOUNDATION SLABS  
 TOP VIEW

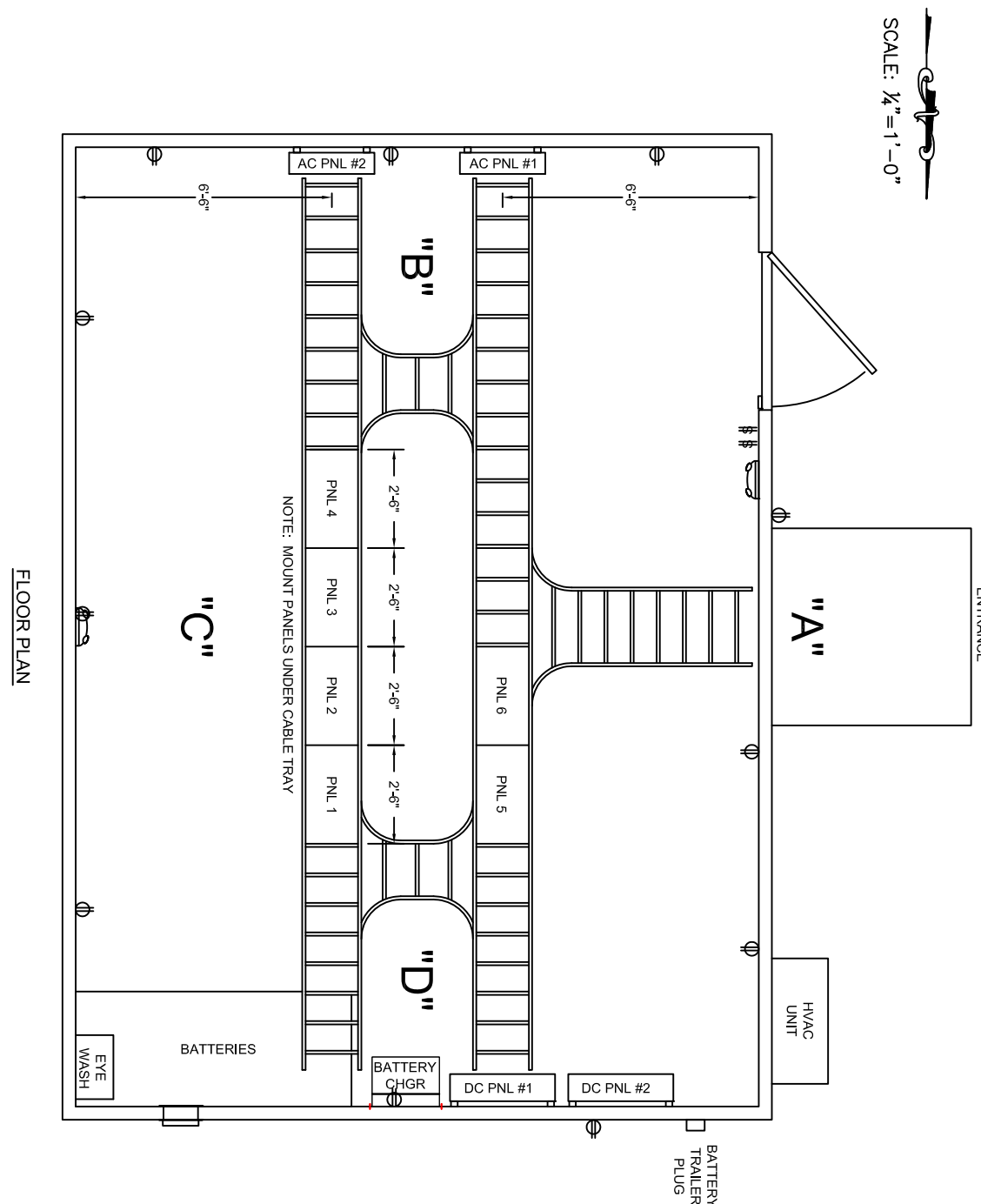
