

# LIVE FIRE TRAINING STRUCTURE GRANT PROGRAM



*Grant Awards to Construct, Renovate, or Repair Live Fire Training Structures throughout the Commonwealth*

**VIRGINIA DEPARTMENT OF FIRE PROGRAMS**

and the

**Virginia Fire Services Board**

1005 Technology Park Drive  
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## **1. PURPOSE**

In accordance with [§38.2-401-D](#) of the *Code of Virginia*, the Live Fire Training Structure Grant Program (hereinafter referred to as "the Grant") was established to provide defined grants to Virginia localities seeking to construct, renovate (including additions), or repair permanent Live Fire Training Structure in accordance with the most current edition of NFPA 1402.

The Grant is a matching/cost sharing program. The percentage of match/cost share is relative to the size of the capital project the locality intends to construct; however, the purpose of the Grant for permanent Live Fire Training Structure is to provide funding to localities for the construction, renovation, or repair of the Live Fire Training Structure only.

As approved by the Virginia Fire Services Board, the Grant may also provide exclusive funding to the Virginia Department of Fire Programs for the acquisition, renovation, repair, service, and management of the Mobile Live Fire Training Structure Props Program to provide training opportunities to multiple jurisdictions in support of Fire Fighter I and Fire Fighter II Training throughout the Commonwealth of Virginia per the most current edition of NFPA 1001 & 1403 training standards.

As approved by the Virginia Fire Services Board, the Grant may also provide funding for the execution and delivery of an exclusive contract for engineering consulting services to the VFSB. The engineering firm is on contract to VDFP exclusively, and to prevent conflict of interest may not contract with local jurisdictions on the Grant projects for which funding is sought through the Grant.

## **2. GENERAL OVERVIEW**

Grant disbursements to eligible jurisdictions for permanent Live Fire Training Structure construction, renovations and/or additions, or repairs are administered by the *Virginia Department of Fire Programs*, VDFP, ("the Agency") from the Commonwealth's *Fire Programs Fund* as provided for in the *Code of Virginia* ([§38.2-401:D](#)) and consistent with policy guidance provided by the *Virginia Fire Services Board*, VFSB, ("the Board") as set forth within this document. All grants to construct or renovate permanent Live Fire Training Structures shall be approved by the *Virginia Fire Services Board*. All grants to repair permanent Live Fire Training Structures shall be approved by the Department of Fire Programs as directed in this document.

## **3. CODE OF VIRGINIA CITATION**

[§38.2-401](#) and [§9.1-203](#) of the *Code of Virginia* as amended – "Fire Programs Fund," is incorporated herein by reference.

#### 4. PRECEDENTS OF LAW & DISCLAIMER

Nothing contained within this document shall or be construed to supersede the applicable laws and regulations of the Commonwealth of Virginia. In the event of a conflict the applicable law shall supersede the conflicting provision of this policy statement.

#### 5. DEFINITION OF TERMS

**AIA** – American Institute of Architects

**Engineering/Architect (E/A) Firm** – An engineering/architect firm is the entity, retained by the locality, that is licensed to practice architecture or engineering and is registered with the Department of Professional and Occupational Regulation. The E/A should carry out tasks as required in NFPA 1402, including the recommendations set forth in Annex A and Annex B.

**Engineering/Architect (E/A) Fees** – The Registered Design Professional in responsible charge of the E/A firm’s work must be registered in the Commonwealth of Virginia. Grant awards for new construction projects may include up to \$30,000<sup>00</sup> in additional monies for E/A fees and expenses for the current grant award amount. E/A fees will not be granted for renovations and/or repairs. These fees and expenses shall include adapting the approved model structure design to the selected site, featuring contract drawings and specifications, and providing limited construction services.

**Live Fire Training Structure** – A structure specifically designed for conducting live fire training evolutions on a repetitive basis in accordance with the most current edition of NFPA 1001 and 1402.

**Containerized “Live Fire” Training Structure** – A structure consisting of one (1) or more shipping (intermodal) containers specifically designed to be assembled for the purpose of conducting live fire evolutions on a repetitive basis.

**Combination Buildings/Training Structures:** At some training centers, because of a lack of available space or funds, individual structures for drill tower functions, live fire training, smoke training, or any combination thereof, might not be built.

In these instances, a combination training structures can be utilized. These training structures must meet the below criteria:

1. Engineering design and construction must be reviewed and approved by the Agency’s E/A Firm.
2. Consideration will be within the scope of new construction only.
3. No additional funds will be awarded outside of this policy’s specifications.

*As such, the structure shall not be used as an occupied dwelling.*

**Live Fire Training Structure (Construction Project)** – A project to construct a new or replacement permanent Live Fire Training Structure.

**Live Fire Training Structure Renovation/Addition Project** - A project to renovate an existing permanent Live Fire Training Structure; add an addition to an existing permanent Live Fire Training Structure (must not exceed the funding level of \$450,000 in accordance with the Grant policy); conduct repairs or renovations that involve structural components of a permanent Live Fire Training Structure; or conduct repairs that exceed the funding authorized for a Live Fire Training Structure Repair Project.

**Live Fire Training Structure Repair Project** – A project to conduct a repair to an existing permanent Live Fire Training Structure that does not exceed \$50,000. Projects allowed in this category include: Temperature monitoring equipment repairs; thermal lining tile repair and replacement; sacrificial block wall replacements (concrete masonry unit walls), fire brick; minor, non-structural, spalled concrete repair; door/window repairs; or similar repairs. Cosmetic work such as painting and cleaning are not eligible to be funded as a Live Fire Training Structure repair project. Prior to the approval of any repair funds, a copy of the inspection report must be submitted to substantiate the request.

**Eligible Jurisdiction** – Localities within the Commonwealth of Virginia otherwise eligible ([§38.2-401 et al](#)) to receive *Aid to Localities* from the *Fire Programs Fund*; nominally all **Counties, Independent Cities, and incorporated Towns** within those counties; herein also referred to simply as *Jurisdiction* or *Locality*.

**Grant Completion** – Grant completion is defined as a local construction contract at final completion with all project expenses processed for payment, all construction completion documents including AIA certifications or certificates of competition from the E/A submitted to Agency staff, and final walk-through inspection performed by Agency Staff including curing of any and all deficiencies identified.

**Lead Locality** – In the event that an award is to be made for a Live Fire Training Structure serving more than one eligible jurisdiction, then that consortium of eligible jurisdictions shall identify one of their own to serve as the agent for all; such agency shall include the intake and custody of grant funds, the filing of reports, and all administrative interface with the Agency.

## 6. DISBURSEMENT OF FUNDS

1. Disbursements from the Virginia Fire Service Grant Program for permanent Live Fire Training Structure are made as a grant to a specified jurisdiction or a lead locality. Consistent with other provisions of this document, payments are not made until the completion by/or through that locality of an instrument contractually binding the locality to adhere to the terms and conditions of the grant. The jurisdiction's authorized representative shall, acting as the jurisdiction's exclusive agent, execute such an agreement/contract where periodic withdrawals are made at various intervals as specified in the contract. (Disbursements are never made to individual Fire Departments.)
2. The following pertains to the receipt of monies by eligible jurisdictions:
  - a) Payments of any grant will be provided solely through an electronic transfer of funds to a banking institution.
  - b) Transfer amounts –

- i. New Construction – Payments will be made at five (5) benchmarks: The payment for Engineering/Architect (E/A) fees are at the completion of that work and with submission to VDFP of supporting documentation of eligible costs incurred. The first 25% of the grant award is payable upon submission to VDFP of a valid building permit, civil site plans, and Engineering/Architect drawings. The remaining 3 installments of 25% each shall be issued upon completion of 50%, 75%, and 100% of the work. The payments will be issued after receipt of a certificate of completion of each stage by the registered design professional (RDP) in responsible charge of the E/A firm’s work. Final disbursement at 100% will be made after a final walk-through is made by VDFP staff during which time a live burn scenario has been successfully completed and witnessed by VDFP personnel. All Live Fire Training Structure project deficiencies will be communicated to the lead jurisdiction point of contact and must be resolved before final disbursement will be authorized.
    - Jurisdictions may elect to receive disbursements at 25%, 50%, 75%, and 100% of project completion. To remain eligible to receive total funds, jurisdictions must submit to the VDFP the American Institute of Architects (AIA) 702 and AIA 703 at 25%, 50%, 75%, and 100% project completion whether or not funding requests are made at these completion intervals.
  - ii. Renovations – Payments will be made in up to two (2) payments on a reimbursement basis at 50% and 100% completion not to exceed the total amount approved by the Board. Payment of more than an approved amount will not be made without consent of the Board. The payments will be issued after receipt of a certificate of completion of each stage by the registered design professional (RDP) in responsible charge of the E/A firm’s work. Final disbursement at 100% will be made after a final walk-through is made by VDFP staff. All Live Fire Training Structure project deficiencies will be communicated to the lead jurisdiction point of contact and must be resolved before final disbursement will be authorized.
  - iii. Repairs – Payments for repair projects completed in accordance with the approved application package will be authorized by the Department of Fire Programs upon completion of the repair project, and made in one reimbursement payment at completion of the project, and upon submission to VDFP of supporting documentation of eligible costs.
- c) All funds **must** be deposited into an **interest-bearing account**.
  - d) Any interest earned by funds so deposited may be utilized by the eligible jurisdiction in the construction or renovation of their Live Fire Training Structure. The eligible jurisdiction shall be fully accountable for **BOTH** the *Principal* and the *Interest*.
3. **Use of Funds** – Grant funds may not be used for anything other than Live Fire Training Structure construction or renovation as specified in the contract between parties. Grant funds may only be used for the construction/erection, renovation, or repair of the Live Fire Training Structure, and direct-related costs to the construction/erection, renovation, or repair within 15 feet of the Live

Fire Training Structure including E/A costs. (The 15 feet was established as a safety zone for firefighting evolutions.)

Grant funds will not be approved for any civil engineering site plan implementation or any other ancillary costs assumed as overhead or ordinary cost of managing a capital project. Examples of site plan implementation, or ordinary costs of managing a capital project include but are not limited to site clearing, grubbing, excavation with the exception of the foundation, back filling with the exception of the foundation, seeding, fencing, or any other form of site restoration, site surveys, site layouts, water testing, soil testing, water run-off analysis, air quality analysis, access roads, paving/graveling, easement or land lease costs, running lines or conduit for electrical supply or water source, bonding for contractors or jurisdictions, or any other overhead expense that is not directly related to the construction/erection, renovation, or repair of the Live Fire Training Structure.

Grant funds may not be used for routine maintenance or operations costs for new or existing Live Fire Training Structure.

Building Signage: Proper VDFP required signage is required to be placed on the exterior of all sides of the permanent Live Fire Training Structure that have points of entry (ingress or egress). Proper VDFP required signage includes the octagonal sign that recognizes the Board's financial investment in the structure, and the rectangular sign addressing usage criteria. Production and installation of the signs is an allowable cost to the grant program.

## **7. GRANT APPLICATION**

Any eligible jurisdiction may submit an application for a new construction Live Fire Training Structure grant or a renovation to a Live Fire Training Structure by completing and filing the prescribed form.

Applications for new construction or renovation projects will be received for review bi-annually and must be postmarked by either January 1 or July 1.

Emergency renovation applications may be submitted at any time for consideration provided the application meets the "Emergency Renovations" qualification.

Any renovations applications received that are not identified as "taken out of service by VDFP for certified training" will be held until the next application deadline cycle.

Repair Project application submissions, up to \$50,000 will be accepted by the Agency at any time throughout the year.

Grant applications should be sent directly to:

**Budget and Grants Section  
Virginia Department of Fire Programs  
1005 Technology Park Drive  
Glen Allen, VA 23059-4500**

The filing of an otherwise completed grant application by an eligible jurisdiction in no way binds the Agency to disburse any FIRE PROGRAMS FUND monies, including a Live Fire Training Structure Grant, to that locality.

**Construction/Renovation Applications:** Application submissions will be reviewed by the Live Structure Committee prior to recommendation to the full Virginia Fire Services Board. Applicants will make presentations to the Live Structure Committee and be available for questions from the Committee Members.

## **8. GRANT AWARD**

1. Grant recipients can download construction drawings and the project manual for Live Fire Training Structure prototypes at no charge on the agency website. A current edition of the VFSB Live Fire Training Structure Policy document is available online at [www.vafire.com](http://www.vafire.com).
2. Grants recipients will be required to attend one (1) Orientation Meeting that must be held within thirty (30) days of award notification. The meeting will be held at one of VDFP's seven office locations or virtually.
  - a. The purpose of the Orientation Meeting will be to introduce VDFP staff to new grants recipients, provide an overview of the Live Fire Training Structure Grant Program, and offer an opportunity for grants recipients to ask questions about the grants process.
3. Grants recipients will be required to attend one (1) Pre-Building Permit Submission Meeting that must be held sixty (60) days prior to the submission of a valid building permit according to the terms of this Policy. The meeting will be held at one of VDFP's seven office locations or virtually.
  - a. It is understood that grants recipients must have an approved set of building plans prior to being issued a valid building permit, which is due to the Agency no later than twelve (12) months from the date of award notification.
  - b. Grant recipients shall contract with a qualified E/A firm that advises in the development of the grant recipient's project.
  - c. The purpose of this meeting is to provide an opportunity for grants recipients to discuss specific issues relative to their Live Fire Training Structure design that can be resolved prior to a bid solicitation being published, and to ensure that the building design plans meet the Prototype specifications as referenced in this Policy. Structure plans must be submitted to the Agency no less than one (1) week in advance of the meeting to permit adequate time for the Agency's engineer on contract to review the plans.
4. Grants recipients will be eligible to participate in at least one (1) one-hour teleconference call at any time during their grant project.

- a. The Agency will engage in ongoing communications with grants recipients, addressing all project issues relating to the administration, financial management, and technical aspects. Any technical issues that require advisement or review by the Agency's engineer on contract will be coordinated directly through the Agency and will require grants recipients to provide their request for consideration in writing; responses to technical inquiries will be provided to grants recipients within a reasonable time frame.

## **9. TERM OF GRANT**

For new construction, the grant term shall not exceed thirty-six (36) months from the date of award notification without approval from the Agency and/or the Virginia Fire Services Board. The grant recipient shall have up to eighteen (18) months from the date of award notification to provide to the Agency a valid building permit. The grant recipient shall then have up to eighteen (18) months to complete the construction project.

Concurrent with the submission of the valid building permit, the grant recipient will also provide VDFP with two (2) original copies and one (1) electronic copy of the construction building drawings, including specifications.

For renovations or repairs, the grant term shall not exceed twelve (12) months from the date of award notification without approval from the Agency and/or the Virginia Fire Services Board.

During the grant term, all repair and construction work is to be completed and all documentation pertaining to such activities shall be submitted to the Agency in a timely manner. Additionally, within 30-calendar days after the conclusion of the grant term, all unexpended funds – including any interest accrual remaining – shall be returned to the Agency.

1. **Return of Unexpended Funds by Check:** Funds being returned to the Agency via a check:
  - Must be made payable to the *Treasurer of Virginia*, and
  - Forwarded to the attention of the Agency at the address specified in [H] above. (Funds are **NOT** to be sent directly to the Treasurer's Office or any other State agency.)
2. **Direct Deposit:** Funds may also be returned to the Agency via electronic transfer as may be provided for within the contractual agreement among parties.

## **10. EXTENSIONS**

An extension of up to 90-days or the next regularly scheduled Virginia Fire Services Board meeting may be granted by the Agency. All requests for extension must be received by the Agency not less than 30-calendar days prior to the scheduled termination of the original grant period. All requests must list the compelling reason(s) for extension and/or circumstance(s) that prevent project completion by the end of the initial grant period. Extension requests for any period of time greater than 90-days will need to be addressed by the



Virginia Fire Services Board for approval; such should always be directed to the Agency's Executive Director. Requests for extensions shall not exceed more than a total of two extensions.

### **11. MAXIMUM AMOUNT**

1. There shall be a cap on the maximum amount of funds to be awarded in any single grant for either totally new or the total replacement of an existing permanent Live Fire Training Structure; the current cap is \$450,000.00. An additional amount up to \$30,000.00 shall be available to offset E/A costs pertaining to site adaptation.
2. The maximum amount of funds to be awarded for any renovation project will be set by the Virginia Fire Services Board, but in no case will it exceed the cap that can be awarded for a new or replacement building.
3. The maximum amount of a repair project award shall not exceed \$50,000 per project and no Live Fire Training Structure will be funded over \$50,000 per fiscal period (July 1 – June 30).
4. For renovation and repair project awards, if the permanent Live Fire Training Structure exceeds the base Prototype model, applications must include conceptual plans/design plans with the total square footage of the Live Fire Training Structure and the number of burn rooms per floor. The award will be based on square footage of the Live Fire Training Structure and number of burn rooms compared to the base Prototype model. (i.e. If the total existing Live Fire Training Structure square footage is 3,000 and the base prototype model square footage is 1,200, the award will be capped at 40% of the total estimated cost; or if the existing Live Fire Training Structure has more than 2 burn rooms, the award will be based on the minimum requirements of 2 burn rooms.)

### **12. REPORTING REQUIREMENTS**

Localities shall provide progress reports to VDFP every ninety (90) days until their project is completed. The foregoing measured from the date of the transfer of funds to the eligible jurisdiction. Reports shall be made to the Budget and Grants Manager.

### **13. PROGRAM CRITERIA**

To be eligible for receipt of grant funds, the Live Fire Training Structure must meet or exceed the following usage criteria:

1. The Live Fire Training Structure's super structure must have a minimum design life span of 20 years under the intended specified use.
2. The Live Fire Training Structure shall meet current NFPA, OSHA, federal, state, and local codes, and standards at time of design submittal to the board.
3. The Live Fire Training Structure must be suitable for live fire, Class "A" or Class "B" fuel burns.
4. Maximum number of live fire training days per year: 120 for Class "A" fuel; Unlimited for Class "B" fuel
5. Maximum number of live fire training evolutions per day: 10
6. Maximum duration of each live fire training evolution: 20 minutes
7. Maximum sustained temperature in burn room(s) during live fire training: 1,200° F Class "A" fuel;

- 550° F Class “B” fuel
8. Maximum temperature spike in burn room(s) during live fire training: 1,500° F Class “A” fuel; 700° F Class “B” fuel
  9. Live fire training shall be in accordance with NFPA 1403 and the written guidelines of the VDFP.
  10. No training that includes tear gas, explosives, or firearms shall occur within or near the Live Fire Training Structure.
  11. Minimum height: two (2) stories
  12. Minimum first floor area: 986 s.f. for Prototype 1A and 1B; 1,100 s.f. for Prototype 2A and 2B; 937 s.f. for Prototype 4B
  13. Minimum second floor area: 744 s.f. for Prototype 1A and 1B; 781 s.f. for Prototype 2A and 2B; 621 s.f. for Prototype 4B
  14. Minimum lower roof area: 306 s.f. for Prototype 1A and 1B; 318 s.f. for Prototype 2A and 2B; 306 s.f. for Prototype 4B
  15. Minimum upper roof area: 1,190 s.f. for Prototype 1A and 1B; 436 s.f. for Prototype 2A and 2B; 612 s.f. for Prototype 4B
  16. Minimum exterior apron width: 15’ width along all elevations for Prototypes 1 and 2; 10’ width along all elevations for Prototype 4
  17. Minimum rooms within Live Fire Training Structure: 8
  18. Minimum burn rooms: 2
  19. Minimum burn rooms per floor: 1
  20. Minimum area per burn room: 144 s.f.
  21. Minimum number of exterior stairs: 1
  22. Minimum number of interior stairs: 1
  23. All windows shall have hinged shutters.
  24. All exterior openings shall have operable shutters and/or doors.
  25. All window and door openings shall have coated metal frames.
  26. Minimum number of windows: 5
  27. Minimum number of exterior doors: 3
  28. Minimum number of interior doors: 1
  29. Minimum number of roof access openings: 2
  30. Minimum number of means of egress per room: 2
  31. All floors must pitch to drain water from interior of the live fire training structure.
  32. First floor and exterior apron shall be cast-in-place concrete slab on grade.
  33. Two (2) separate roof systems must be provided to achieve a flat and sloped roof training surface.
  34. An access opening must be provided through each roof surface.
  35. The Live Fire Training Structure must limit light penetration and be weathertight.
  36. Exterior metal surfaces shall be coated to protect from exterior environmental exposure.
  37. Interior metal surfaces shall be coated to protect surface from environmental exposure, expected use, and life span of the Live Fire Training Structure.
  38. The Live Fire Training Structure shall have mounted written user guidelines on each elevation which provides egress into the building indicating proper usage according to NFPA, local code, and maximum temperature recommendations.
  39. No vehicles other than vehicles involved in the live fire training shall be allowed within fifteen feet

- of the Live Fire Training Structure.
40. Exterior rollover thermal protection along the jambs and headers of window and door openings leading into burn rooms.
  41. Interior thermal protection along the underside of the ceiling above burn rooms.
  42. Interior thermal protection along the vertical surfaces of burn rooms.
  
  43. Interior rollover thermal protection along the jambs and headers of interior door openings leading into burn rooms.
  44. Interior thermal protection along the floor surface throughout burn rooms.
  45. Temperature monitoring devices in each burn room.
  46. Temperature monitoring devices integrated into a central data recorder to record maximum spike and sustained temperatures during each live fire training evolution.
  47. Flat and sloped roofs used for training, floors, and stairs designed for a minimum 100psf live load.
  48. Minimum lateral loads, including wind, seismic, and flood loads, designed in accordance with site specific criteria.
  49. Intermodal shipping containers repurposed for use as structural components in the construction of live fire training structures shall bear an existing data plate as required by ISO 6346, Freight Containers – Coding, Identification, and Marking, and shall be verified by an approved agency. A report of the verification process and findings shall be provided for review and approval.
  50. Intermodal shipping containers repurposed for use as structural components shall conform to ISO 1496-1, Series 1 Freight Containers – Specifications and Testing, and shall be designed in accordance with Chapters 16 and 31 of the International Building Code (IBC).

## **14. LIVE FIRE TRAINING**

It is the responsibility of the grant recipient to ensure that the structure is utilized for live fire training in compliance with VDFP live fire compliance procedure, including the most current edition of NFPA 1403. Grant recipients are invited to work with their Division Chief to ensure proper compliance in training.

## **15. PROCUREMENT**

It is the responsibility of the Localities to adhere to the **Virginia Public Procurement Act (VPPA)** when pursuing the solicitation process for New Construction, Renovation and Repair projects. The entire VPPA manual can be found on the Virginia Department of General Services web page.

## **16. AUTHORIZATION FOR RENOVATIONS**

The foregoing authorization shall be based upon verification by a registered E/A as to scope of need. The cost of such survey may be part of any total grant. Localities making application for a grant for repairs to their permanent Live Fire Training Structure and choosing to obtain an Engineer's review in advance of submission may therefore include the eventual reimbursement for this cost as part of their total grant request.