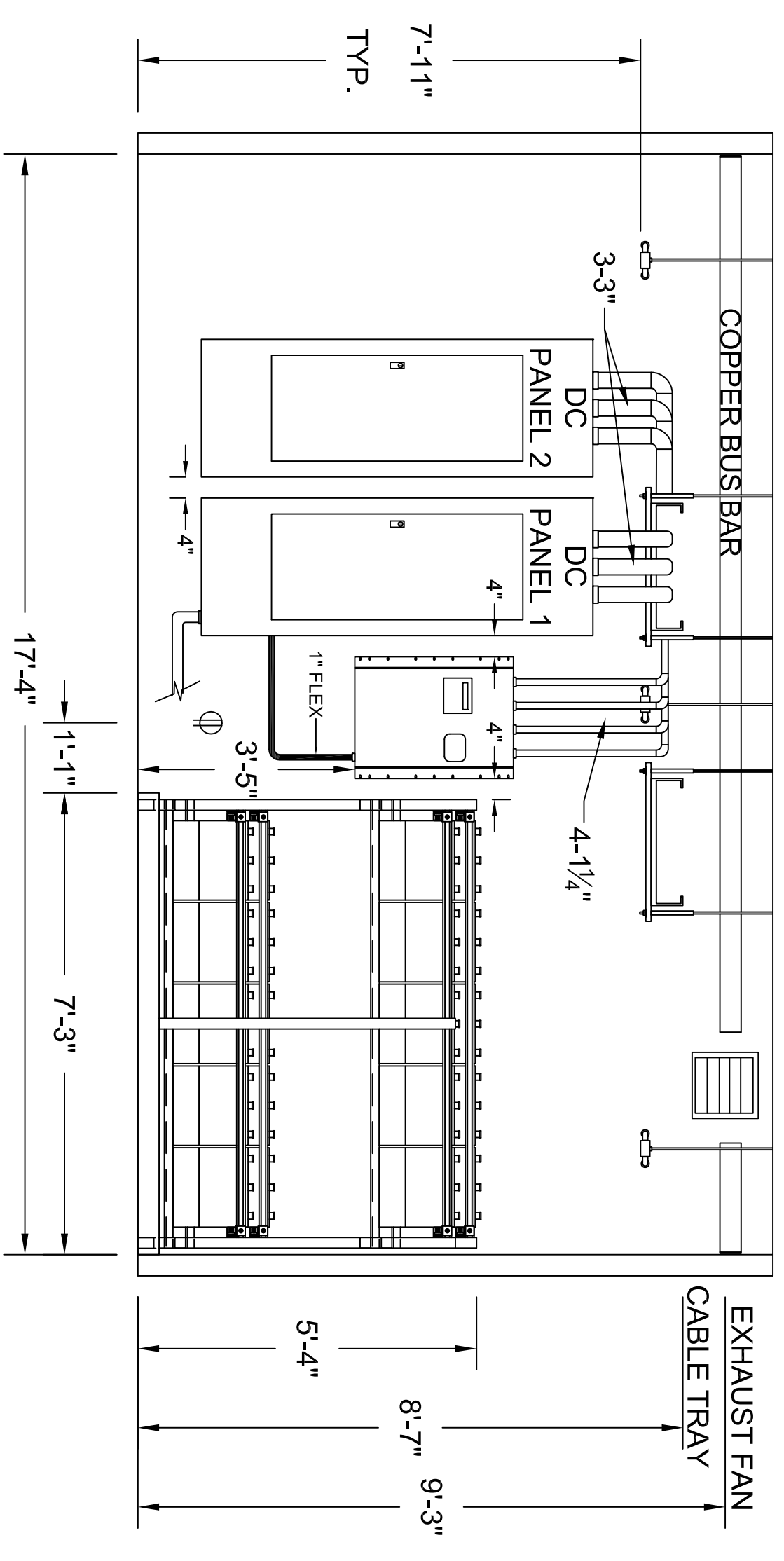
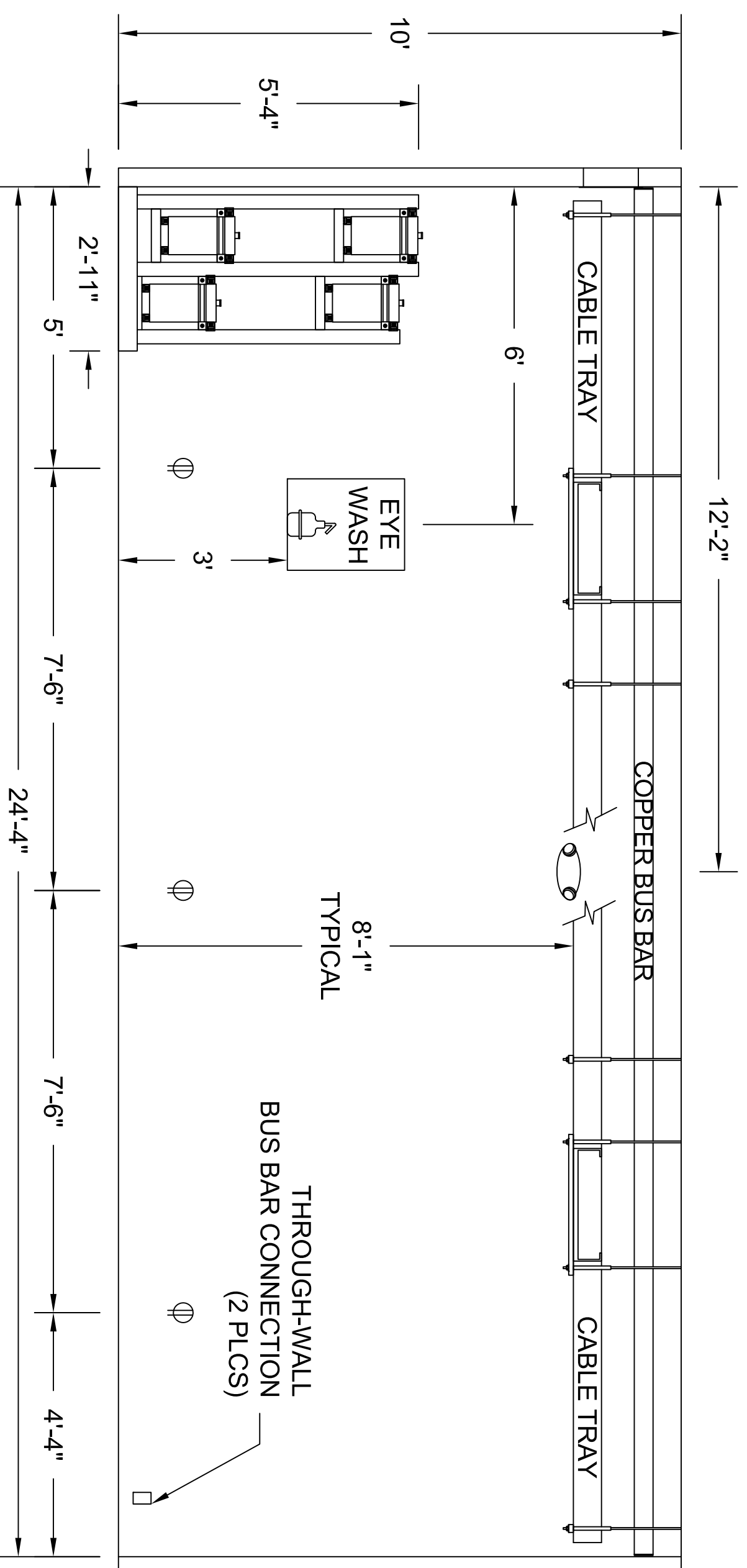