## **17. FULL CONSTRUCTION REQUIREMENTS**

To be eligible for any grant award to construct a new or replacement permanent Live Fire Training Structure recipient shall agree to expend such funds to construct one of the Agency's identified prototypes from the specifications provided by the Agency or a design that meets the minimum criteria and construction requirements identified in the Live Fire Training Structure Policy for either:

- Prototype I for Class A fuels (permanent concrete structure)
- Prototype I for Class B fuels (permanent pre-manufactured steel structure)
- Prototype II for Class A Fuels (permanent concrete structure)
- Prototype II for Class B fuels (permanent pre-manufactured steel structure)
- Prototype III for Class B fuels (reserved to Mobile Live Fire Training Structure Props administered by VDFP)
- Prototype IV for Class B fuels (containerized structure)
- A stand-alone permanent Live Fire Training Structure or other structure whose Live Fire Training Structure part shall meet the basic requirements of the outline/performance specifications provided in the prototypes listed above. If building plans deviate from or have been modified/enhanced from the basic requirements of the above referenced Prototypes, the applicant must define the building concept and include proposed plans with their application. All modifications to proposed and approved building plans must be submitted to the Agency for review and approval in writing prior to commencement of construction.

## **18. REPAIRS/RENOVATIONS REQUIREMENTS**

For awards made on or after January 1, 2009, any structural repairs or renovations must be certified by a Virginia registered E/A to certify that repairs or renovations were completed in compliance with the engineered plans for projects that are more than \$50,000 or by the recommendation of the Live Structure Committee and must be provided to VDFP prior to final walk through of VDFP staff and final funds disbursement.

Prior to any award, localities/jurisdictions must be current with their annual inspection and must provide documentation with grant application.

## **19. PERMANENT LIVE FIRE TRAINING STRUCTURE INSPECTION REQUIREMENTS**

Localities shall provide annual inspection for Class A Fuel and biennial inspection for Class B Fuel to be performed by a licensed professional engineer retained by the locality.

The Live Fire Training Structure Inspections Schedule can be found online.

Prior to the fiscal date of July 1, if a locality fails to comply with the adopted Live Fire Training Structure Inspection Schedule per building class and submit a copy of the inspection report to VDFP, the building will not be certified for approved VDFP certification training and a notice will be provided to the lead locality.

Failure to comply with the established Live Fire Training Structure Inspection Schedule criteria will result in the reduction of repair or renovation funds available to the locality. All repair and renovation funding is based on the maximum allowable amount criteria listed in this document. Funding decisions will be based on available funding, inspection compliance and circumstances surrounding a specific request.

As a general practice, a request will be placed into one of three categories: Compliant, Semi-Compliant, Non-Compliant.

**Compliant (may receive up to 100% of allowable funding)** – required Structure Inspection Schedule has been followed for the past 5 years and the locality has maintained supporting documentation on file during this period.

**Semi-Compliant (may receive between 25% - 75% of allowable funding)** – required Structure Inspection Schedule has been followed for the past 2-4 years within the previous 5 year period and the locality has maintained supporting documentation on file during this period.

**Non-Compliant (may receive up to 25% of allowable funding)** – required Structure Inspection Schedule has been followed for the past 0-1 years within the previous 5 year period and the locality has maintained supporting documentation on file during this period.

**Note:** The Board may deviate from this general practice based on extraordinary and/or uncontrollable circumstances.

**Comprehensive Audit:** Per the requirement of the Live Fire Training Structure Funding Policy, localities must participate in the fifth-year audit conducted by the Agency's E/A Firm. The fifth-year audit is provided to localities at no cost. This will satisfy the inspection for that year. However, at the discretion of the Board – lack of participation in the fifth-year audit will result in automatic disqualification for funding until the next comprehensive audit cycle. All necessary paperwork, compliant with NFPA 1403, must be provided to the Agency's E/A firm at the inspection for review.

## 20. OWNERSHIP OF SITE

1. **NEW CONSTRUCTION:** It is required that the eligible jurisdiction or other governmental entity own the site (land) and not be subject to any restriction or limitation that would prohibit or impair the use of the property as a Live Fire Training Structure . On a case-by-case basis, the VFSB may consider a long-term lease. The length of the lease shall be consistent with the expected life of the building.



- 2. **RENOVATIONS:** It is strongly recommended that the eligible jurisdiction or other governmental entity own the site (land) and not be subject to any restriction or limitation that would prohibit or impair the use of the property as a Live Fire Training Structure. On a case-by-case basis, the VFSB may consider a long-term lease. The length of the lease shall be consistent with the expected life of the building.

**21. AUDIT**

It is the responsibility of the jurisdiction to maintain all necessary fiscal records. Such records are subject to audit by this Agency or its assignees, for a period of not less than five (5) years following the date of the last transfer of award moneys to the grant recipient.

**CERTIFICATION:**

We the undersigned as Chair of the Virginia Fire Services Board and Executive Director of the Virginia Department of Fire Programs jointly adopt the foregoing policy as of 11 June 2024. As such, this revised policy supersedes all prior adopted editions of this Policy.

	
Keith Johnson Chair Virginia Fire Services Board	Brad Creasy Executive Director Virginia Department of Fire Programs

# COMMONWEALTH OF VIRGINIA LIVE FIRE TRAINING STRUCTURE PROTOTYPE 4 MODULAR/INTERMODAL SHIPPING CONTAINER BUILDING – CLASS B FUEL

Street Address  
City, Virginia, Zip Code

**OWNER**  
LOCALITY/MUNICIPALITY

Street Address  
City, Virginia Zip Code  
Phone:  
Fax:

**ARCHITECT/ ENGINEER**  
ARCHITECT AND/OR ENGINEERING FIRMS

Street Address  
City, State Zip Code  
Phone:  
Fax:

**LIVE FIRE TRAINING STRUCTURE GRANT  
FUNDS PROVIDED BY:**

**COMMONWEALTH of VIRGINIA  
Department of Fire Programs**

1005 Technology Park Drive  
Glen Allen, VA 23059  
Phone: (804) 371-0220

THIS IS A PROTOTYPICAL DESIGN SET OF  
DRAWINGS NOT INTENDED FOR CONSTRUCTION.  
THESE DRAWINGS ARE INTENDED TO BE  
MODIFIED IN CONJUNCTION WITH THE PROJECT  
MANUAL AND SPECIFICATIONS PREPARED BY AN  
ARCHITECT/ENGINEER EMPLOYED BY THE  
GRANT RECIPIENT IN THE DESIGN OF A NEW LIVE  
FIRE TRAINING STRUCTURE.

## BUILDING CODE DATA

**JURISDICTION:**  
CITY/COUNTY, VIRGINIA

**BUILDING CODE:**  
A. VIRGINIA UNIFORM STATEWIDE BUILDING CODE (VUSBC) LATEST EDITION  
B. INTERNATIONAL BUILDING CODE (IBC) LATEST EDITION AS ADOPTED/AMENDED BY VUSBC

**USE GROUP/OCCUPANCY (IBC SECTIONS 312, 1004):** EDUCATIONAL

	FLOOR AREA (SQ. FT.)	DENSITY (SQ. FT./PERSON)	OCCUPANTS
BUILDING, GROSS	1,558	50	31

THE STRUCTURE IS DESIGNED AS A TRAINING PROP AND IS NOT HEATED OR AIR CONDITIONED AND DOES NOT INCLUDE RESTROOMS.\*

**CONSTRUCTION TYPE (IBC SECTION 602):**  
(II-B) NON-COMBUSTIBLE/UNPROTECTED

**SPRINKLED:**  
NOT REQUIRED

**HEIGHT/AREA LIMITATIONS (IBC SECTIONS 504 AND 506):** UTILITY OCCUPANCY

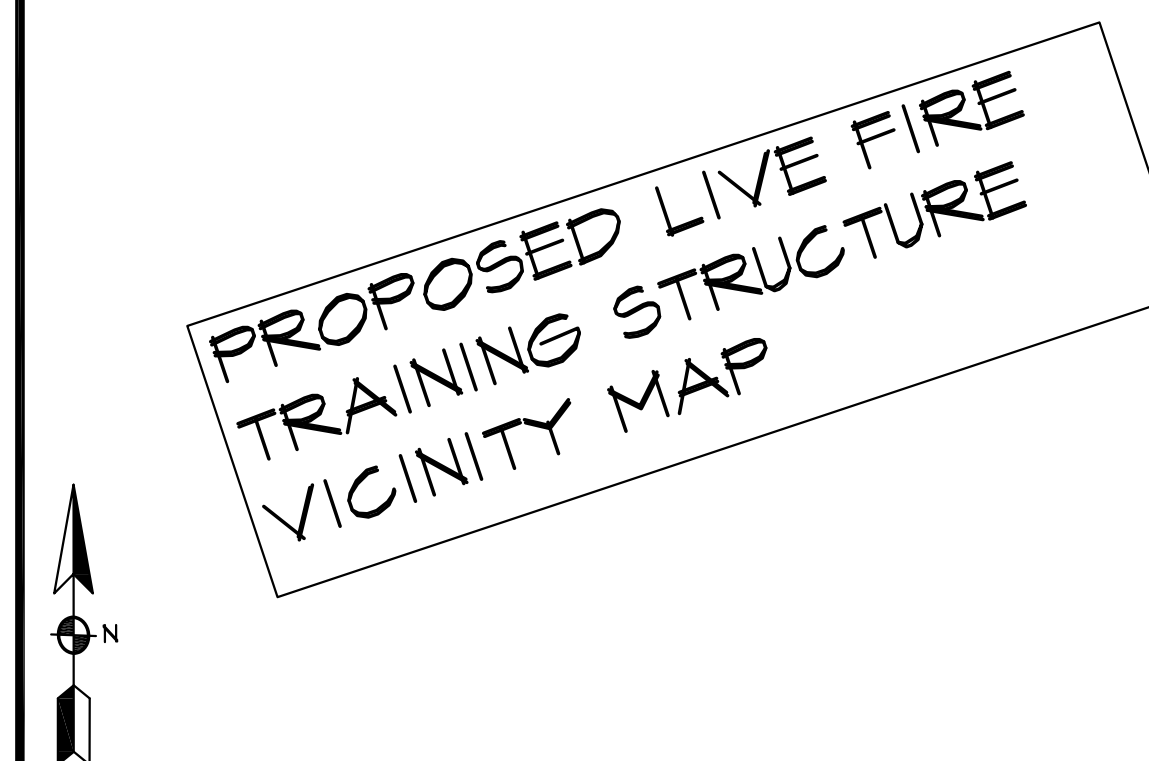
	ACTUAL:	ALLOWABLE:
A) AREA:	1,558 SQ. FT.	8,500 SQ. FT.
B) HEIGHT:	+/- 19'-2" (2 STORY)	40'-0" (2 STORY)

\*NOTE: A CODE MODIFICATION REQUEST MUST BE SUBMITTED TO THE BUILDING OFFICIAL FOR CONSTRUCTION OF THIS NON-HABITABLE TRAINING PROP.

## INDEX OF DRAWINGS

REFERENCE		ELECTRICAL	
TO.1	TITLE SHEET, BUILDING CODE DATA, & LOCATION MAP	E1.0	ELECTRICAL FLOOR PLANS, NOTES, SYMBOLS & ABBREVIATIONS
A0.1	ABBREVIATIONS, MATERIAL INDICATORS, & GRAPHIC SYMBOLS	E2.0	ELECTRICAL DETAILS & PANELBOARD SCHEDULE
A0.2	GENERAL NOTES		
ARCHITECTURAL		MECHANICAL	
A1.0	FIRST FLOOR PLAN	M1.0	MECHANICAL FLOOR PLANS & NOTES
A2.0	SECOND FLOOR/LOWER ROOF PLAN		
A3.0	UPPER ROOF PLAN W/ SLOPED ROOF PROP		
A4.0	BUILDING ELEVATIONS		
A5.0	BUILDING SECTIONS		
A5.1	SCUPPER, RAMP, & THERMAL LINING DETAILS		
A5.2	SIGNAGE, RAILING, & CHOPOUT DETAILS		
STRUCTURAL			
S1.0	FOUNDATION PLAN		
S2.0	FOUNDATION SECTIONS & DETAILS		
S3.0	EXTERIOR STEEL STAIR ELEVATION, SECTIONS, & DETAILS		

## LOCATION MAP



PRIME PROFESSIONAL  
FIRM LOGO

Project Title  
COMMONWEALTH OF VIRGINIA LIVE FIRE TRAINING STRUCTURE PROTOTYPE 4 CLASS B FUEL

SUB-CONSULTANT'S  
LOGO



Department  
of  
Fire Programs

**NOT FOR  
CONSTRUCTION**

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No.	REVISIONS	Date

Sheet Title  
TITLE SHEET, BUILDING CODE DATA, & LOCATION MAP  
CITY/COUNTY VIRGINIA  
Drawn By: ATA Approved By: MAM  
Checked By: MAM Date: 01/31/24

PROFESSIONAL  
SEAL

Sheet No.

**T0.1**

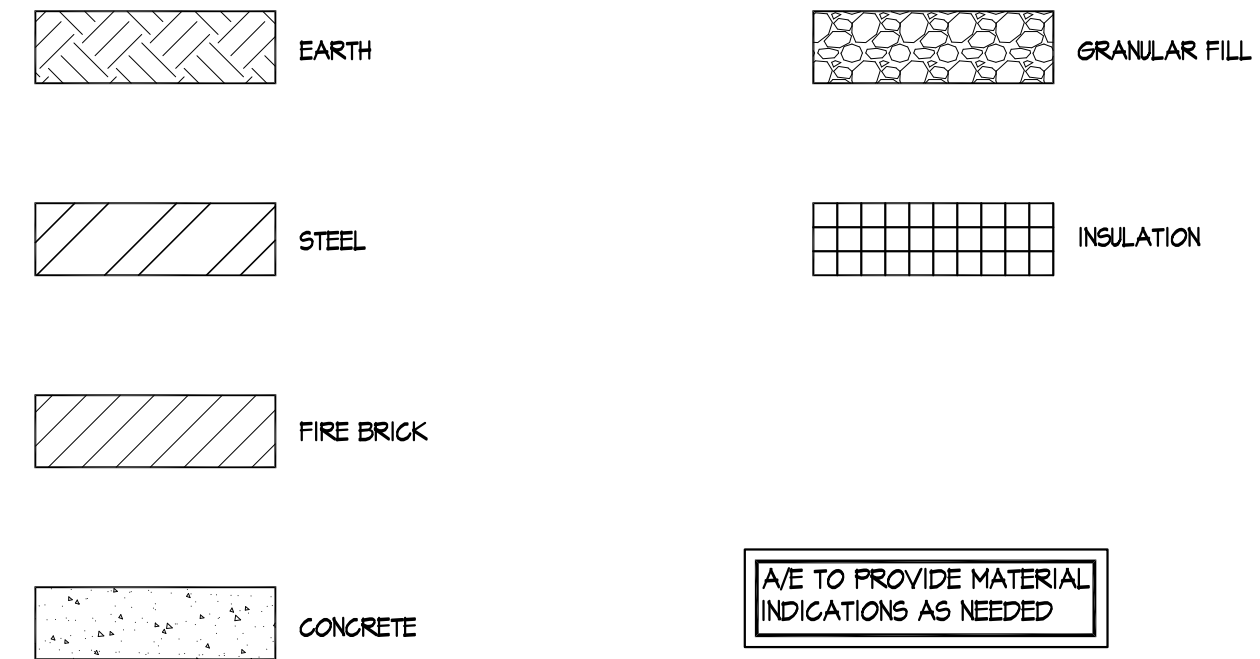
1 of 16

**ABBREVIATIONS**

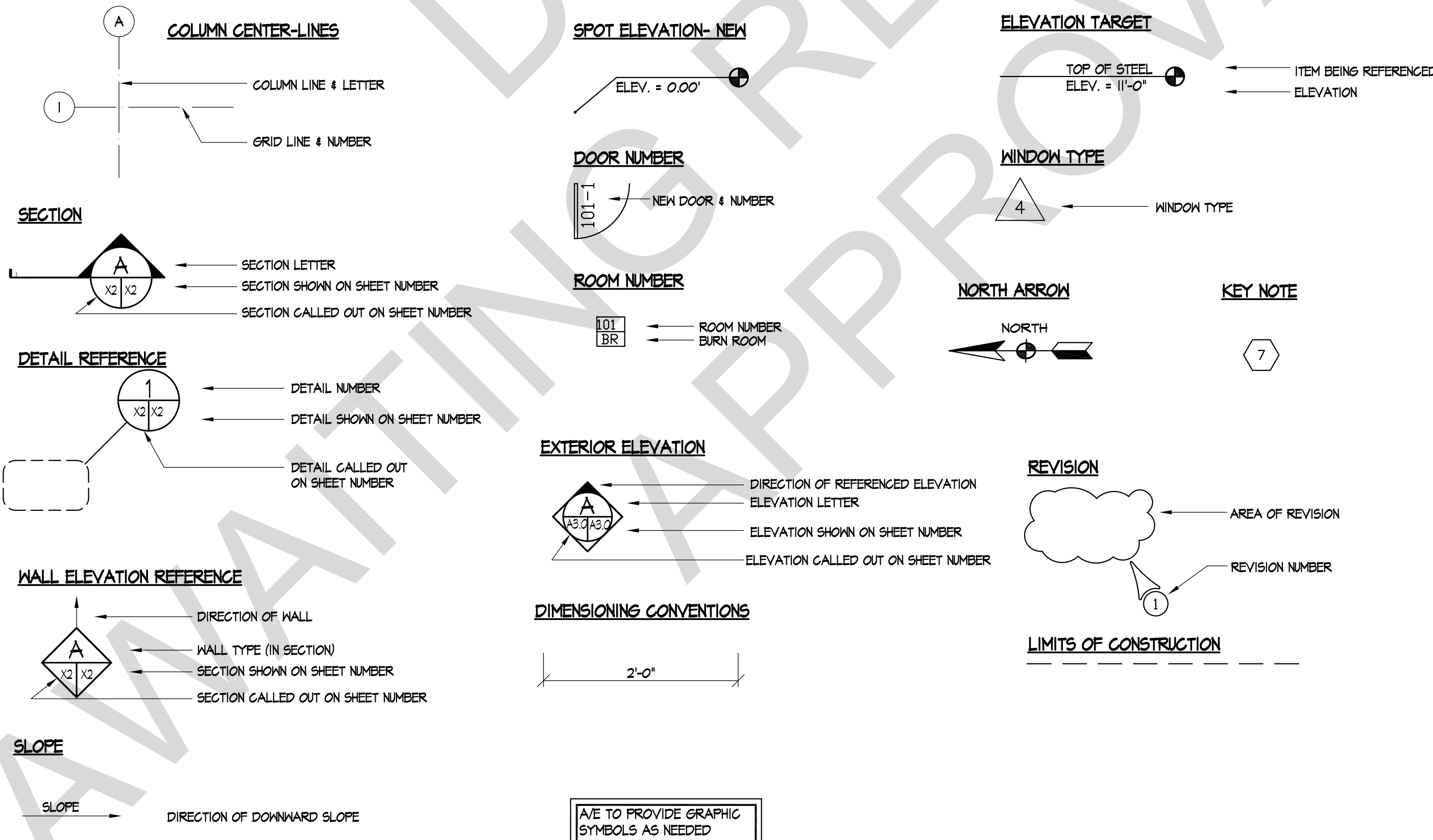
ADJ	ADJACENT, ADJUSTABLE	JT	JOINT
AFF	ABOVE FINISHED FLOOR	L	LENGTH
AGG	AGGREGATE	LB(S)	POUND, POUNDS
ANCH	ANCHOR, ANCHORAGE	LTWT CONC	LIGHTWEIGHT CONCRETE
AND	ANDIZED	MATL	MATERIAL
APFD	APPROVED	MAX	MAXIMUM
ARCH	ARCHITECTURAL	MECH	MECHANICAL
ASSOC	ASSOCIATED	MED	MEDIUM
AUTO	AUTOMATIC	MANUF	MANUFACTURER
AUX	AUXILIARY	MIN	MINIMUM
AVG	AVERAGE	MISC	MISCELLANEOUS
BLDG	BUILDING	MTD	MOUNTED
BLK	BLOCK	MTG HT	MOUNTING HEIGHT
BOTT	BOTTOM	MTL	METAL
BR	BURN ROOM	N/A	NOT APPLICABLE
BUR	BUILT UP ROOFING	NEG	NECESSARY
CEM	CEMENT	NG	NOT IN CONTRACT
CHK'D	CHECKED	NTS	NOT TO SCALE
CJ	CONTROL JOINT	NO#	NUMBER
CL	CENTER LINE	NOM	NOMINAL
CLS	CELLING	OC	ON CENTER
CLR	CLEAR	OD	OUTSIDE DIAMETER
COL	COLUMN	OH	OVERHEAD
CONC	CONCRETE	OPENS	OPENING
CONT	CONTINUOUS	OPP	OPPOSITE
CONTR	CONTRACTOR	PART	PARTITION
COORD	COORDINATE	P	PLATE
CTR	CENTER	PLUMB	PLUMBING
D	DEEP (DEPTH)	PR	PAIR
DBL	DOUBLE	PRFAB	PREFABRICATED
DEP	DEPRESSION, DEPRESS	PROV	PROVIDE
DET	DETAIL	PSF	POUNDS PER SQUARE FOOT
DIA	DIAMETER	PSI	POUNDS PER SQUARE INCH
DIM	DIMENSION	PT	PAINT POINT
DN	DOWN	PVC	POLYVINYL CHLORIDE
DR	DOOR	R	RADIUS, RISER
DRG(S)	DRAWING(S)	REF	REFLECTED, REFERENCE, REFER
DVL	DOVEL	REINF	REINFORCEMENT
EACH	EACH	REQ	REQUIRED, REQUIRED
ELEV	ELEVATION	REV	REVISE, REVISION
ELECT	ELECTRICAL	ROOF	ROOFING
ENCLOS	ENCLOSURE	RH	RIGHT HAND
EQ	EQUAL	RO	ROUGH OPENING
EQUIP	EQUIPMENT	RM	ROOM
EXP	EXPANSION EXPOSED	SCHED	SCHEDULE
EJ	EXPANSION JOINT	SEAL	SEALANT
EXIST	EXISTING	SHT	SHEET
EXT	EXTERIOR	SIM	SIMILAR
FDN	FOUNDATION	SPEC(S)	SPECIFICATION
FIN	FINISH	SQ	SQUARE
FLR	FLOOR	SS	STAINLESS STEEL
FLEX	FLEXIBLE	STD	STANDARD
FRT	FIRE RETARDANT TREATED	STL	STEEL
FTT	FEET (FOOT)	STRUC	STRUCTURAL (STRUCTURE)
FTG	FOOTING	SUSP	SUSPEND, SUSPENDED
GA	GAUGE	T	TOP, THICK
GALV	GALVANIZED	T&B	TOP AND BOTTOM
GC	GENERAL CONTRACTOR	TEMP	TEMPERED, TEMPORARY, TEMPERATURE
GEN	GENERAL	THK	THICK, THICKNESS
H	HIGH	THRU	THROUGH
HDW	HARDWARE	TS	STRUCTURAL STEEL TUBE OR TOP OF STEEL
HM	HOLLOW METAL	TYP	TYPICAL
HORIZ	HORIZONTAL	UL	UNDERWRITERS LABORATORIES
HP	HIGH POINT	UNLESS	UNLESS NOTED OTHERWISE
HHTH	HEIGHT	VERT	VERTICAL
INCH	INCH	V.I.F.	VERIFY IN FIELD
INFO	INFORMATION	WT	WEIGHT
INSUL	INSULATE, INSULATION	WHF	WELDED WIRE FABRIC
INT	INTERIOR	W	WIDTH, WIDE
		W/	WITH
		W/O	WITHOUT
		WO	WORKING POINT

A/E TO PROVIDE ABBREVIATIONS AS NEEDED

**MATERIAL INDICATIONS**



**GRAPHIC SYMBOLS**



A/E TO PROVIDE GRAPHIC SYMBOLS AS NEEDED

PRIME PROFESSIONAL FIRM LOGO

Project Title  
**COMMONWEALTH OF VIRGINIA LIVE FIRE TRAINING STRUCTURE PROTOTYPE 4 CLASS B FUEL**

SUB-CONSULTANT'S LOGO



**Department of Fire Programs**

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No.	REVISIONS	Date

Sheet Title  
**ABBREVIATIONS MATERIAL INDICATORS, & GRAPHIC SYMBOLS**  
 CITY/COUNTY VIRGINIA  
 Drawn By: ATA Approved By: MAM  
 Checked By: MAM Date: 01/31/24

PROFESSIONAL SEAL

Sheet No.  
**A0.1**  
 2 of 16



# GENERAL NOTES:

## GENERAL:

- WORK PERFORMED SHALL COMPLY WITH THE FOLLOWING:
  - THE VIRGINIA UNIFORM STATEWIDE BUILDING CODE (VUBC), LATEST EDITION
  - THE INTERNATIONAL BUILDING CODE (IBC), LATEST EDITION AS ADOPTED/AMENDED BY THE VUBC
  - ALL APPLICABLE STATE AND LOCAL CODES, ORDINANCES AND REGULATIONS
- MAINTAIN UTILITY EQUIPMENT IN SERVICE AND PROTECT AGAINST DAMAGE DURING CONSTRUCTION. IF REQUIRED, CONTRACTORS SHALL PROVIDE TEMPORARY SERVICES DURING INTERRUPTIONS TO EXISTING UTILITIES. PROVIDE NO LESS THAN 72 HOURS PRIOR NOTICE TO THE OWNER IF SHUTDOWN OF SERVICE IS REQUIRED.

## DESIGN LOADS:

1. BUILDING CLASSIFICATION CATEGORY _____	II
2. GROUND SNOW, P <sub>g</sub>	30 PSF*
FLAT ROOF SNOW LOAD, P <sub>f</sub>	25 PSF*
SNOW EXPOSURE FACTOR, C <sub>e</sub>	0.4
SNOW THERMAL FACTOR, C <sub>t</sub>	1.2
SNOW IMPORTANCE FACTOR, I	1.0
3. WIND SPEED _____	115 MPH*
EXPOSURE _____	C*
IMPORTANCE FACTOR, I	1.0
INTERNAL PRESSURE COEFFICIENT _____	±0.18
4. COMPONENTS AND CLADDING (A = 10 SOFT):	
ROOF WIND LOADS:	
ZONE 1 _____	+12.5, -21.0 PSF*
ZONE 2 _____	+12.5, -36.5 PSF*
ZONE 3 _____	+12.5, -55.0 PSF*
WALL WIND LOADS:	
ZONE 4 _____	+21.8, -29.6 PSF*
ZONE 5 _____	+21.8, -29.1 PSF*
5. LIVE LOADS:	
FLAT AND SLOPED ROOFS _____	UNIFORM 50 PSF
FLOORS _____	50 PSF
STAIRS _____	100 PSF
* MINIMUM CONCENTRATED LOAD OF 300 POUNDS ON STAIR TREADS (ON AREA OF 4 SQUARE INCHES)	
RAILINGS _____	50 PSF UNIFORM OR 200 LB POINT LOAD
EXTERIOR APRON _____	25 PSF
6. SEISMIC DESIGN:	
SEISMIC IMPORTANCE FACTOR, I _____	1.0
MAPPED SPECTRAL RESPONSE ACCELERATION, S <sub>s</sub> _____	0.42*
MAPPED SPECTRAL RESPONSE ACCELERATION, S <sub>1</sub> _____	0.115*
SEISMIC USE GROUP _____	I*
SITE SOIL CLASS _____	0.44B*
SPECTRAL COEFFICIENT, S <sub>ds</sub> _____	0.184*
SPECTRAL COEFFICIENT, S <sub>d1</sub> _____	C*
SEISMIC DESIGN CATEGORY _____	C*
BASIC STRUCTURAL SYSTEM _____	LIGHT FRAME W/ SHEAR PANELS OF ALL OTHER MATERIAL
SEISMIC FORCE RESISTING SYSTEM _____	A (ASCE 7 TABLE 12.2-1)
DESIGN BASE SHEAR _____	12.2 KIPS*
SEISMIC RESPONSE COEFFICIENT C <sub>s</sub> _____	0.12*
RESPONSE MODIFICATION COEFFICIENT R _____	2
SEISMIC ANALYSIS _____	EQUIV. LATERAL FORCE PROCEDURE

\*VERIFY WITH LOCAL JURISDICTION

## ARCHITECTURAL:

- UNLESS NOTED OTHERWISE, ALL PARTITIONS ARE DIMENSIONED TO THE FACE OF FINISHED WALL.
- THE DATUM ELEVATION IS TAKEN AT THE TOP OF THE EXTERIOR APRON SLAB WHERE THE APRON INTERSECTS THE PERIMETER OF THE BUILDING (EXCEPT AT GROUND FLOOR DOORS).
- THE DATUM ELEVATION IS XXX FEET.
- ALL BUILDING ELEVATIONS ARE SHOWN IN THE PLANS AS +XXX OR -XXX IN FEET RELATIVE TO THE DATUM.

## FOUNDATIONS:

- CONTRACTOR SHALL NOTIFY "MISS UTILITY" PRIOR TO BEGINNING EXCAVATION FOR LOCATION OF UNDERGROUND UTILITIES.
- EXTERIOR FOOTINGS AND COLUMN FOOTINGS WERE DESIGNED TO BEAR ON UNDISTURBED SOIL BELOW THE FROST LINE A MINIMUM OF 18" BELOW EXISTING GRADE.
- MINIMUM SOIL BEARING PRESSURE IS ASSIGNED TO BE 2000\* PSF. THE OWNER SHALL EMPLOY A GEOTECHNICAL ENGINEER TO VERIFY THAT THIS ALLOWABLE SOIL BEARING PRESSURE IS ATTAINABLE. IF THIS IS NOT ATTAINABLE, THE OWNER/CONTRACTOR SHALL CONTACT THE ENGINEER FOR REDESIGN.
- SOIL POISONING TREATMENT SHALL BE PROVIDED FOR AREAS BENEATH CONCRETE SLABS ON EARTH AND ALONG INTERIOR SURFACES OF FOUNDATION BY APPLICATOR CERTIFIED TO PERFORM SUCH WORK IN THE STATE OF VIRGINIA. FURNISH OWNER WITH A WRITTEN 5-YEAR INSURED GUARANTEE.
- ALL COLUMN FOOTINGS SHALL BE CENTERED UNDER COLUMN CENTER LINES UNLESS NOTED OTHERWISE.
- ALL UTILITIES WHICH CROSS FOOTINGS MUST PASS ABOVE STRIP FOOTING THROUGH THE FOUNDATION WALL, SLEEVE, PATCH, AND PARGE. STEP FOOTINGS AS REQUIRED. REINFORCING SHALL BE CONTINUOUS AT ALL FOOTING STEPS.
- CONCRETE SLABS ON GRADE SHALL BEAR ON A MINIMUM OF 6" COMPACTED #51 STONE. WHERE REQUIRED, SOIL UNDER FOOTINGS SHALL BE COMPACTED TO AT LEAST 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM METHOD D-698 (STANDARD PROCTOR).

## CONCRETE:

- CONCRETE FOR FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS AND A MAXIMUM WATER/CEMENT RATIO OF 0.5.
- CONCRETE FOR FLOOR SLABS AND OTHER ABOVE GROUND CONSTRUCTION SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5000\* PSI AT 28 DAYS AND A MAXIMUM WATER/CEMENT RATIO OF 0.40\* UNLESS NOTED OTHERWISE.
- ALL CONCRETE SHALL BE MIXED, PLACED AND TESTED IN ACCORDANCE WITH THE LATEST EDITION OF ACI 318.
- ALL CONCRETE SHALL HAVE A SLUMP OF 4" ± 1" UNLESS NOTED OTHERWISE.
- CONCRETE MIX DESIGNS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD FOR APPROVAL PRIOR TO USE.
- ALL CONCRETE TO BE POURED IN COLD WEATHER, AS DEFINED IN SECTION 11 OF ACI 306R, COLD WEATHER CONCRETING, SHALL FULLY COMPLY WITH ACI 306.1, STANDARD SPECIFICATIONS FOR COLD WEATHER CONCRETING, AND ACI 306R.
- ALL CONCRETE TO BE POURED IN HOT WEATHER, AS DEFINED IN SECTION 12 OF ACI 306R, HOT WEATHER CONCRETING, SHALL FULLY COMPLY WITH ACI 306.1, STANDARD SPECIFICATIONS FOR HOT WEATHER CONCRETING, AND ACI 306R.
- REINFORCING BARS SHALL BE ASTM A-615, GRADE 60. EPOXY COATED BARS SHALL BE ASTM A-715 GRADE 60 AS A BID ALTERNATE.
- ALL CONCRETE REINFORCING SHALL BE DETAILED AND CONSTRUCTED PER ACI 318.
- CONTRACTOR SHALL SUBMIT REINFORCING SHOP DRAWINGS FOR CONCRETE REINFORCING STEEL FOR APPROVAL.
- ALL CONCRETE REINFORCING STEEL SHALL HAVE CORNER OR "Z" BARS OF THE SAME DIAMETER AT ALL CORNERS AND CHANGES IN DIRECTION. CORNER AND "Z" BARS SHALL LAP CONTINUOUS BARS A MINIMUM OF 48 TIMES THE NOMINAL BAR DIAMETER ON BOTH ENDS.
- ALL CONCRETE SLABS ON GRADE SHALL BE REINFORCED WITH WELDED WIRE FABRIC OF THE SIZE INDICATED ON THE PLANS AND SHALL BE PLACED OVER 6 MIL VAPOR BARRIER UNLESS SHOWN OTHERWISE ON DRAWINGS.
- SAW CUTTING CONTROL JOINTS SHALL BE PERFORMED AS SOON AS THE CONCRETE SLAB ON GRADE IS HARD ENOUGH TO SUPPORT THE CUTTING MACHINE WITHIN FIRST FOUR HOURS OF CURING.
- SLABS ON GRADE INCLUDING THE EXTERIOR APRON SLAB SHALL BE AIR ENTRAINED CONCRETE AND REINFORCED WITH WELDED WIRE FABRIC PLACED ON CONCRETE BLOCKS. AIR ENTRAINMENT FOR SLABS SHALL BE 6% BY VOLUME ± 1%.
- ALL CONCRETE EXCEPT FOOTINGS SHALL BE AIR-ENTRAINED 6% BY VOLUME ± 1% UNLESS SHOWN OTHERWISE ON DRAWINGS.
- CONCRETE PROTECTION FOR STEEL REINFORCEMENT OF CAST-IN-PLACE CONCRETE SHALL BE AS SPECIFIED BELOW:

TYPE OF STRUCTURE	MINIMUM CLEAR COVER (UNLESS OTHERWISE NOTED IN DRAWINGS)
FOOTINGS AND OTHER EARTH FORMED CONCRETE	3"

- SPECIAL INSPECTIONS SHALL BE REQUIRED FOR THE CAST IN PLACE CONCRETE MATERIALS AND INSTALLATION, INCLUDING BUT NOT LIMITED TO REINFORCEMENT, BOLTS, FORMWORK, PLACEMENT, CURING AND STRENGTH AS IDENTIFIED IN THE SCHEDULE OF SPECIAL INSPECTIONS.

## STRUCTURAL STEEL:

- ALL STRUCTURAL STEEL FRAMING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF AISI 'MANUAL OF STEEL CONSTRUCTION.' ALL STRUCTURAL STEEL BEAM, COLUMN AND CHANNEL SHAPES SHALL BE ASTM A-992. ALL STEEL ANGLES AND PLATES SHALL BE ASTM A-36. ALL STRUCTURAL STEEL TUBES SHALL BE ASTM A500 GRADE B.
- CONTRACTOR TO SUBMIT STRUCTURAL STEEL SHOP DRAWINGS FOR APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD.
- ALL STRUCTURAL STEEL SHOP WORK TO BE WELDED WITH E70XXX ELECTRODES. FIELD WORK CONNECTIONS TO BE BOLTED WITH 3/4" HIGH STRENGTH A325X BOLTS OR WELDED WITH E70XXX ELECTRODES. PRE-DRILL HOLES IN STEEL MEMBERS AS REQUIRED FOR FASTENING, BLOCKING, ETC.
- ALL COLUMNS SHALL BE FURNISHED WITH CAP PLATES AND BASE PLATES OF SIZE CALLED FOR AND SHALL BE SHOP WELDED. BASE PLATES SHALL BEAR ON LEVELING NUTS SET IN 1" THICKNESS OR APPROVED SHRINK RESISTANT GROUT EXCEPT WHEN SHOWN OTHERWISE, AND ANCHORED WITH FOUR (4) 3/4" DIAMETER 12" THREADED RODS WITH A WASHER AND DOUBLE NUTS. SHIM UNDER BASE PLATES AS REQUIRED.
- ALL STRUCTURAL STEEL FRAMING TO HAVE ONE SHOP COAT OF RUST INHIBITIVE PAINT AFTER FABRICATION, AND ONE FINISH COAT OF APPROVED PAINT UNLESS NOTED OTHERWISE. ALL EXPOSED STEEL TO HAVE TWO (2) COATS OF APPROVED COLOR SELECTED BY OWNER.
- SPECIAL INSPECTIONS SHALL BE REQUIRED FOR THE STRUCTURAL STEEL MATERIALS, QUALITY CONTROL PROGRAM, BOLTS, NUTS AND WASHERS, WELDING, AND STRUCTURAL DETAILS AS IDENTIFIED IN THE SCHEDULE OF SPECIAL INSPECTIONS.

## STEEL GRATING AND TREADS:

- STEEL GRATING SHALL BE 2" DEEP, 1/4 GAUGE, GALVANIZED GRIP STRUT DIAMOND SAFETY GRATING OR EQUIVALENT. INSTALL GRATING IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS TO CREATE A TWO-SPAN CONDITION BY WELDING. WELD SIDES OF ADJACENT PANELS TOGETHER PER MANUFACTURER'S RECOMMENDATIONS.
- STEEL STAIR TREADS SHALL BE 2" DEEP, 1/4 GAUGE GALVANIZED GRIP STRUT DIAMOND STAIR TREADS OR EQUIVALENT. INSTALL TREADS IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS USING STANDARD ZINC COATED BOLTS.

## WOOD:

- WOOD FRAMING IS BASED ON DESIGN VALUES NOTED IN THE LATEST EDITION OF THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION.
- RAFTERS FOR CHOP OUT OPENING SHALL BE CONSTRUCTED WITH NO. 2 SOUTHERN YELLOW PINE (SYP) WITH MINIMUM F<sub>b</sub> = 1050 PSI AND E = 1,800,000 PSI ALLOWABLE STRESSES.
- ALL PLYWOOD SHALL BE MANUFACTURED AND GRADED IN ACCORDANCE WITH U.S. DEPARTMENT OF COMMERCE (DOC) PRODUCT STANDARD PS1-45 FOR PLYWOOD CONSTRUCTION FROM GROUP 1 SPECIES. EACH PLYWOOD SHEET SHALL BEAR THE "APA" GRADE TRADEMARK.
- PLYWOOD ROOF SHEATHING SHALL CONFORM TO APA C-D RATED EXTERIOR 3/4" MINIMUM THICKNESS PLYWOOD SHEATHING UNLESS NOTED OTHERWISE. PROVIDE APPROPRIATE SPACING BETWEEN JOINTS. USE OF "H" CLIPS REQUIRED ON ROOF SHEATHING.
- THE FACE GRAIN OF THE PLYWOOD SHALL BE LAID AT RIGHT ANGLES TO THE RAFTERS.
- FASTENERS SHALL BE PLACED 3/8" MINIMUM FROM THE EDGE OF THE PLYWOOD SHEETS.
- ALL PLYWOOD END JOINTS SHALL BE STAGGERED AND SHALL BE LOCATED ALONG THE CENTER LINES OF THE FRAMING MEMBERS.
- PLYWOOD USED FOR SLOPED ROOF PROP, WITH THE EXCEPTION OF THE TRAINING CHOP OUT, SHALL BE FIRE RETARDANT TREATED. PLYWOOD AND WOOD FRAMING USED FOR TRAINING CHOP OUT SHALL NOT BE PRESERVATIVE OR FIRE RETARDANT TREATED.

## MODULAR/INTERMODAL SHIPPING CONTAINER COMPONENTS:

- CONTRACTOR SHALL SUBMIT SEALED COMMONWEALTH OF VIRGINIA LICENSED PROFESSIONAL ENGINEER'S STRUCTURAL DESIGN CALCULATIONS AND SHOP DRAWINGS FOR APPROVAL PRIOR TO CONSTRUCTION OF MODULAR/INTERMODAL SHIPPING CONTAINER BUILDING FOUNDATION.
- SHOP DRAWINGS SUBMITTAL REQUIREMENTS: SUBMIT COMPLETE ERECTION DRAWINGS SHOWING ANCHOR BOLT SETTINGS, SIDEWALL, ENDWALL AND ROOF FRAMING, TRANSVERSE CROSS SECTIONS, COVERING AND TRIM DETAILS AND ACCESSORY INSTALLATION DETAILS TO CLEARLY INDICATE PROPER ASSEMBLY OF BUILDING COMPONENTS.
- MANUFACTURER SHALL PROVIDE A COMPLETE AND PROPERLY INSTALLED SYSTEM AS REQUIRED FOR A WEATHER TIGHT, 20 YEAR WARRANTED BUILDING.
- THE LOCATION OF ANCHOR BOLTS, SIZE OF BASE PLATES, LOCATION OF MODIFIED COMPONENTS, ETC. MUST BE VERIFIED AGAINST MANUFACTURER'S FRAMING ARRANGEMENT. ANY DEVIATIONS MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER. ALL SUCH DEVIATIONS MUST BE COORDINATED AND APPROVED BEFORE CONCRETE IS PLACED.
- DESIGN OF THE MODULAR/INTERMODAL SHIPPING CONTAINER BUILDING TO SUPPORT ROOF, SNOW, WIND AND SEISMIC LOADS AS STATED IN THE DESIGN LOADS ABOVE AND IN ACCORDANCE WITH CHAPTERS 16 AND 31 OF THE INTERNATIONAL BUILDING CODE AS ADOPTED BY THE VUBC.
- INTERMODAL SHIPPING CONTAINERS REPURPOSED FOR USE AS STRUCTURAL COMPONENTS SHALL BEAR AN EXISTING DATA PLATE AS REQUIRED BY ISO 6346 AND SHALL BE VERIFIED BY AN APPROVED AGENCY. A REPORT OF THE VERIFICATION PROCESS AND FINDINGS SHALL BE PROVIDED FOR REVIEW AND APPROVAL.
- INTERMODAL SHIPPING CONTAINERS SHALL BEAR ON A LAMINATED ELASTOMERIC BEARING PAD WHEN SUPPORTED BY CAST-IN-PLACE CONCRETE SLABS ON GRADE.

## EXPANSION ANCHORS:

- ALL ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.
- EXPANSION ANCHORS SHALL BE WEDGE TYPE WITH A SINGLE PIECE THREE SECTION WEDGE. THE ANCHORS SHALL MEET THE DESCRIPTION IN FEDERAL SPECIFICATION FF-9-325, GROUP II, TYPE 4, CLASS I FOR CONCRETE EXPANSION ANCHORS. ANCHORS SHALL BE HILTI KWIK BOLT II, MANUFACTURED BY HILTI FASTENING SYSTEMS, OR EQUIVALENT.
- ALL EXPANSION ANCHORS SHALL BE ZINC PLATED IN ACCORDANCE WITH ASTM B633, SERVICE CONDITION SC I, TYPE III UNLESS INDICATED IN THE DRAWINGS AS STAINLESS STEEL.
- UNLESS OTHERWISE NOTED, THE FOLLOWING MINIMUM REQUIREMENTS SHALL BE MET FOR EXPANSION ANCHORS:

ANCHOR DIAMETER	EMBEDMENT DEPTH	ALLOWABLE LOADS IN CONCRETE	
		TENSION (POUNDS)	SHEAR (POUNDS)
3/8"	2 3/8"	2,440	3,005
1/2"	3 1/2"	4,960	12,450

## THERMAL LINING:

- THE THERMAL LINING SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE MANUFACTURER.
- THE THERMAL LINING SYSTEM SHALL BE DESIGNED TO PROVIDE THE REQUIRED LEVEL OF PROTECTION AS INDICATED IN THE SPECIFICATIONS.

## TEMPERATURE MONITORING SYSTEM:

- THE TEMPERATURE MONITORING SYSTEM SHALL CONSIST OF A CENTRAL RECORDER LOCATED IN THE MONITORING EQUIPMENT ROOM AND THERMOCOUPLES AS SHOWN ON ELECTRICAL DRAWINGS, SEE SPECIFICATION FOR REQUIREMENTS.

## ELECTRICAL:

- PROVIDE ALL NECESSARY LABOR, EQUIPMENT, ETC. FOR ALL WORK INDICATED AND REQUIRED FOR A COMPLETE INSTALLATION TO COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC).
- ELECTRICAL SUB CONTRACTOR TO PROVIDE SYSTEM DESIGN AND PLAN LAYOUT FOR REVIEW AND APPROVAL.
- THE ELECTRICAL CONTRACTOR SHALL KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL AND RUBBISH DAILY AND AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE PREMISES ALL RUBBISH, IMPLEMENTS, AND SURPLUS MATERIALS AND LEAVE THE BUILDING "BROOM CLEAN".
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE A WRITTEN WARRANTY STATING THAT ALL MATERIALS AND WORKMANSHIP ARE FREE FROM DEFECTS FOR A PERIOD OF 12 MONTHS FROM DATE OF FINAL ACCEPTANCE.
- MATERIALS:
  - WIRE AND CABLE SHALL BE COPPER WITH THIN/THIN INSULATION AND BE SIZED AS PER THE LATEST EDITION OF THE NEC.
  - ALL WIRING SHALL BE CONCEALED WHERE POSSIBLE. WHERE APPROVED BY THE DESIGNER, EXPOSED WIRING SHALL BE RUN PARALLEL AND PERPENDICULAR TO THE BUILDING CONSTRUCTION.
  - DISCONNECT SWITCHES SHALL BE SQUARE-D GENERAL DUTY FUSIBLE WITH CLASS "R" FUSE CLIPS OR EQUAL.
  - FUSES SHALL BE TIME-DELAY DUAL ELEMENT TYPE AND SHALL BE SIZED AS REQUIRED, AND QUANTITY.
  - ALL SWITCHES AND RECEPTACLES SHALL BE SPECIFICATION GRADE AND COLOR AS CHOSEN BY OWNER.
- THE ELECTRICAL CONTRACTOR MUST INSPECT JOB SITE PRIOR TO BIDDING JOB AND WILL INCLUDE COMPLETE RESPONSIBILITY FOR ALL LABOR AND MATERIALS AS SPECIFIED ON PLANS.
- ELECTRICAL CONTRACTOR SHALL VERIFY THE AIG BEFORE PURCHASE OF SERVICE ENTRANCE EQUIPMENT.
- ELECTRICAL CONTRACTOR SHALL VERIFY EQUIPMENT CAPACITY BEFORE ROUGH-IN.
- ALL WIRING SHALL BE IN CONDUIT AND BE 12 AWG UNLESS OTHERWISE SPECIFIED. CONDUIT SHALL BE EMT OR RMC.
- CONDUIT IN AND UNDER SLAB SHALL BE SCHEDULE 40 PVC AND SHALL BE BELOW THE FROST LINE.