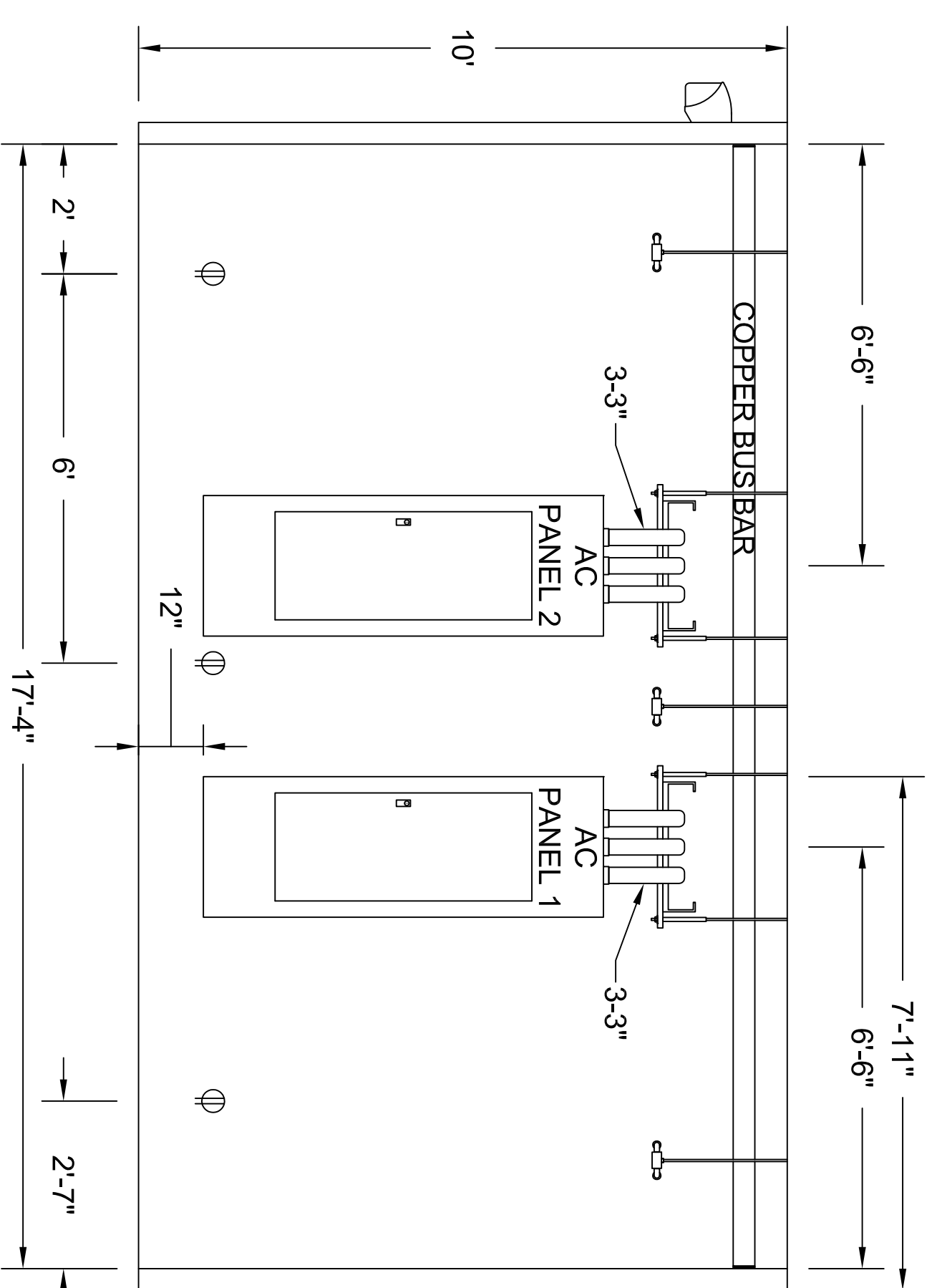
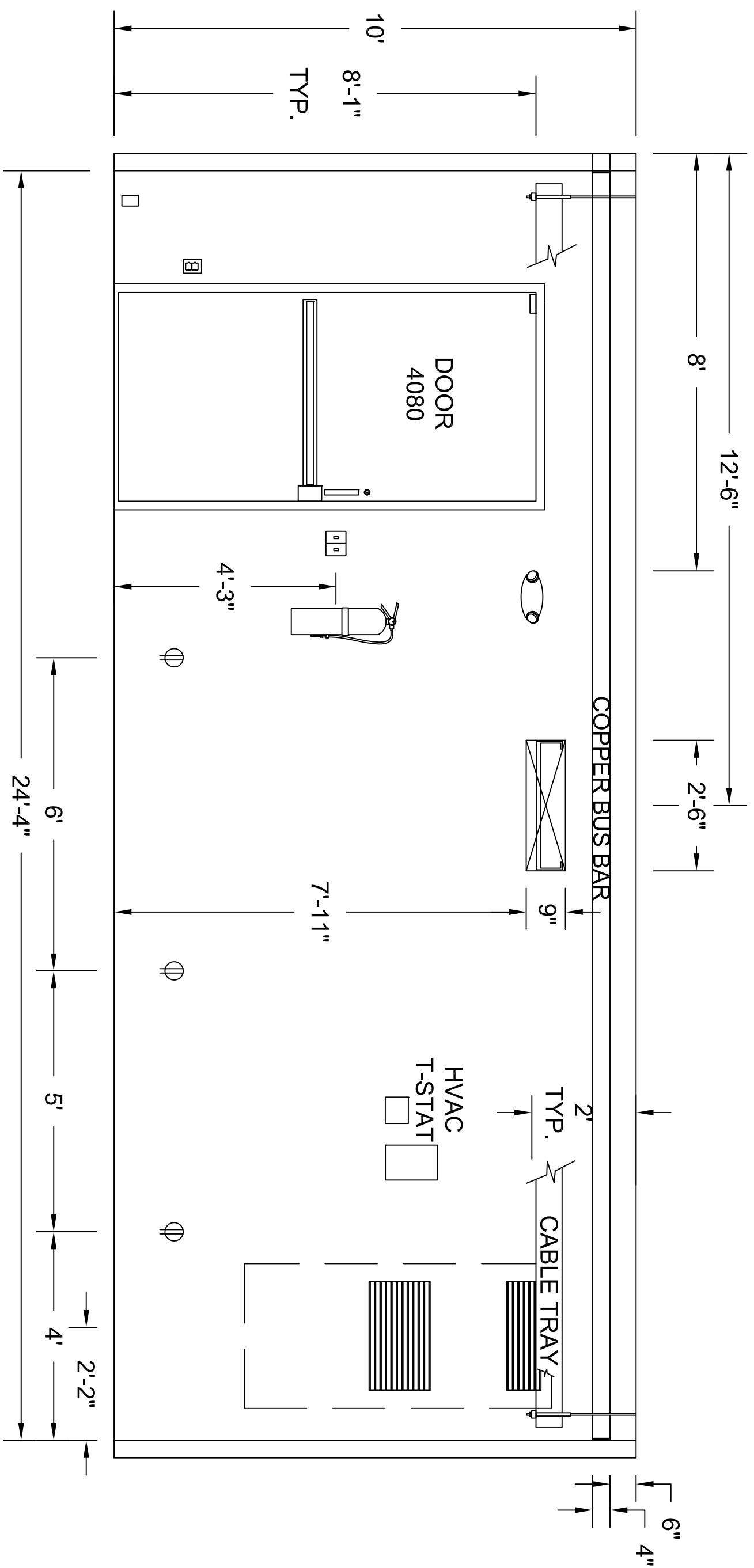
NO.	DATE	BY	CHKD	DESCRIPTION
0	ESJ	KRL	02/28/13	ISSUED FOR REVIEW
1	ESJ	KRL	03/05/13	REVISIONS