- THESE PROTOTYPE DRAWINGS HAVE BEEN DESIGNED TO PROVIDE ADEQUATE FACILITIES FOR FIRE FIGHTER I & II TRAINING AND TO MEET THE REQUIREMENTS OF NFPA 1403 AND 1402.
- THE ATTACHED DRAWINGS, PROJECT MANUAL, AND SPECIFICATIONS ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT TO BE USED AS CONSTRUCTION DOCUMENTS. GRANT RECIPIENTS SHALL RETAIN A LICENSED DESIGN PROFESSIONAL TO PROVIDE SITE SPECIFIC CONTRACT DOCUMENTS SUITABLE FOR USE AS THE BASIS OF CONSTRUCTION.
- THE GRANT RECIPIENT SHALL RETAIN A LICENSED DESIGN PROFESSIONAL TO CREATE A SITE PLAN, CIVIL DRAWINGS AND CIVIL SPECIFICATIONS TO ACCOMPANY THE ABOVE REFERENCED SITE SPECIFIC CONTRACT DOCUMENTS.
- THESE PROTOTYPE DRAWINGS HAVE BEEN DESIGNED TO BE COMPARED WITH THE VARIOUS REQUIREMENTS FOR WIND SPEED, FROST DEPTH, SEISMIC VALUES, ETC. WITHIN THE COMMONWEALTH OF VIRGINIA. AS THESE VALUES ARE SITE DEPENDENT, THE LICENSED DESIGN PROFESSIONAL SHALL VERIFY ALL SITE RELATED VALUES WITH THE LOCAL JURISDICTION & MODIFY THE PROTOTYPE DRAWINGS ACCORDINGLY.
- DESIGN LOADS AND NOTES WITH ASTERISKS (\*) SIGNIFY THOSE THAT ARE SITE DEPENDENT AND SHALL BE VERIFIED WITH THE LOCAL JURISDICTION.

- ALL CONCRETE ADJACENT TO AND WITHIN THE LIVE FIRE TRAINING STRUCTURE SHALL STAND A MINIMUM OF TWO (2) MONTHS TO CURE BEFORE CONDUCTING THE FIRST LIVE FIRE TRAINING EVOLUTION.
- NO VEHICLE TRAFFIC SHALL BE PERMITTED ON THE APRON SLAB FOR A MINIMUM OF ONE (1) MONTH AFTER APRON SLAB HAS BEEN PLACED.

PRIME PROFESSIONAL FIRM LOGO

Project Title

COMMONWEALTH OF VIRGINIA LIVE FIRE TRAINING STRUCTURE PROTOTYPE 4 CLASS B FUEL

SUB-CONSULTANT'S LOGO



Department of Fire Programs

NOT FOR CONSTRUCTION

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No.	REVISIONS	Date

Sheet Title

GENERAL NOTES

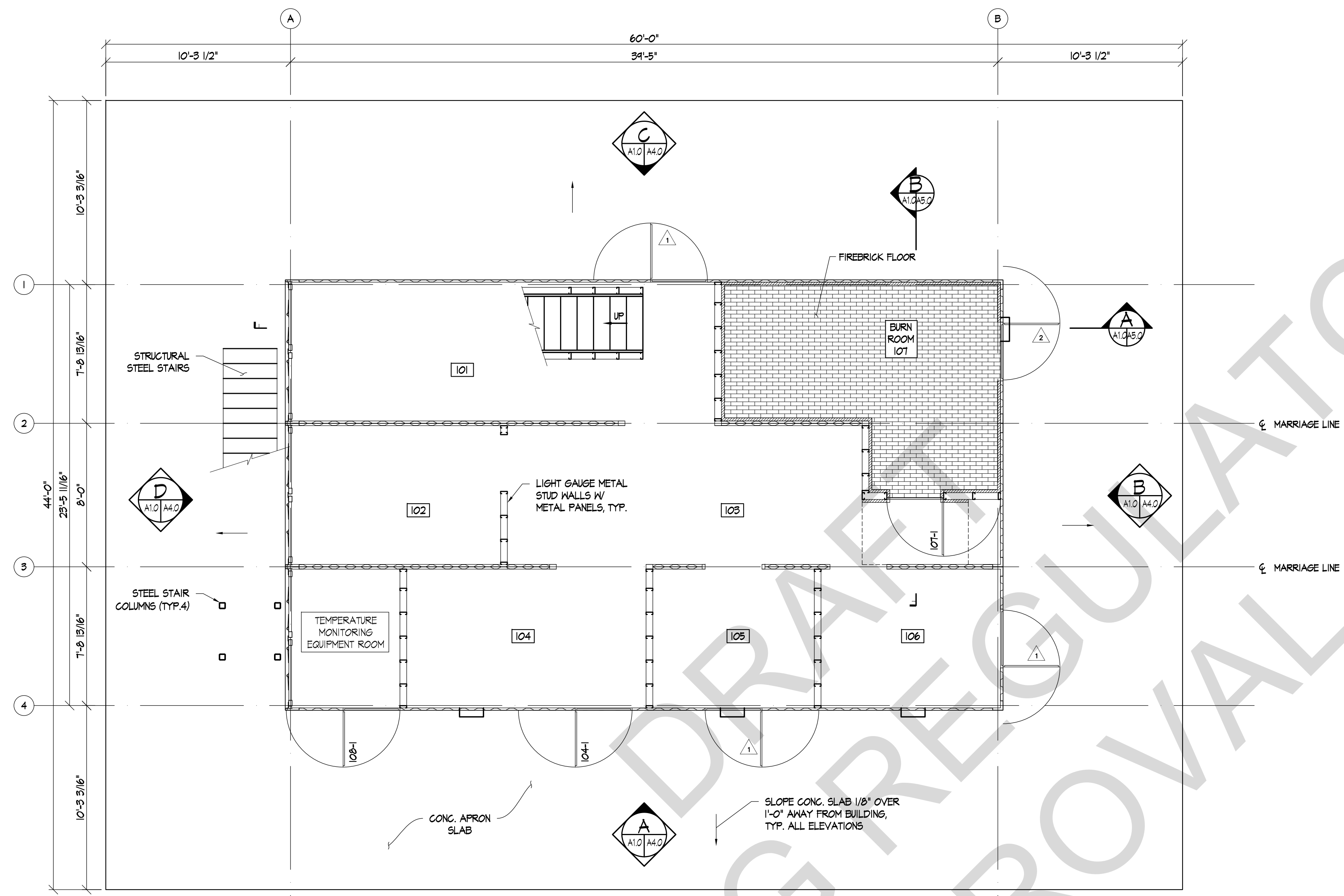
CITY/COUNTY \_\_\_\_\_ VIRGINIA  
 Drawn By: ATA Approved By: MAM  
 Checked By: MAM Date: 01/31/24

PROFESSIONAL SEAL

Sheet No.

A0.2

3 of 16

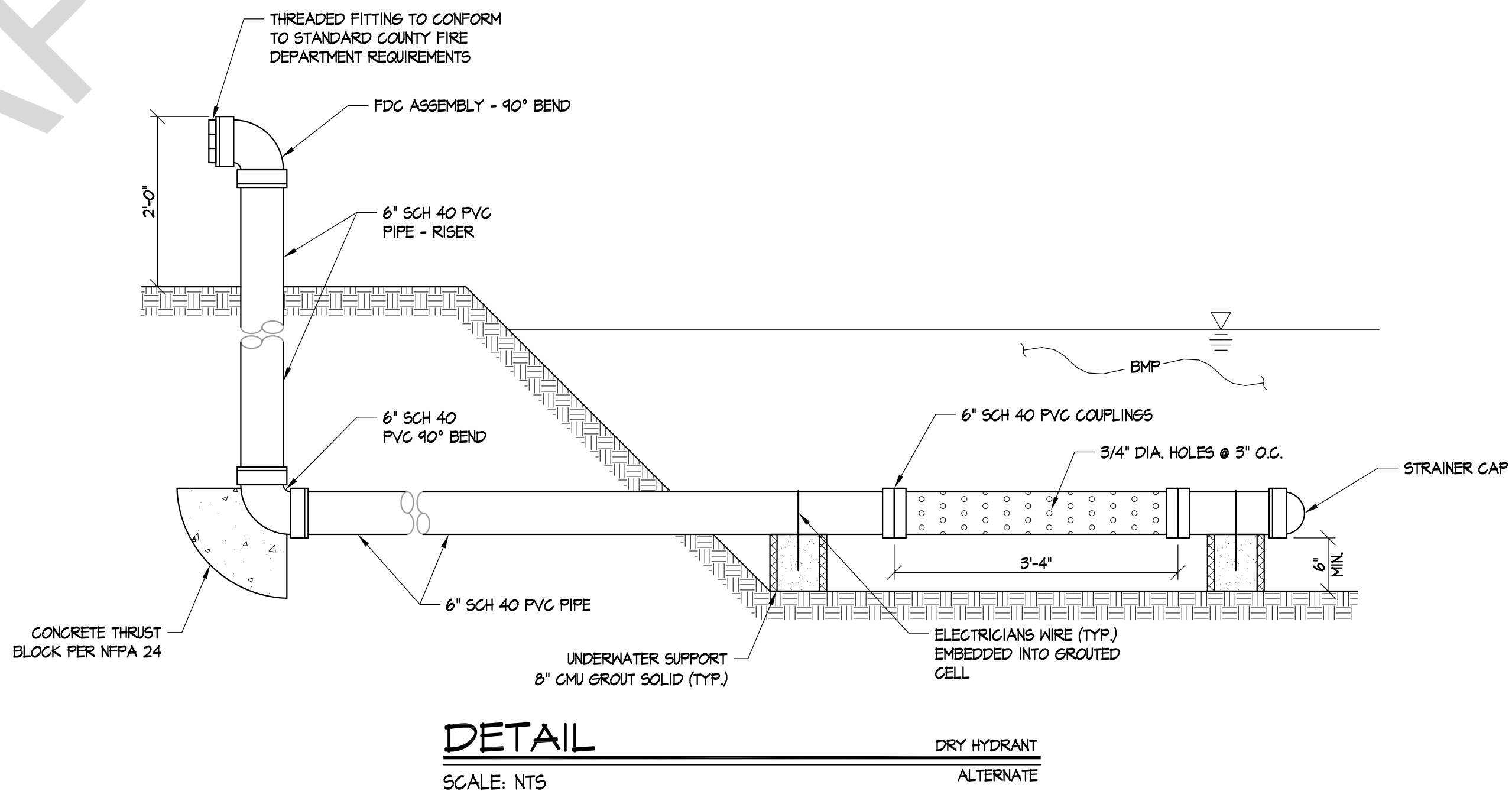


**FIRST FLOOR PLAN**

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

**NOTES:**

- ROOM 101 IS THE BURN ROOM. NO BURNING IS ALLOWED IN ROOMS 101, 102, 103, 104, 105, 106, THE MONITORING EQUIPMENT ROOM, OR ON THE STAIRS OR LANDING.
- DOORS SHALL BE HOT DIPPED GALV. METAL WITH CONTINUOUSLY WELDED SEAMS AND GALV. STEEL ANGLE SUPPORT FRAME. DOORS SHALL HAVE PULLS ON EACH SIDE AS WELL AS A LOCKABLE LATCH THAT IS OPERABLE FROM BOTH SIDES.
- WINDOW SHUTTERS SHALL BE HOT DIPPED GALV. METAL WITH CONTINUOUSLY WELDED SEAMS AND GALV. STEEL ANGLE FRAME SUPPORT. WINDOW SHUTTERS SHALL HAVE WINDOW SHUTTER PULLS ON EACH SIDE AS WELL AS A LOCKABLE LATCH THAT IS OPERABLE FROM BOTH SIDES.



PRIME PROFESSIONAL FIRM LOGO

Project Title  
**COMMONWEALTH OF VIRGINIA LIVE FIRE TRAINING STRUCTURE PROTOTYPE 4 CLASS B FUEL**

SUB-CONSULTANT'S LOGO



Department of Fire Programs

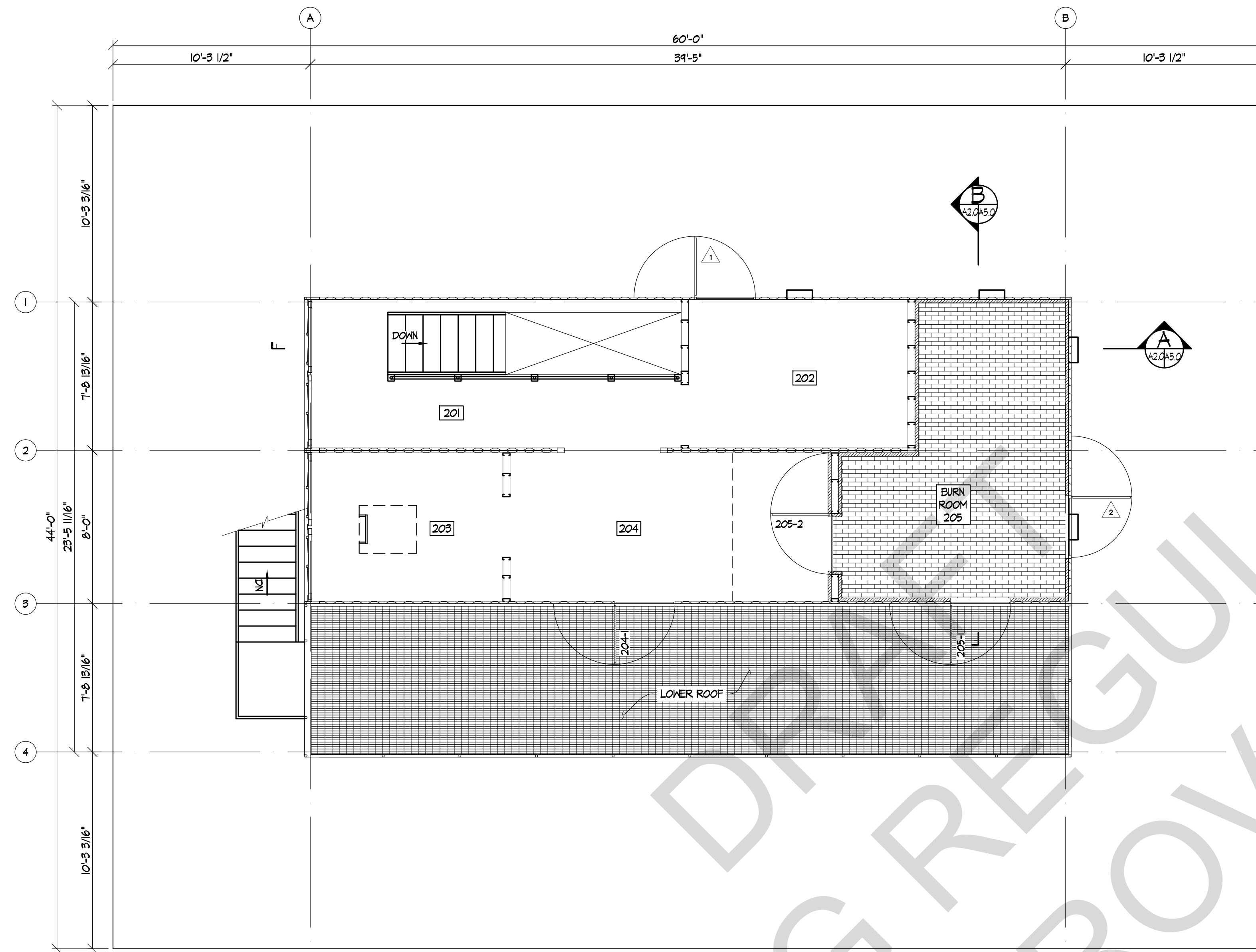
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No.	REVISIONS	Date

Sheet Title  
**FIRST FLOOR PLAN**  
 CITY/COUNTY VIRGINIA  
 Drawn By: ATA Approved By: MAM  
 Checked By: MAM Date: 01/31/24

PROFESSIONAL SEAL

Sheet No.  
**A1.0**  
 4 of 16



**SECOND FLOOR/LOWER ROOF PLAN**

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

**NOTES:**

1. INTERIOR ELEVATED FLOOR SLABS SHALL BE CONCRETE SLAB OVER METAL DECK DESIGNED TO SUPPORT THE SUPERIMPOSED LIVE LOADS INDICATED ON SHEET AO.2.
2. EXTERIOR LOW FLAT ROOF SHALL BE WATERTIGHT LIGHT GAGE METAL PANELS COVERED WITH GALV. GRIP STRUT DIAMOND PLANKS.
3. ROOM 205 IS A BURN ROOM. NO BURNING IS ALLOWED IN ROOMS 201, 202, 203, & 204, ON THE STAIRS, LANDING OR ON THE LOWER ROOF.
4. REFER TO SHEET AS.0 FOR POST AND GUARDRAIL ELEVATION LOCATIONS.
5. DOORS SHALL BE HOT DIPPED GALV. METAL WITH CONTINUOUSLY WELDED SEAMS AND GALV. STEEL ANGLE SUPPORT FRAME. DOORS SHALL HAVE PULLS ON EACH SIDE AS WELL AS A LOCKABLE LATCH THAT IS OPERABLE FROM BOTH SIDES.
6. WINDOW SHUTTERS SHALL BE HOT DIPPED GALV. METAL WITH CONTINUOUSLY WELDED SEAMS AND GALV. STEEL ANGLE FRAME SUPPORT. WINDOW SHUTTERS SHALL HAVE WINDOW SHUTTER PULLS ON EACH SIDE AS WELL AS A LOCKABLE LATCH THAT IS OPERABLE FROM BOTH SIDES.

PRIME PROFESSIONAL FIRM LOGO

Project Title  
**COMMONWEALTH OF VIRGINIA LIVE FIRE TRAINING STRUCTURE PROTOTYPE 4 CLASS B FUEL**

SUB-CONSULTANT'S LOGO



**Department of Fire Programs**

**NOT FOR CONSTRUCTION**

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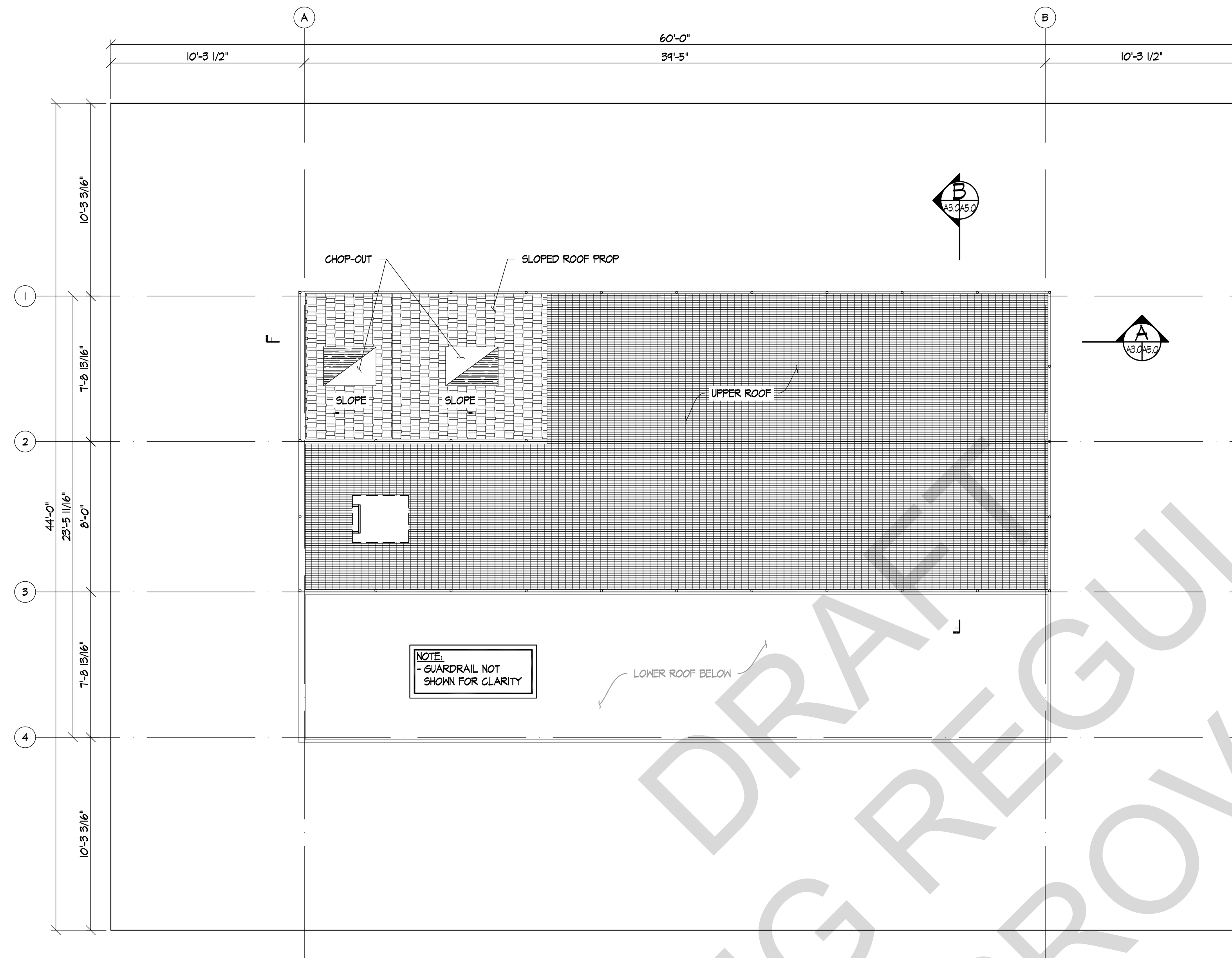
No.	REVISIONS	Date

Sheet Title  
**SECOND FLOOR/LOWER ROOF PLAN**  
 CITY/COUNTY VIRGINIA  
 Drawn By: ATA Approved By: MAM  
 Checked By: MAM Date: 01/31/24

PROFESSIONAL SEAL

Sheet No.  
**A2.0**  
 5 of 16





**UPPER ROOF PLAN W/ SLOPED ROOF PROP**

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

**NOTES:**

1. NO BURNING IS ALLOWED ON THE UPPER ROOF OR BELOW THE SLOPED ROOF PROP.
2. EXTERIOR UPPER FLAT ROOF SHALL BE WATERTIGHT LIGHT GAGE METAL PANELS COVERED WITH GALV. GRIP STRUT DIAMOND PLANKS.
3. REFER TO SHEET A4.0 FOR POST AND GUARDRAIL ELEVATION LOCATIONS.
4. SLOPED ROOF PROP SHALL BE 3/4" TONGUE AND GROOVE PLYWOOD COVERED WITH COMPOSITE ASPHALT SHINGLES AND SHALL BE DESIGNED TO SUPPORT THE SUPERIMPOSED LIVE LOADS INDICATED ON SHEET A0.2.

PRIME PROFESSIONAL FIRM LOGO

Project Title  
**COMMONWEALTH OF VIRGINIA LIVE FIRE TRAINING STRUCTURE PROTOTYPE 4 CLASS B FUEL**

SUB-CONSULTANT'S LOGO



**Department of Fire Programs**

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No.	REVISIONS	Date

Sheet Title  
**UPPER ROOF PLAN W/ SLOPED ROOF PROP**

CITY/COUNTY VIRGINIA  
 Drawn By: ATA Approved By: MAM  
 Checked By: MAM Date: 01/31/24

PROFESSIONAL SEAL

Sheet No.  
**A3.0**  
 6 of 16

PRIME PROFESSIONAL FIRM LOGO

Project Title  
**COMMONWEALTH OF VIRGINIA LIVE FIRE TRAINING STRUCTURE PROTOTYPE 4 CLASS B FUEL**

SUB-CONSULTANT'S LOGO



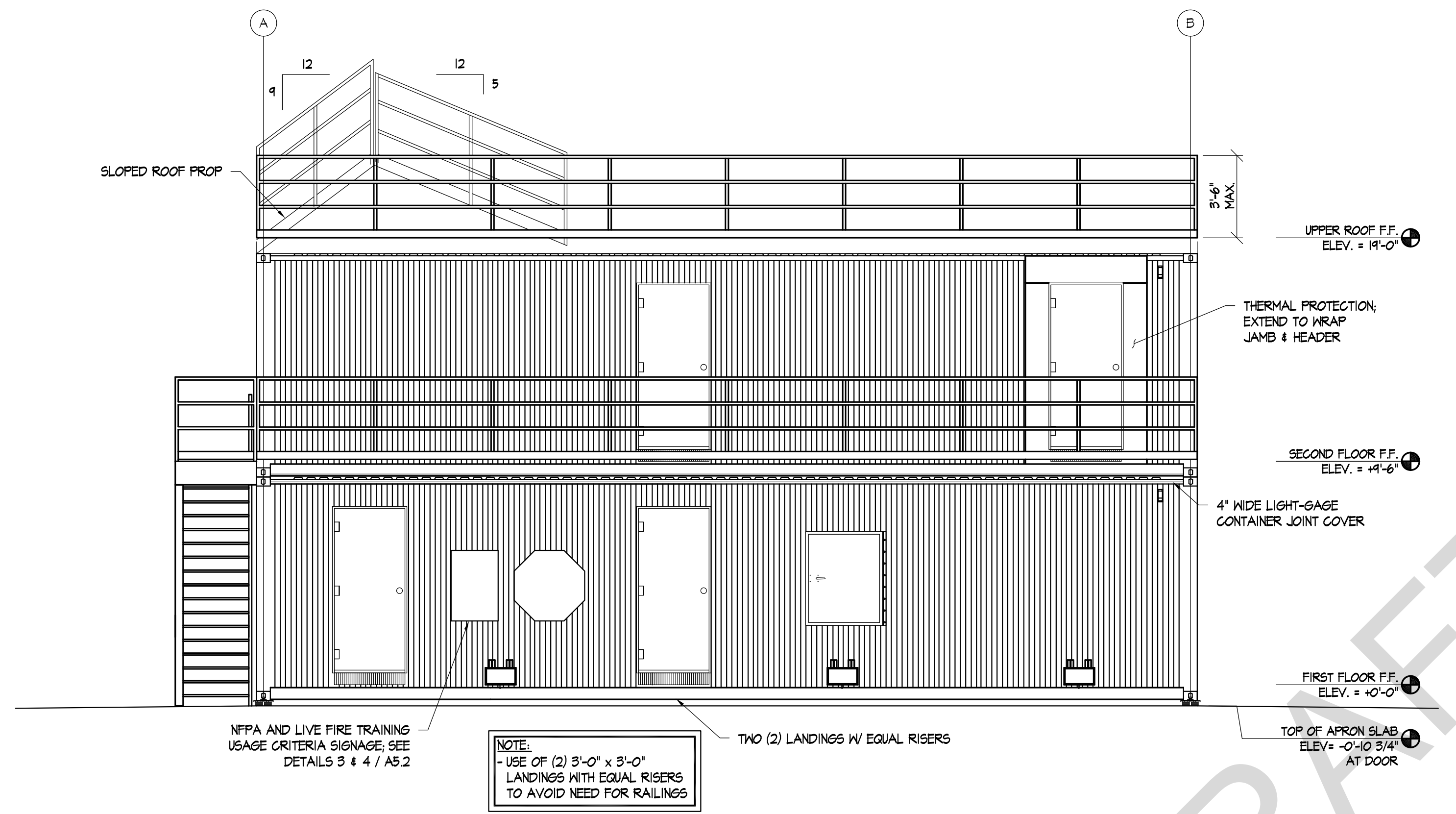
Department of Fire Programs

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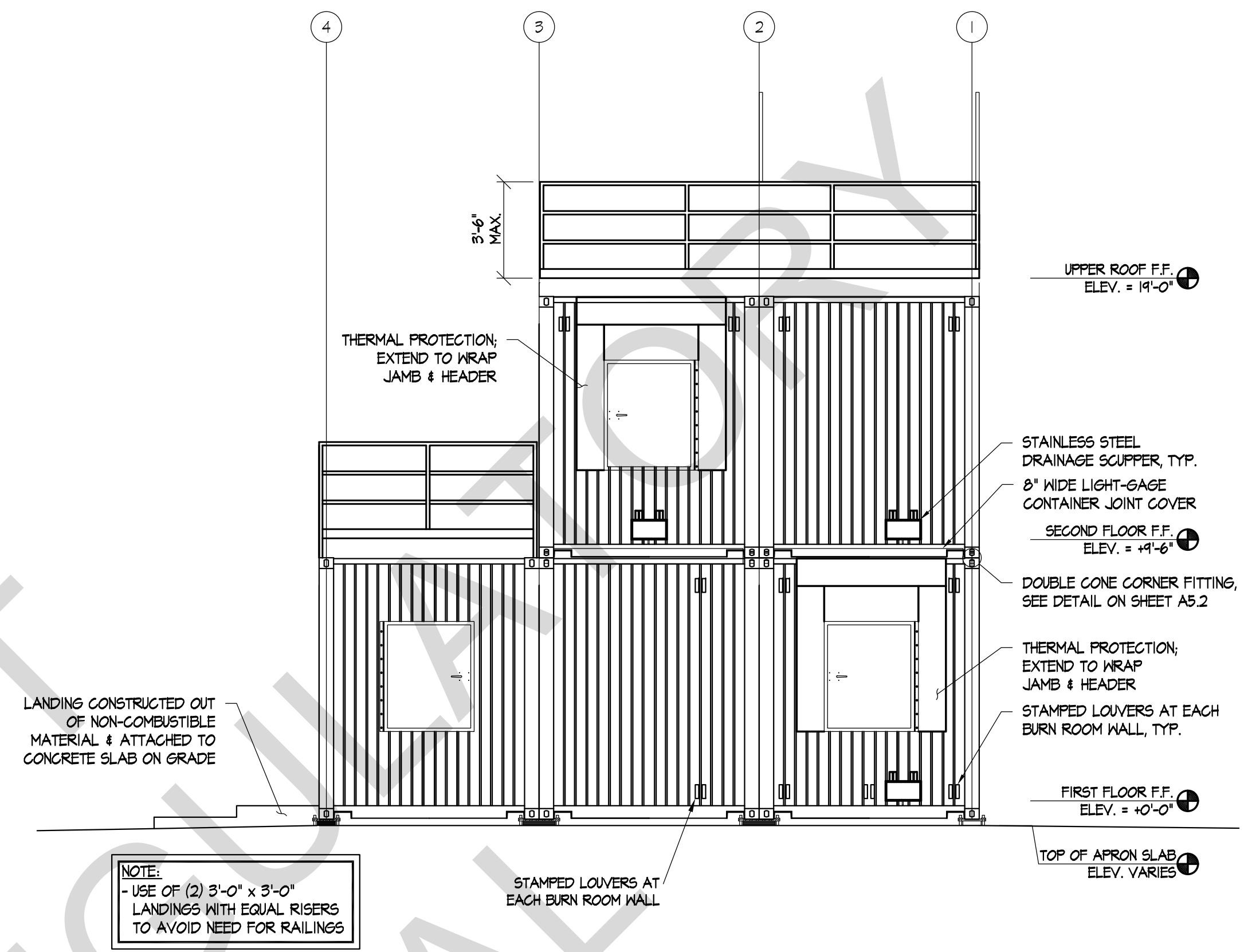
No.	REVISIONS	Date

Sheet Title  
**BUILDING ELEVATIONS**  
 CITY/COUNTY VIRGINIA  
 Drawn By: ATA Approved By: MAM  
 Checked By: MAM Date: 01/31/24

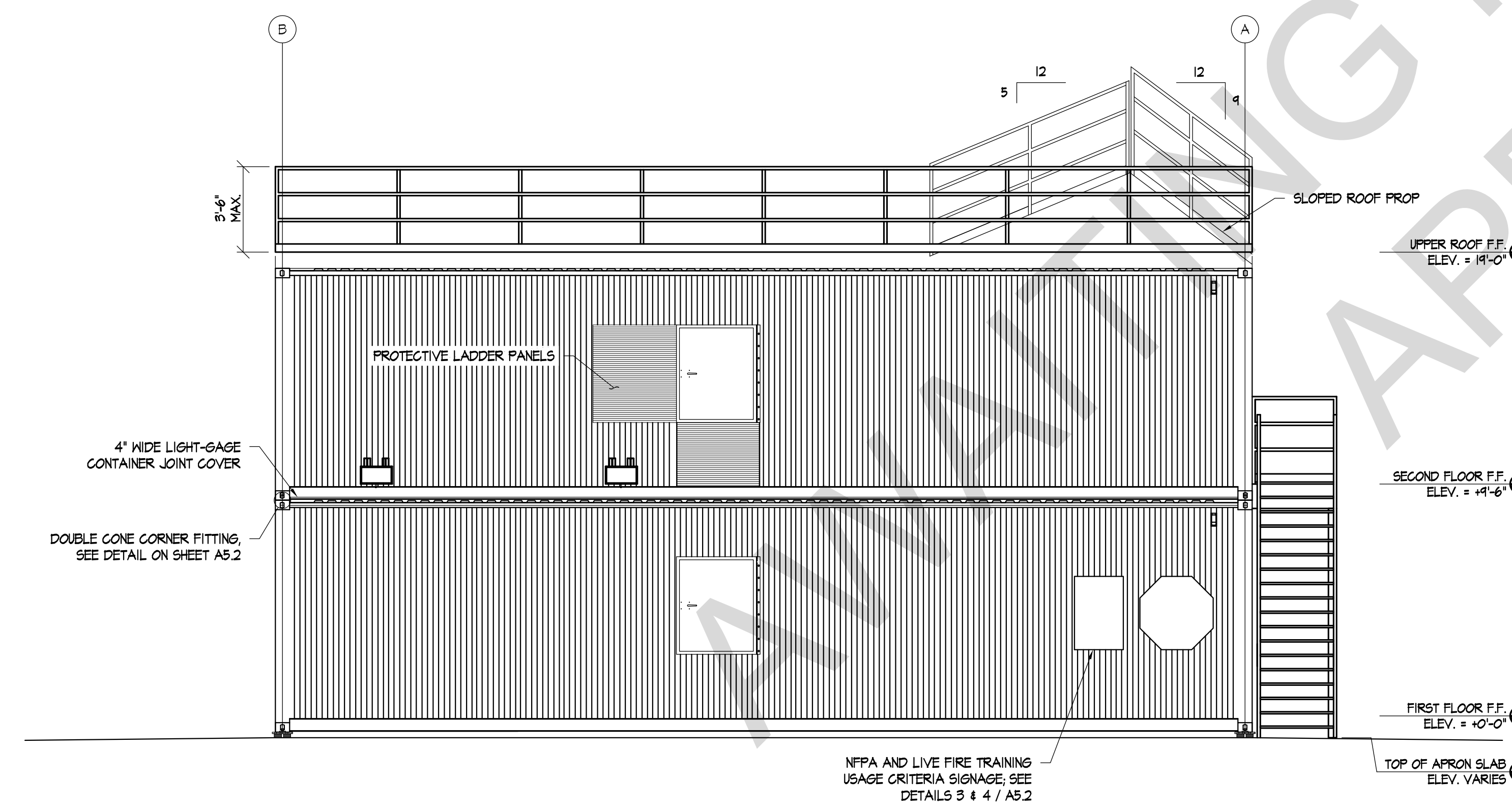
Sheet No.  
**A4.0**  
 7 of 16



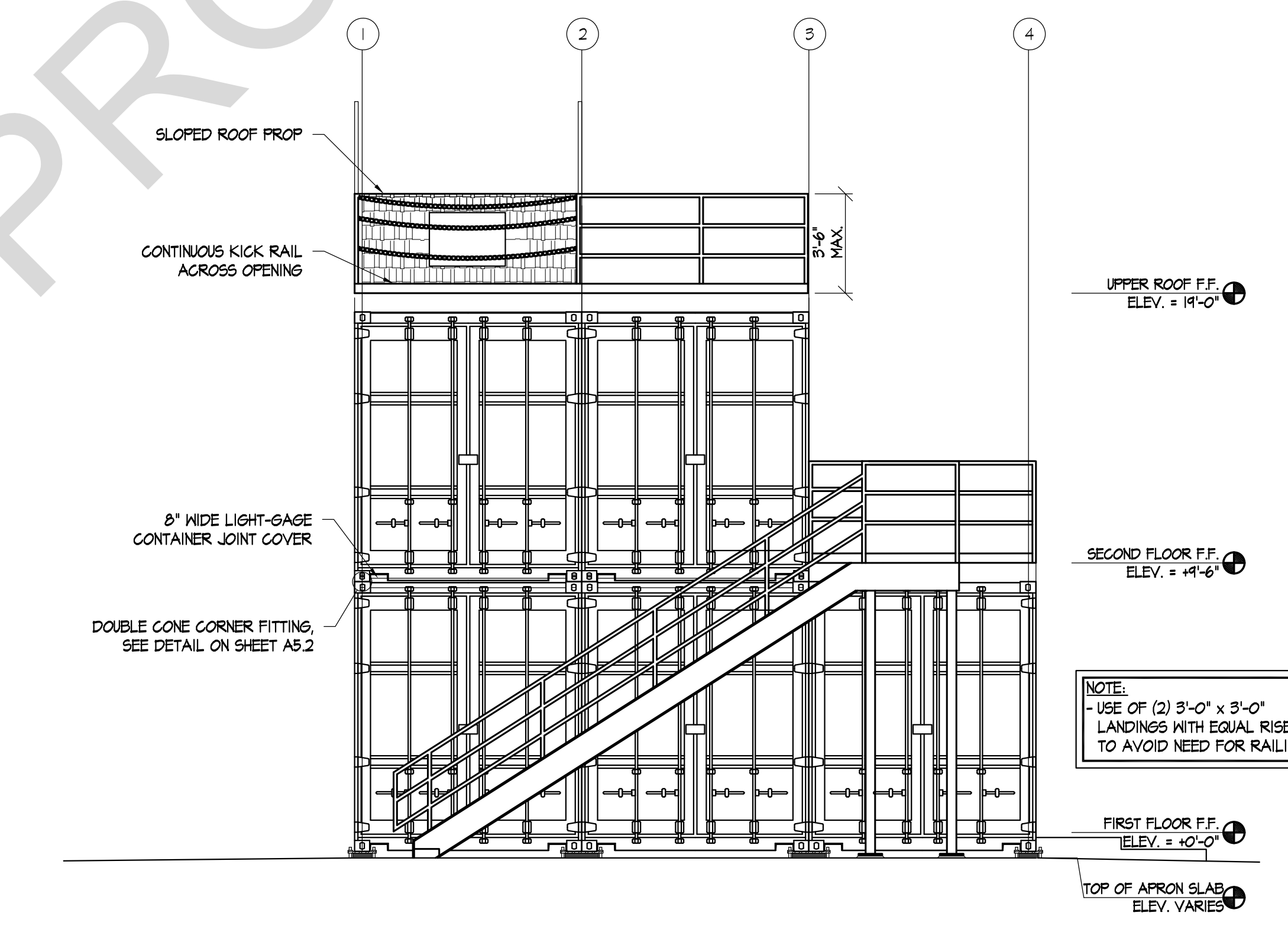
**FRONT ELEVATION**  
 SCALE: 1/4" = 1'-0"



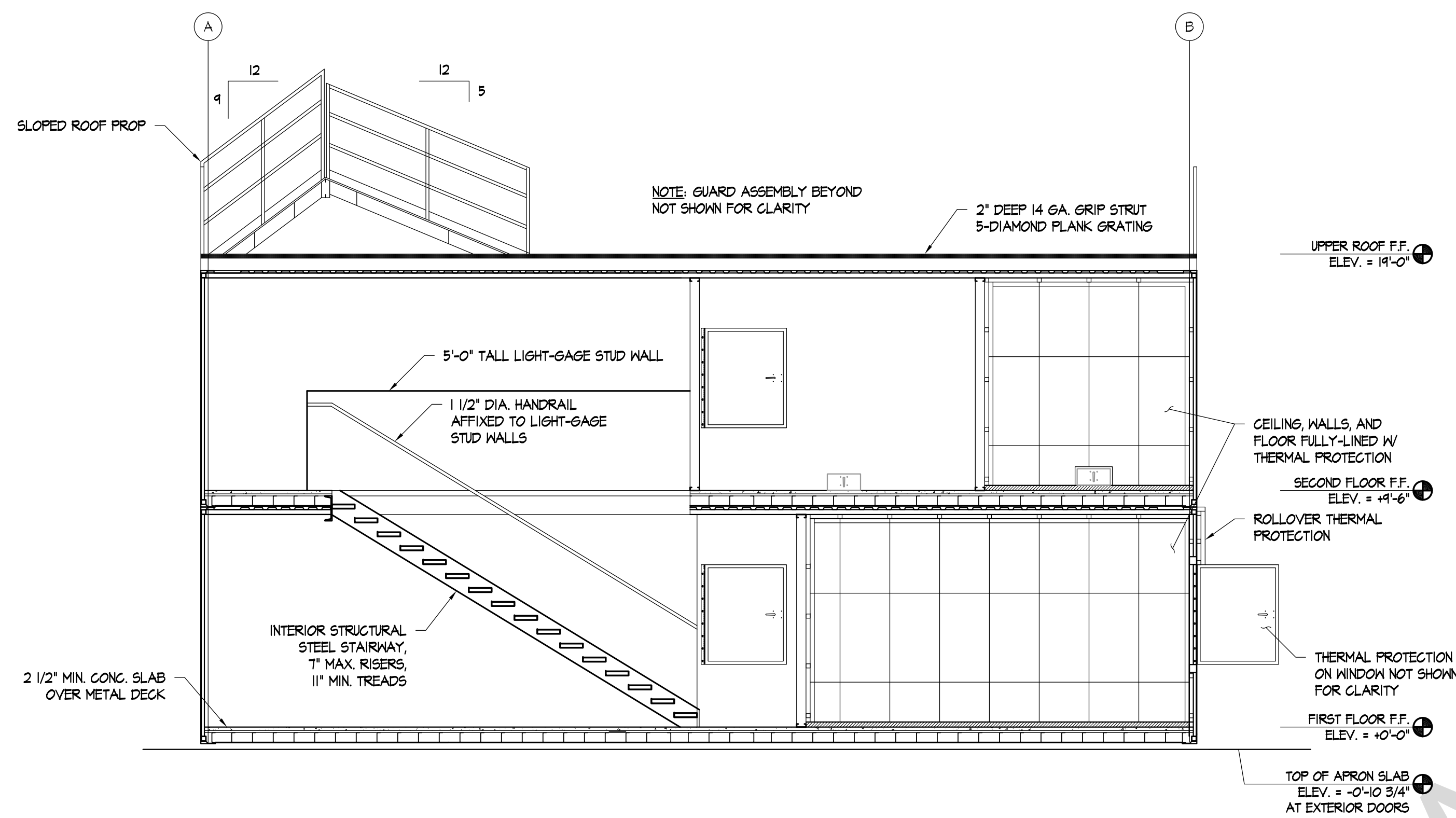
**RIGHT ELEVATION**  
 SCALE: 1/4" = 1'-0"



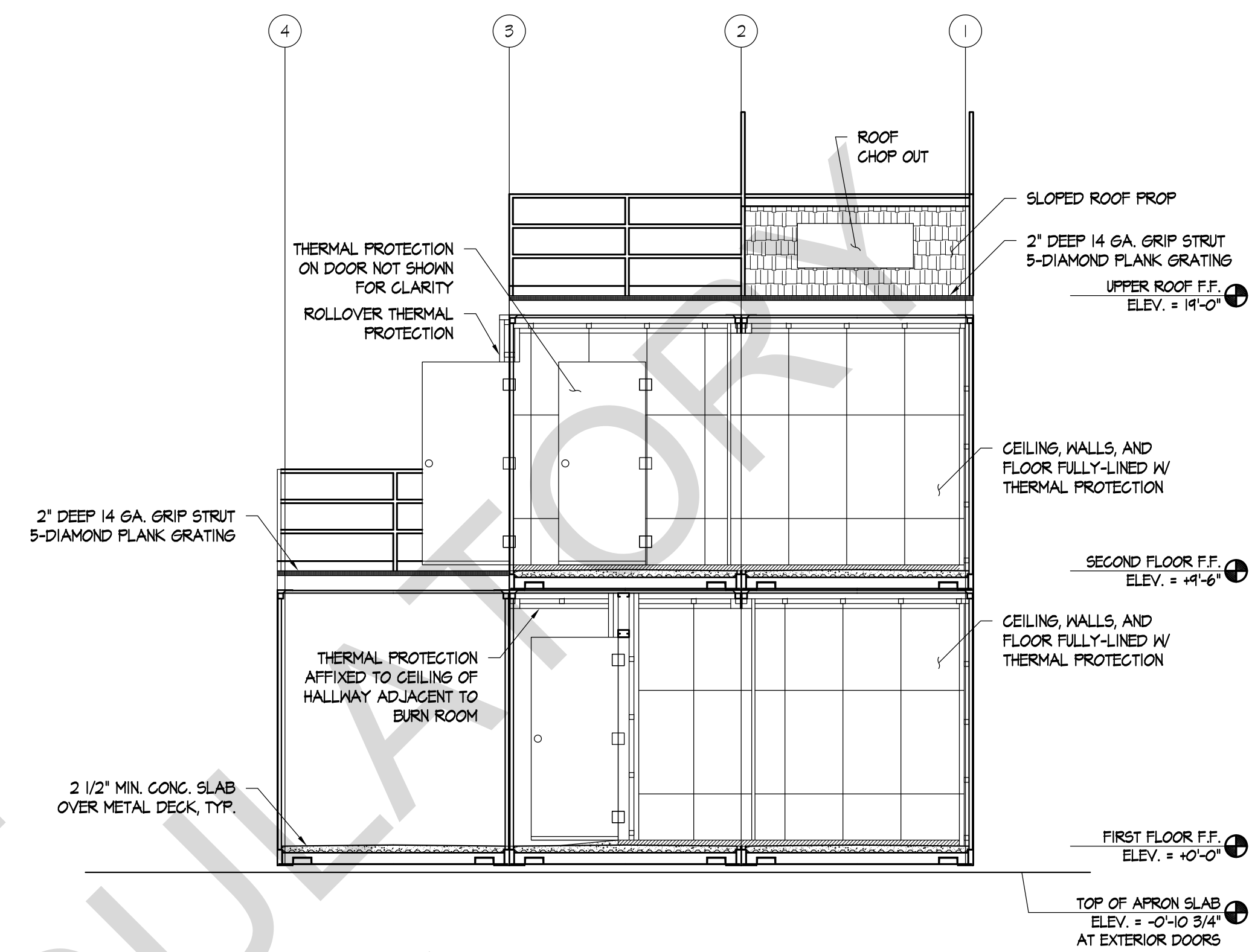
**REAR ELEVATION**  
 SCALE: 1/4" = 1'-0"