GRAND RIVER DAM AUTHORITY  
 TAHELOUAH WEST SW. STATION S809  
 CHEROKEE COUNTY, OKLAHOMA  
 694W

18' x 30' CONTROL HOUSE DETAILS

SCALE: AS NOTED | DRAWN BY: ESJ | ENGINEER: LJP  
 DATE: 02/28/13 | DRAWING NO.: S809PH02 | REV.: 0

GRDA  
 P.O. BOX 409  
 VINITA, OK 74501



REFERENCE DRAWINGS:  
 S809PH02 18 X 25 CONTROL HOUSE DETAILS  
 S809PE01 ELECTRICAL LAYOUT  
 S809PC30 FOUNDATION PLAN

**FOR BID PURPOSE ONLY**

GRAND RIVER DAM AUTHORITY  
 TAHLEQUAH WEST SW. STATION S809  
 CHEROKEE COUNTY, OKLAHOMA  
 69W/13.2W

18' x 25' CONTROL HOUSE  
 LAYOUT AND FOUNDATION

SCALE: AS NOTED	DRAWN BY: RC	ENGR: RM	APPRD: DATE: 08JUL14
CH: BA	DESIGN NO. S809PH03	REV: 0	
GRAND RIVER DAM AUTHORITY P.O. BOX 409 WATTS, OK 73091			