**LEFT ELEVATION**  
 SCALE: 1/4" = 1'-0"



**SECTION A**  
SCALE: 1/4" = 1'-0"  
A1.0, A2.0, A3.0, A5.0



**SECTION B**  
SCALE: 1/4" = 1'-0"  
A1.0, A2.0, A3.0, A5.0

DRAFT REGULATORY AWAITING APPROVAL

PRIME PROFESSIONAL FIRM LOGO

Project Title  
**COMMONWEALTH OF VIRGINIA LIVE FIRE TRAINING STRUCTURE PROTOTYPE 4 CLASS B FUEL**

SUB-CONSULTANT'S LOGO



**Department of Fire Programs**

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No.	REVISIONS	Date

Sheet Title  
**BUILDING SECTIONS**

CITY/COUNTY VIRGINIA  
 Drawn By: ATA Approved By: MAM  
 Checked By: MAM Date: 01/31/24

PROFESSIONAL SEAL

Sheet No.  
**A5.0**  
8 of 16

PRIME PROFESSIONAL FIRM LOGO

Project Title  
**COMMONWEALTH OF VIRGINIA LIVE FIRE TRAINING STRUCTURE PROTOTYPE 4 CLASS B FUEL**

SUB-CONSULTANT'S LOGO



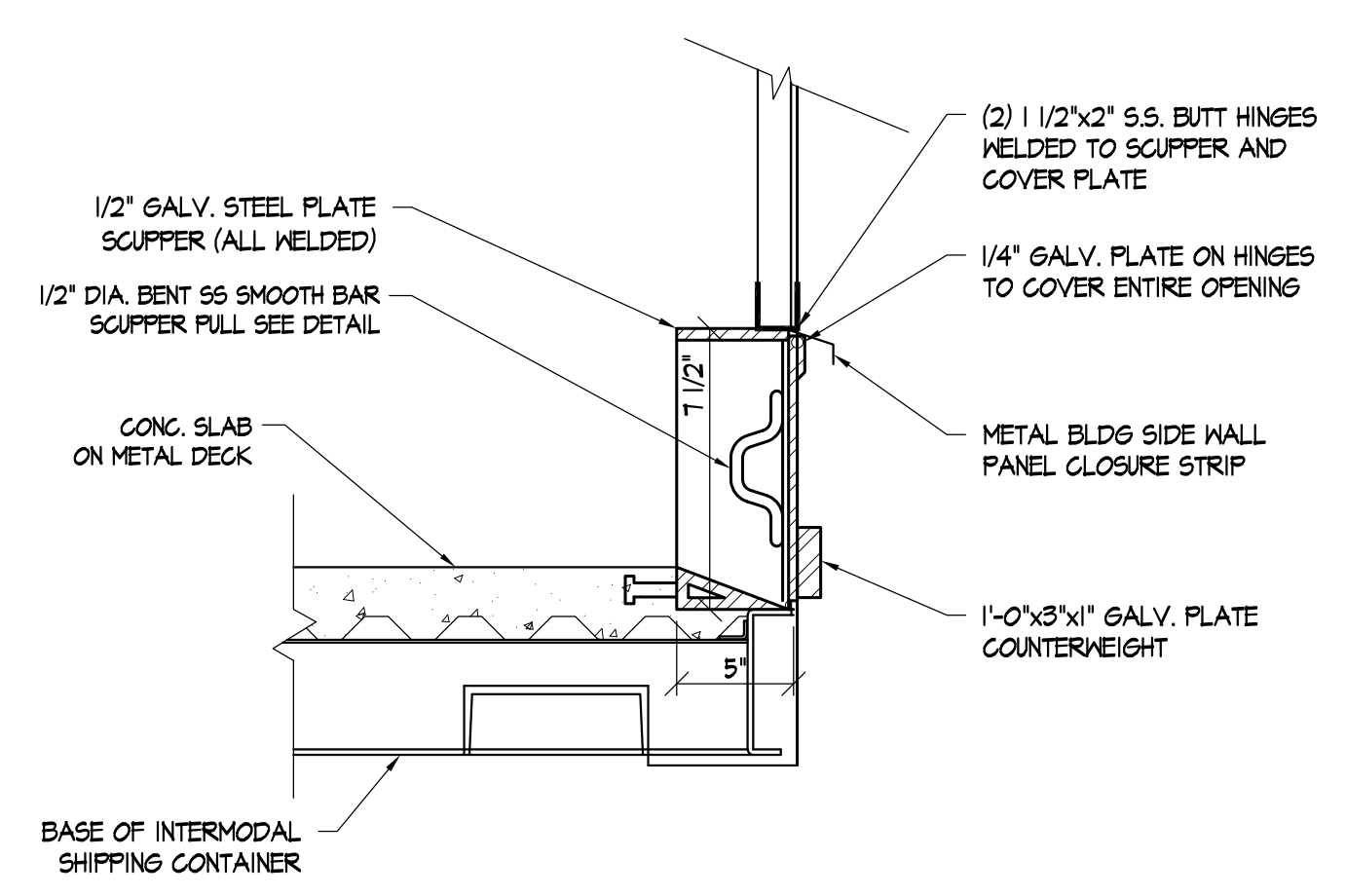
Department of Fire Programs

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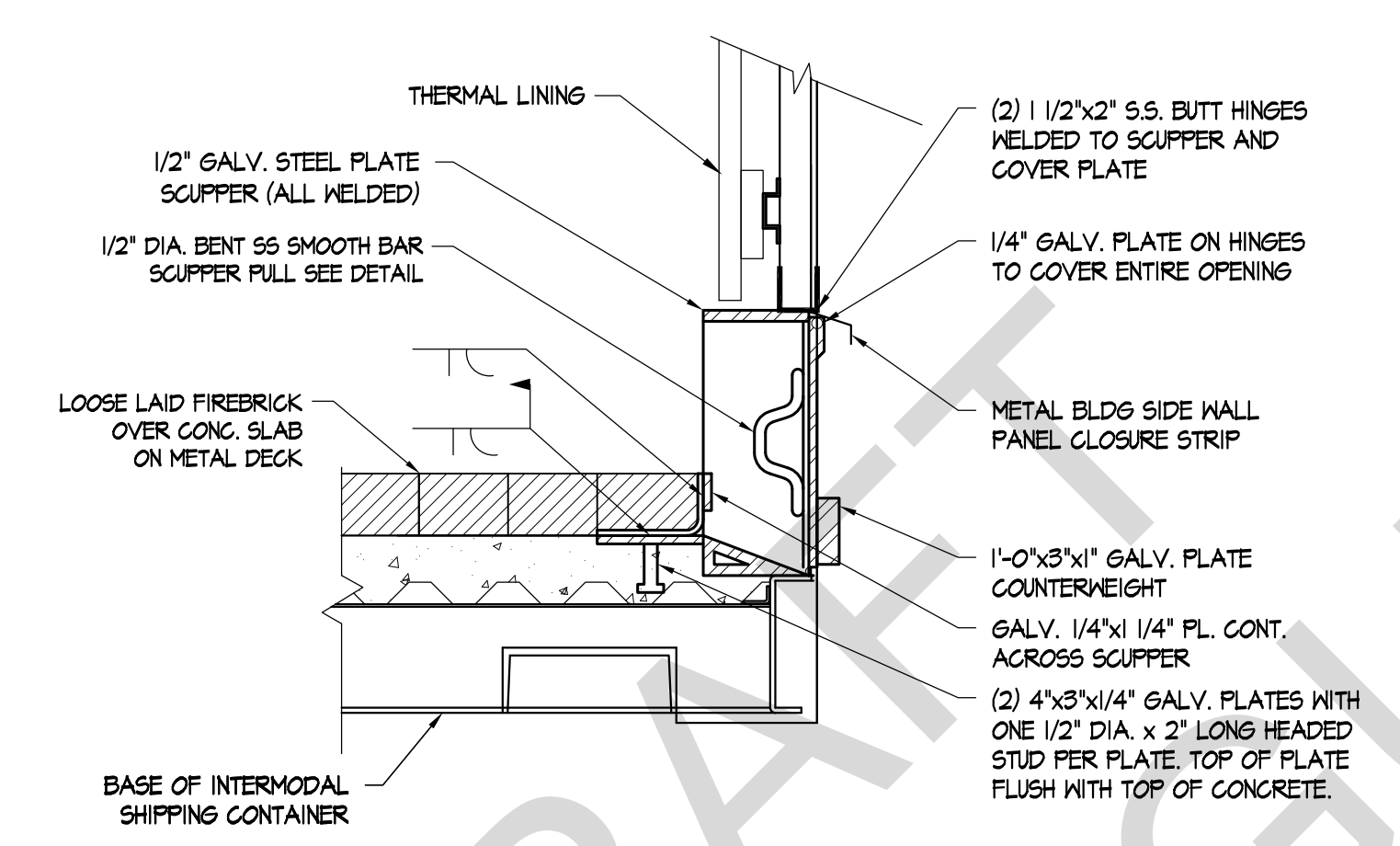
No.	REVISIONS	Date

Sheet Title  
**SCUPPER, RAMP, & THERMAL LINING DETAILS**  
 CITY/COUNTY VIRGINIA  
 Drawn By: ATA Approved By: MAM  
 Checked By: MAM Date: 01/31/24

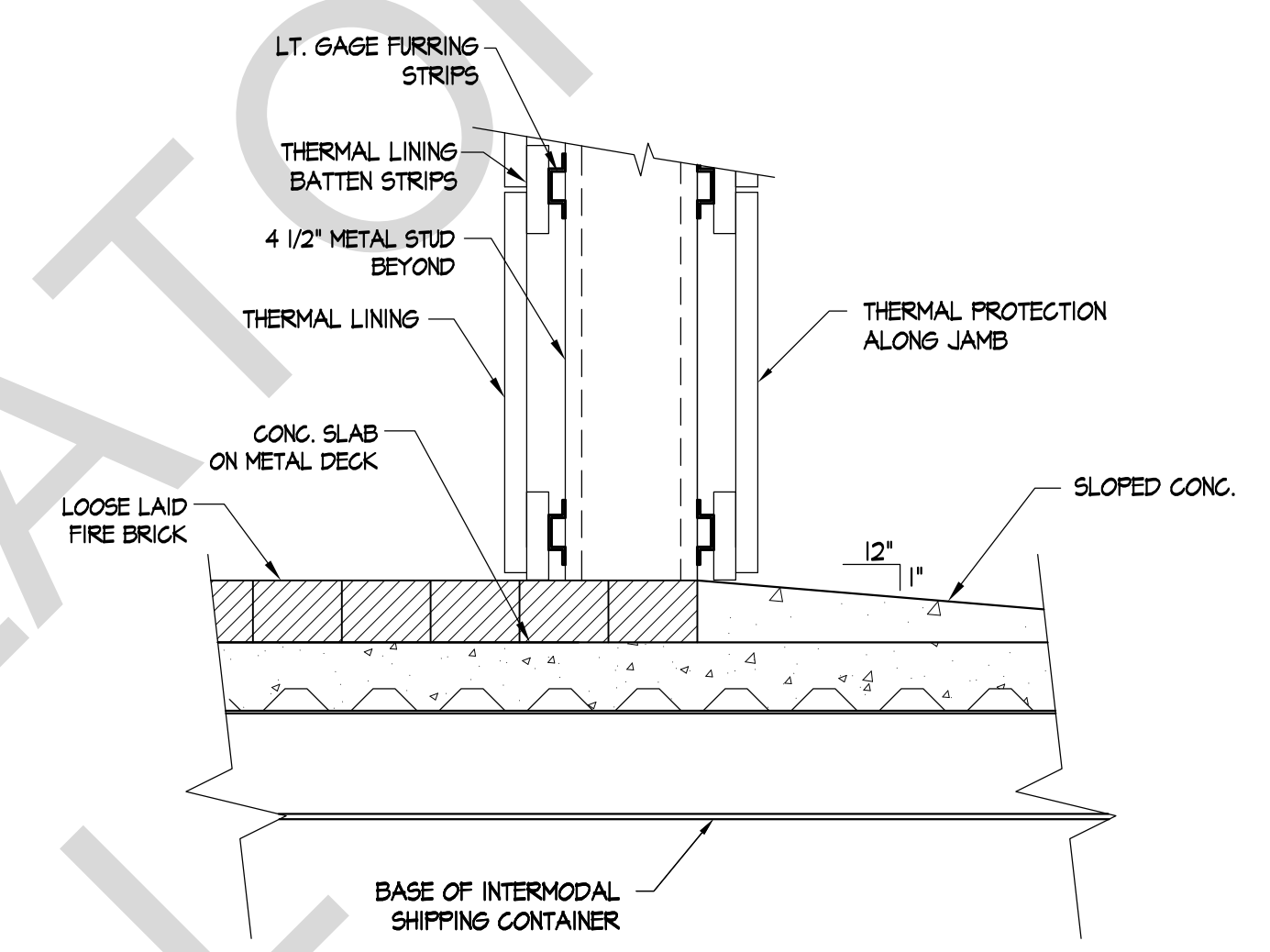
Sheet No.  
**A5.1**  
 9 of 16



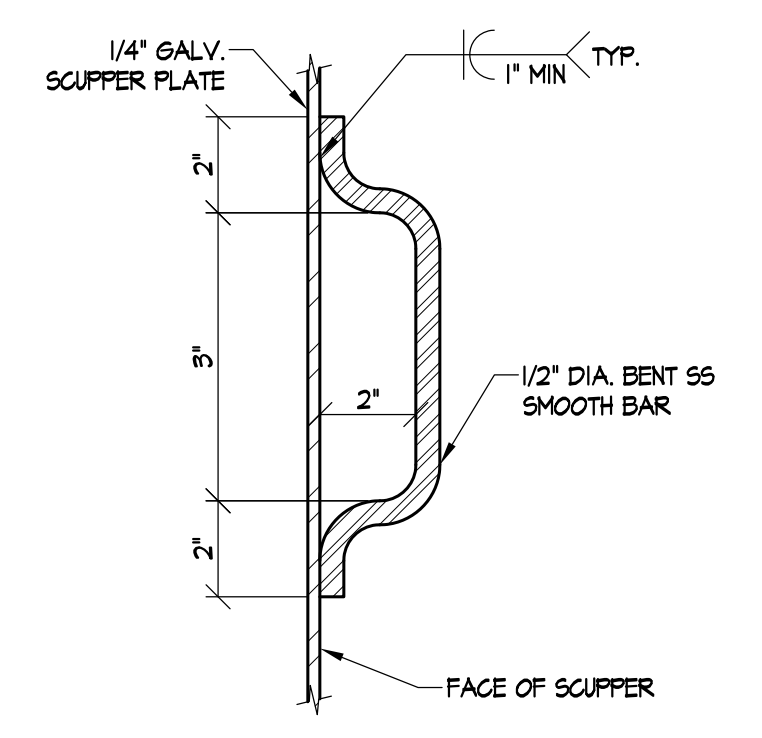
**DETAIL** SCUPPER W/O THERMAL PROTECTION  
 SCALE: 1 1/2" = 1'-0"



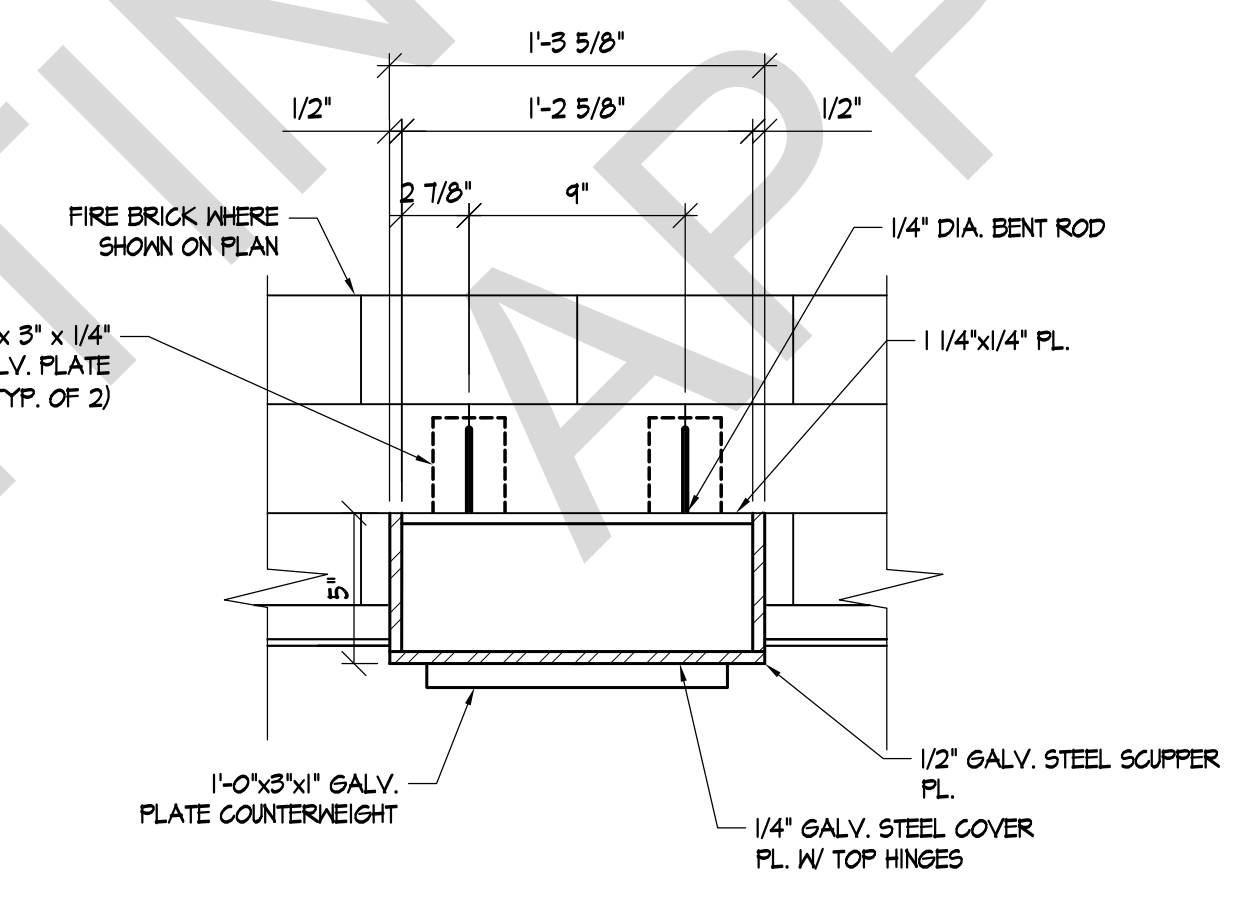
**DETAIL** SCUPPER W/ THERMAL PROTECTION  
 SCALE: 1 1/2" = 1'-0"



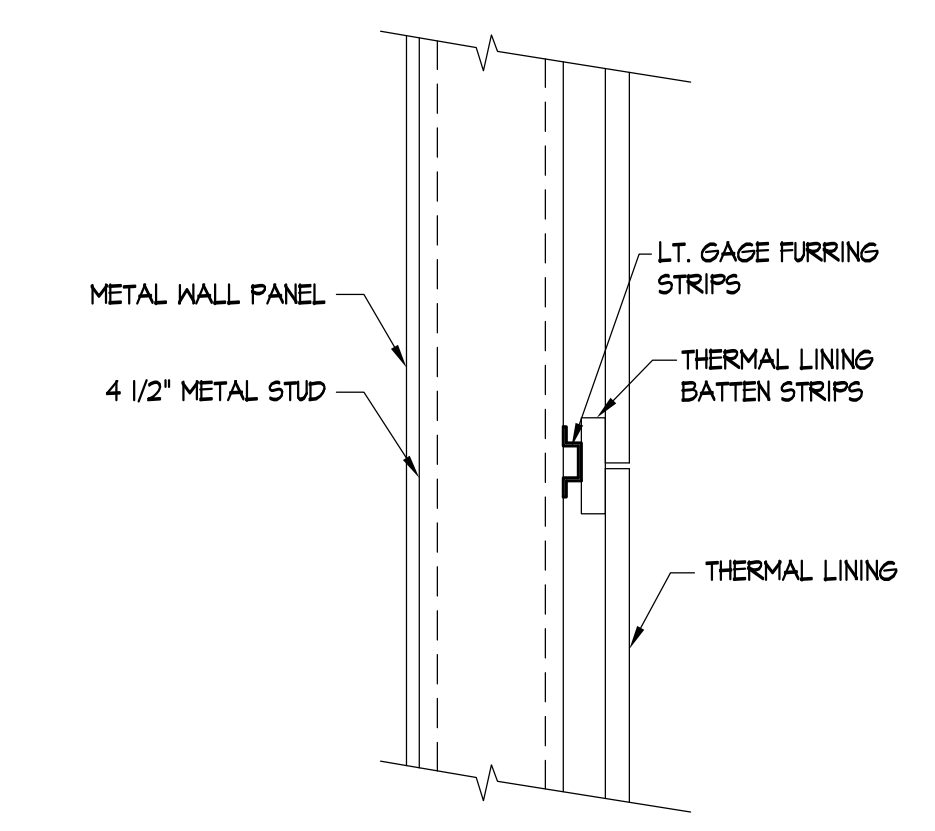
**DETAIL** CONG. RAMP @ BURN ROOM DOOR  
 SCALE: 1 1/2" = 1'-0"



**DETAIL** SCUPPER FULL  
 SCALE: 3" = 1'-0"

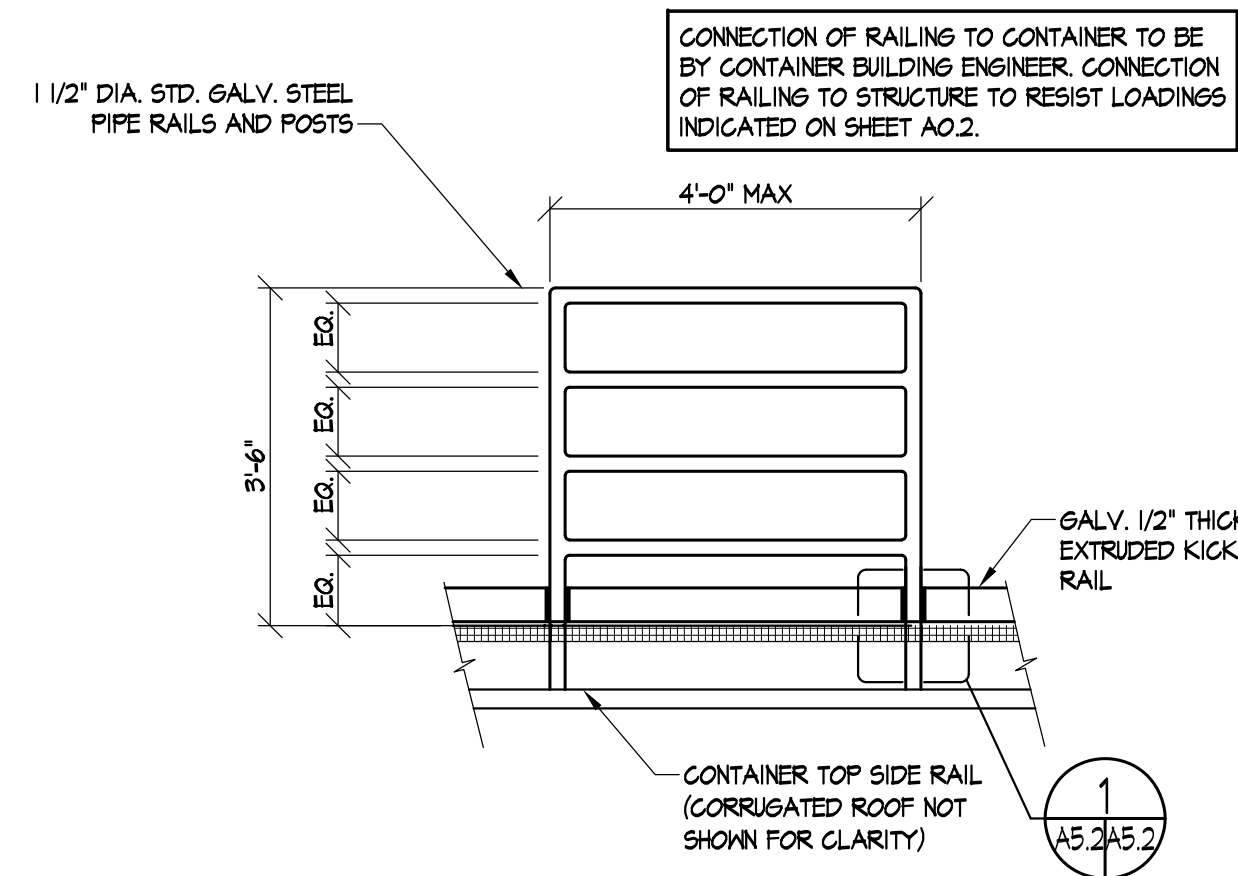


**PLAN** SCUPPER W/ FIREBRICK  
 SCALE: 1 1/2" = 1'-0"

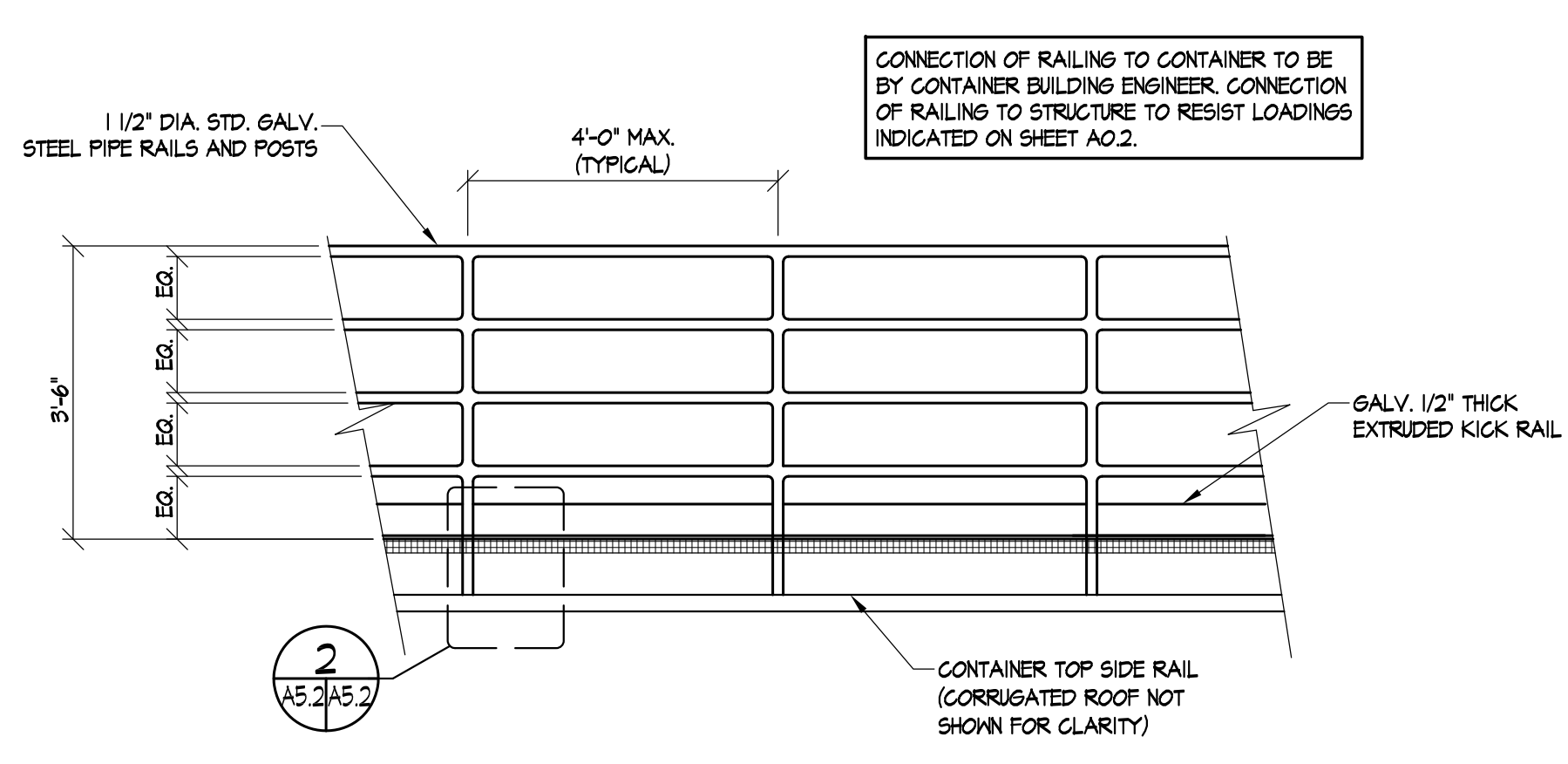


**DETAIL** INTERIOR BURN ROOM WALL THERMAL LINING  
 SCALE: 1 1/2" = 1'-0"

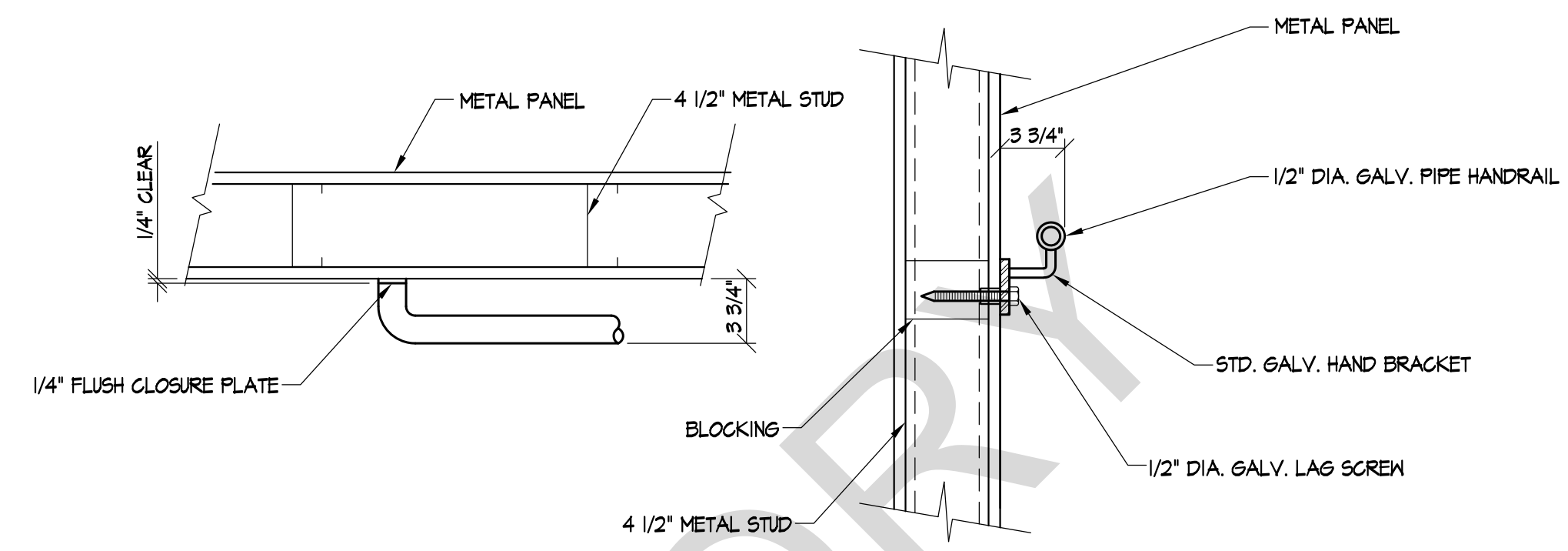




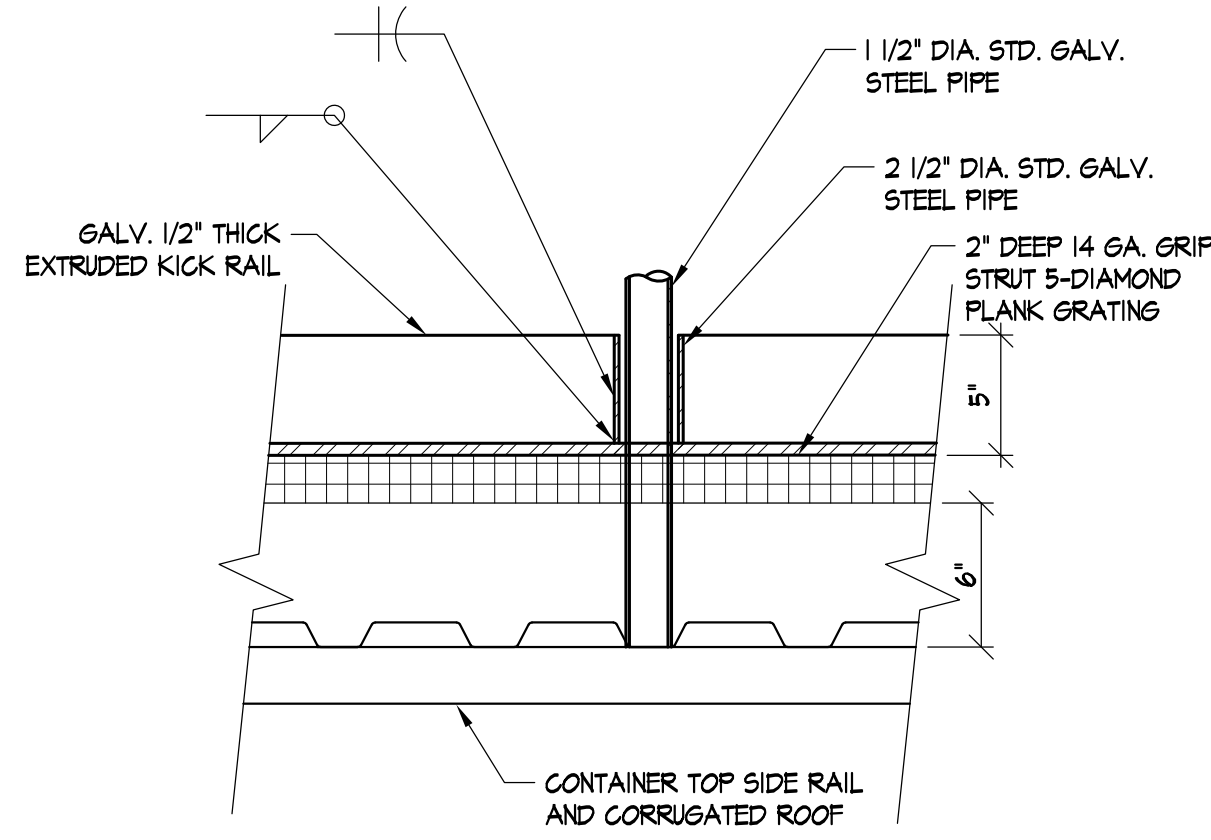
**DETAIL** REMOVABLE GUARDRAIL  
SCALE: 1/2" = 1'-0"



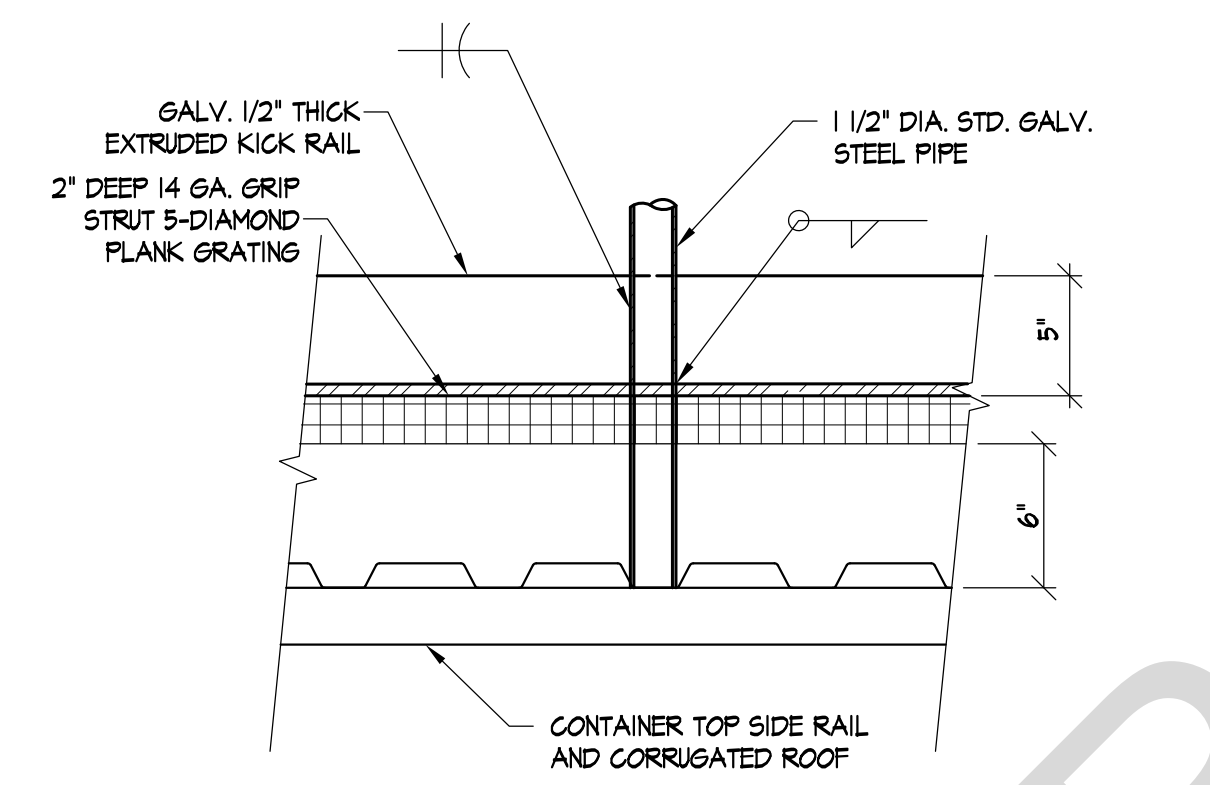
**DETAIL** TYPICAL GUARDRAIL  
SCALE: 1/2" = 1'-0"



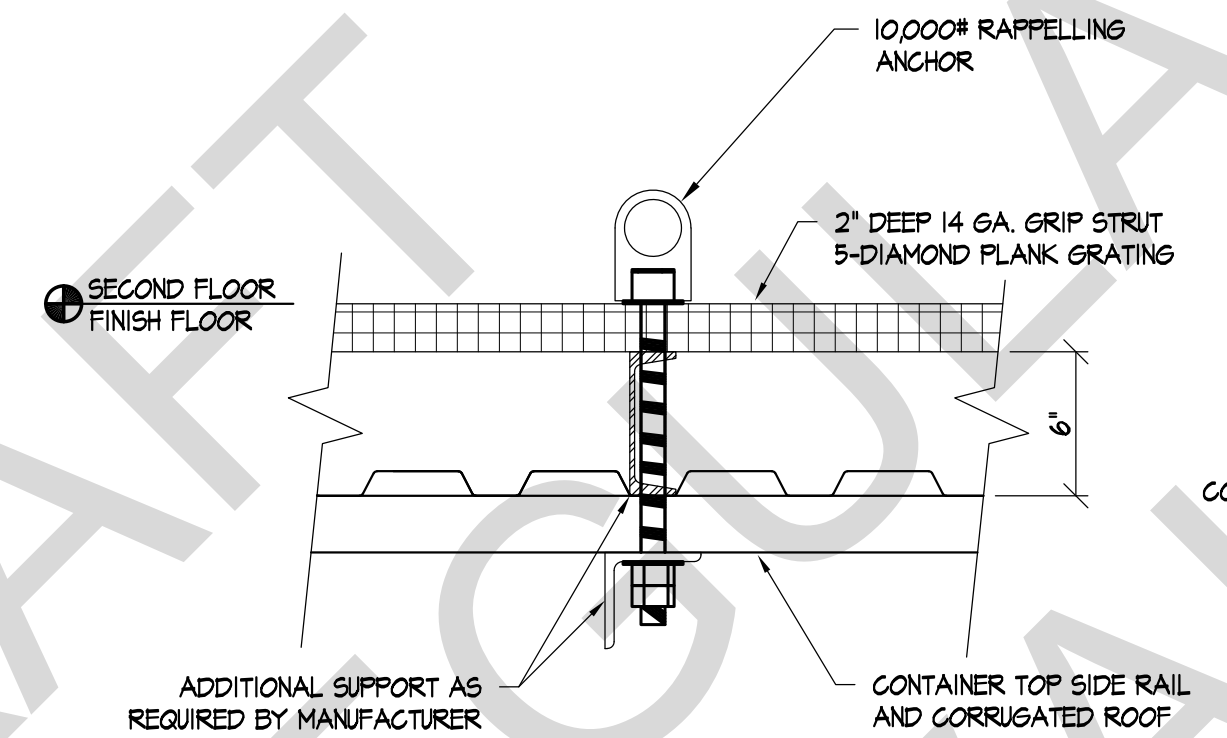
**DETAIL** INTERIOR HAND RAIL  
SCALE: 1/2" = 1'-0"



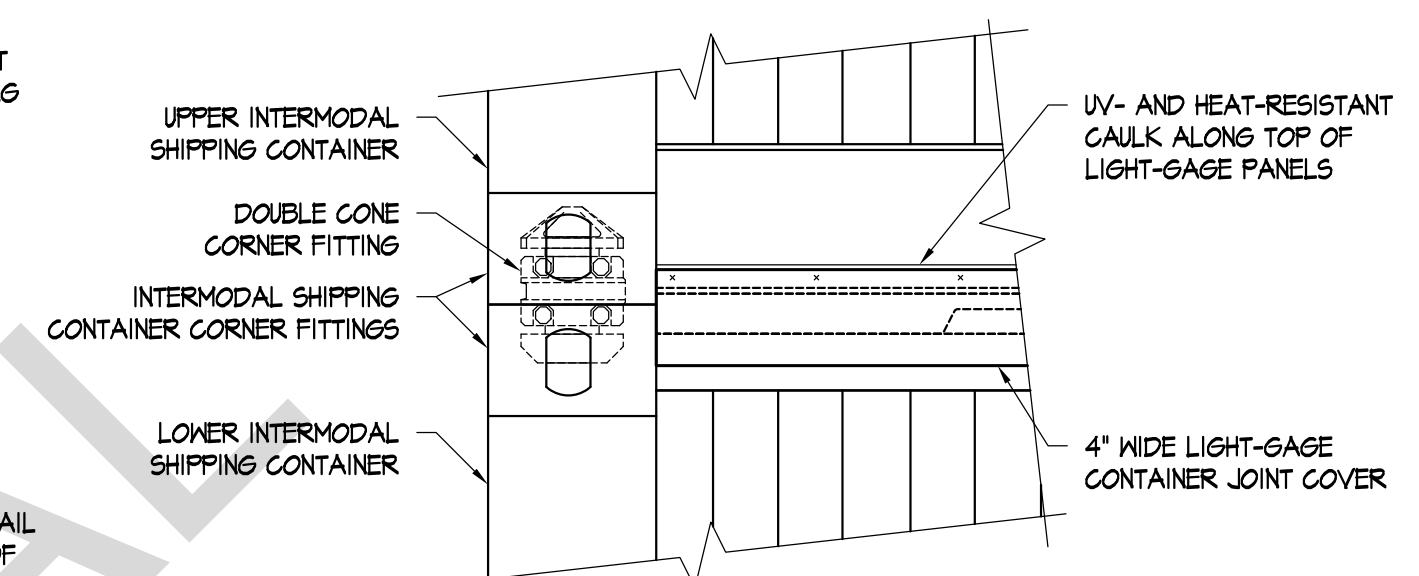
**DETAIL** REMOVABLE GUARDRAIL  
SCALE: 1/2" = 1'-0"



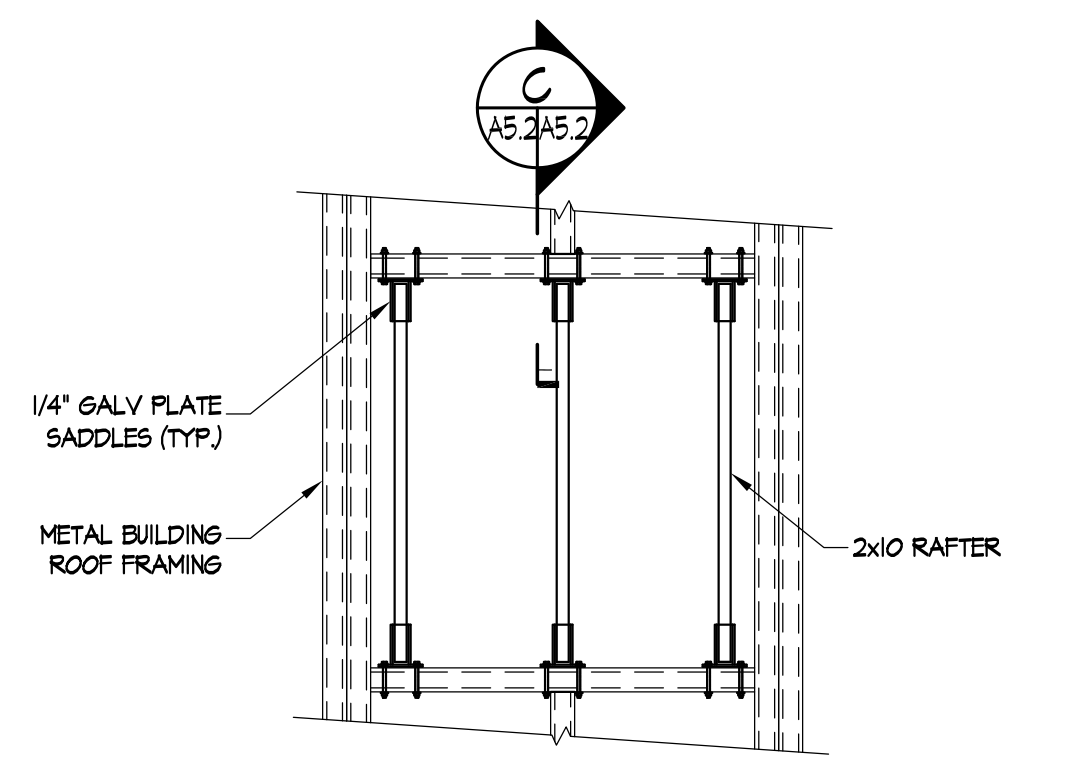
**DETAIL** TYP. GUARDRAIL  
SCALE: 1/2" = 1'-0"



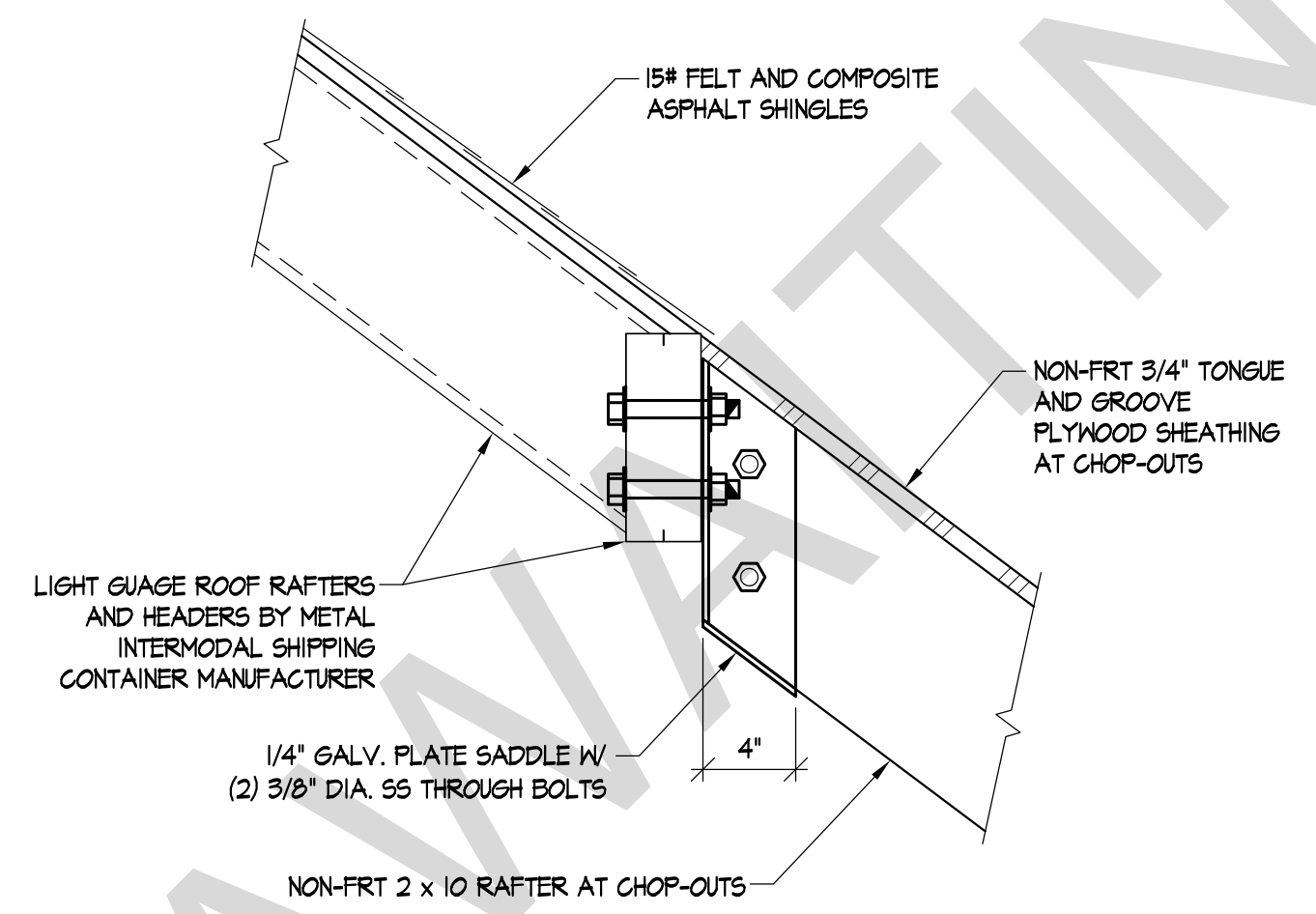
**DETAIL** RAPELLING ANCHOR INSTALLATION DETAILS  
SCALE: 1/2" = 1'-0"



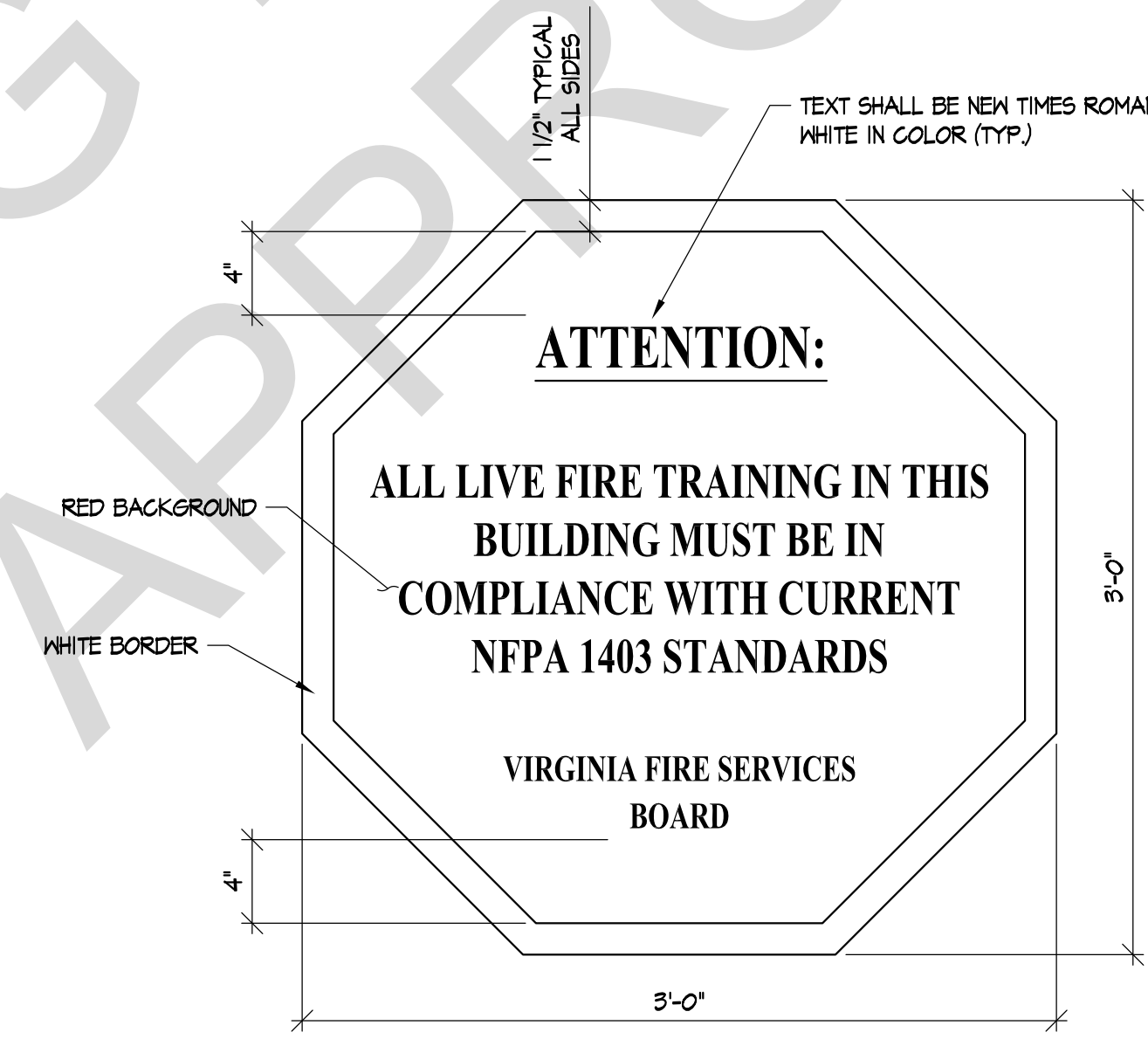
**DETAIL** STACKED CONTAINER CONNECTION  
SCALE: 1/2" = 1'-0"



**DETAIL** CHOP OUT OPENING  
SCALE: 1/2" = 1'-0"



**SECTION**  
SCALE: 1/2" = 1'-0"



**DETAIL** NFPA 1403 SIGNAGE  
SCALE: 1/2" = 1'-0"

**LIVE FIRE TRAINING USAGE CRITERIA**

**THE BUILDING HAS BEEN DESIGNED FOR THE FOLLOWING USAGE CRITERIA**

1. MAXIMUM NUMBER OF LIVE FIRE TRAINING DAYS PER YEAR = UNLIMITED
2. MAXIMUM NUMBER OF LIVE FIRE TRAINING EVOLUTIONS PER DAY = 10
3. MAXIMUM DURATION OF EACH LIVE FIRE TRAINING EVOLUTION = 20 MINUTES
4. MAXIMUM SUSTAINED CEILING TEMPERATURE DURING LIVE FIRE TRAINING = 550°F
5. MAXIMUM CEILING TEMPERATURE SPIKE DURING LIVE FIRE TRAINING = 100°F
6. ONLY CLASS "B" FUEL MATERIALS SHALL BE USED FOR LIVE FIRE TRAINING
7. LIVE FIRE TRAINING SHALL BE IN ACCORDANCE WITH NFPA 1403 AND THE WRITTEN GUIDELINES OF THE VIRGINIA DEPARTMENT OF FIRE PROGRAMS
8. LIVE FIRE TRAINING SHALL OCCUR IN BURN ROOMS ONLY. BURN ROOMS ARE 104 AND 204. NO FIRES ARE ALLOWED IN ROOMS 101, 102, 103, 201, 202, 203, MONITORING EQUIPMENT ROOM, ON THE STAIRS, LANDINGS OR ON THE LOW ROOF.
9. BURN BUILDING PROP IS EQUIPPED W/ STROBE LIGHT & SIREN SET TO GO OFF WHEN TEMPERATURES EXCEED ACCEPTABLE LEVELS. IN THE EVENT OF TRIGGERING THE SIREN & STROBE, THE TRAINING EVOLUTION SHALL BE TERMINATED AND THE HEAT SOURCE IMMEDIATELY EXTINGUISHED.
10. NO TRAINING THAT INCLUDES TEAR GAS, EXPLOSIVES, FIRE ARMS, OR FORCED ENTRY SHALL OCCUR WITHIN OR NEAR THE BUILDING.
11. NO VEHICLES SHALL BE ALLOWED WITHIN 15'-0" OF THE BUILDING.
12. REPLACE ALL DAMAGED THERMAL LININGS PRIOR TO CONDUCTING FURTHER LIVE FIRE TRAINING EVOLUTIONS.

**DETAIL** USE CRITERIA SIGNAGE  
SCALE: 3" = 1'-0"

PRIME PROFESSIONAL FIRM LOGO

Project Title  
**COMMONWEALTH OF VIRGINIA LIVE FIRE TRAINING STRUCTURE PROTOTYPE 4 CLASS B FUEL**

SUB-CONSULTANT'S LOGO



Department of Fire Programs

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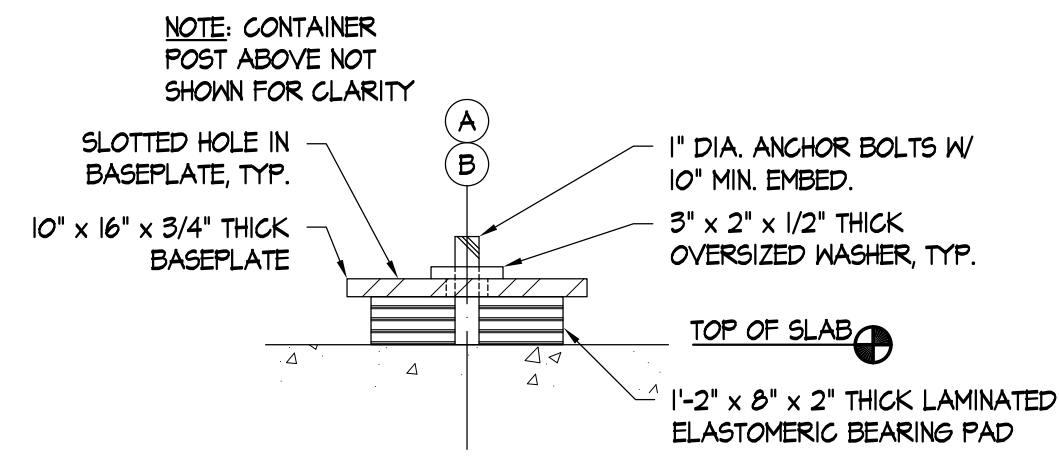
Sheet Title  
**SIGNAGE, RAILING & CHOP OUT DETAILS**

CITY/COUNTY VIRGINIA  
Drawn By: ATA Approved By: MAM  
Checked By: MAM Date: 01/31/24

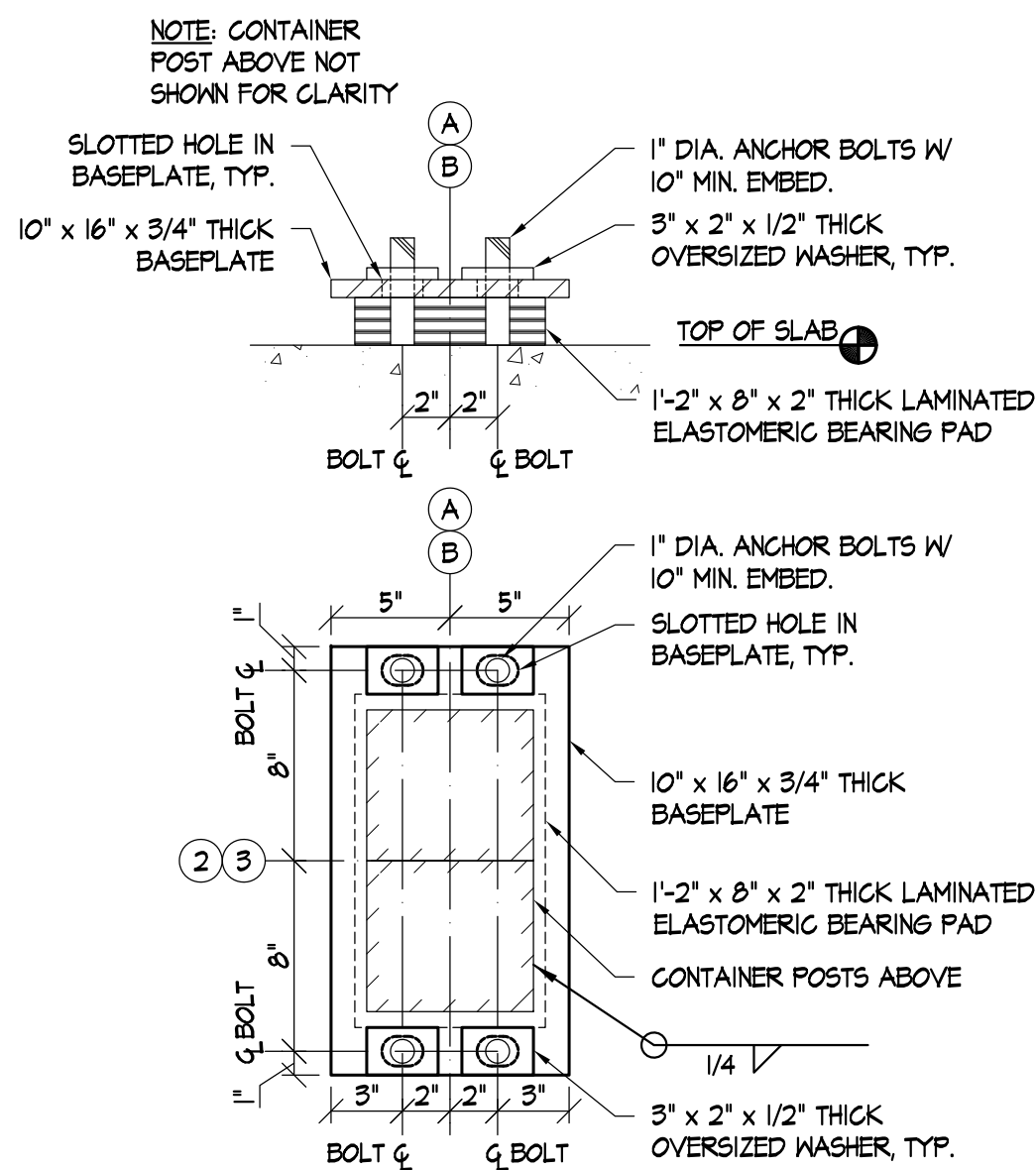
PROFESSIONAL SEAL

Sheet No.  
**A5.2**





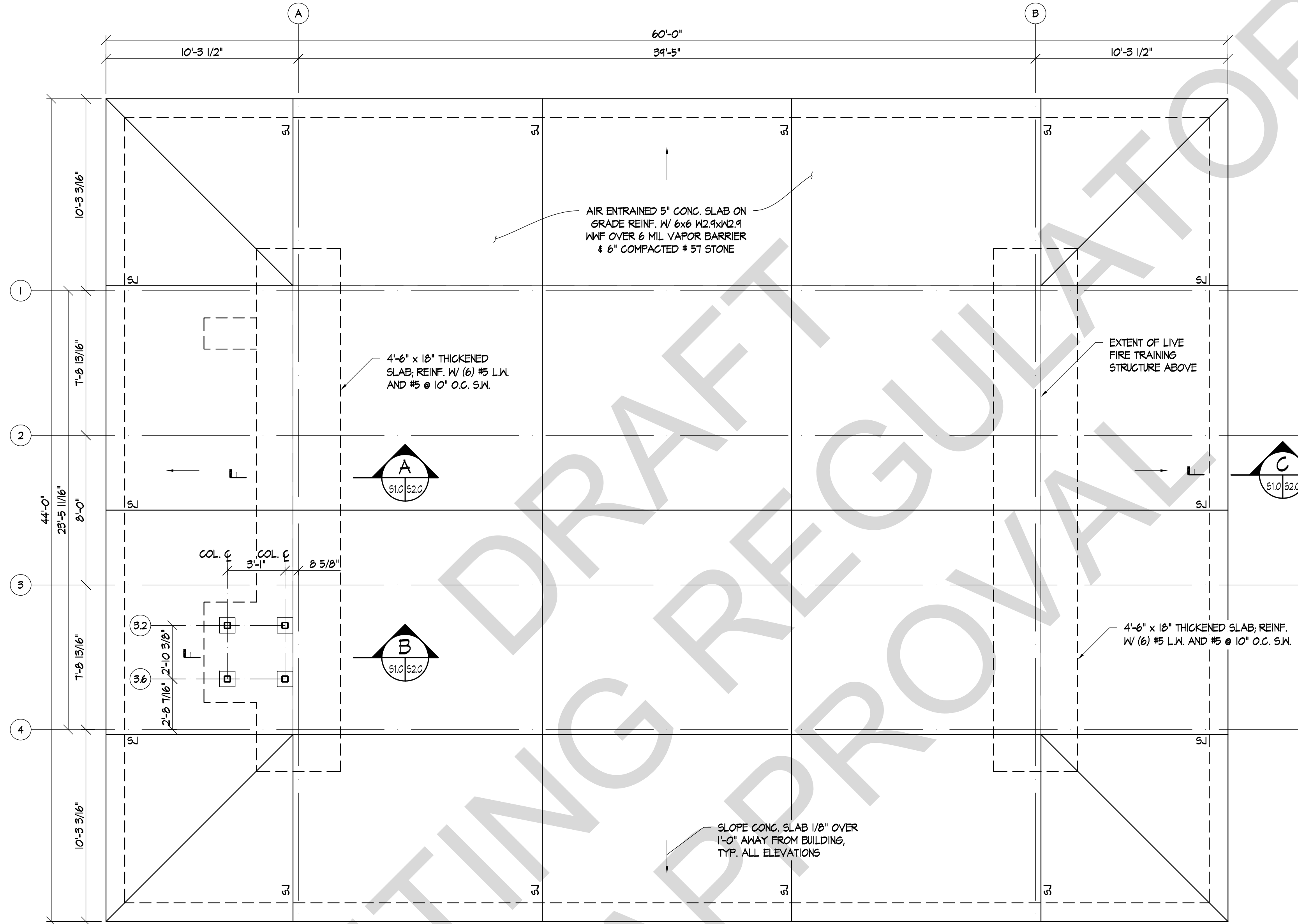
**DETAIL**  
SCALE: 1 1/2" = 1'-0"  
BASE PLATE  
SINGLE POST



**DETAIL**  
SCALE: 1 1/2" = 1'-0"  
BASE PLATE  
DOUBLE POST

**LAMINATED ELASTOMERIC BEARING PAD NOTES:**

- ALL LAMINATED ELASTOMERIC BEARING PADS SHALL BE OF 55 DUROMETER (HARDNESS) ELASTOMER. STEEL LAMINATE SHALL CONFORM TO ASTM A101, GRADE 36 OR BETTER.
- LAMINATED ELASTOMERIC BEARING PADS SHALL BE MOLDED AS A SINGLE UNIT.
- AREA OF CONCRETE SLAB ON GRADE ON WHICH BEARING PADS WILL BE MOUNTED SHALL BE FINISHED TO A TRULY LEVEL PLATE AT THE EXACT REQUIRED ELEVATION. IF FULL CONTACT IS NOT ACHIEVED AFTER THE INTERMODAL SHIPPING CONTAINERS ARE ERECTED, FIELD ADJUSTMENTS SHALL BE MADE BY THE CONTRACTOR TO ENSURE FULL CONTACT.
- WELDING WHILE THE LAMINATED BEARING PAD IS IN CONTACT WITH THE METAL IS DISCOURAGED. WHERE WELDING IS REQUIRED, TEMPERATURE INDICATING MAX PENS OR OTHER SUITABLE MEANS SHALL BE UTILIZED TO ENSURE THE PAD NOT BE EXPOSED TO TEMPERATURES GREATER THAN 250°F.
- ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING AND SHALL BE PERMANENT AND VISIBLE AFTER THE BEARING IS INSTALLED.

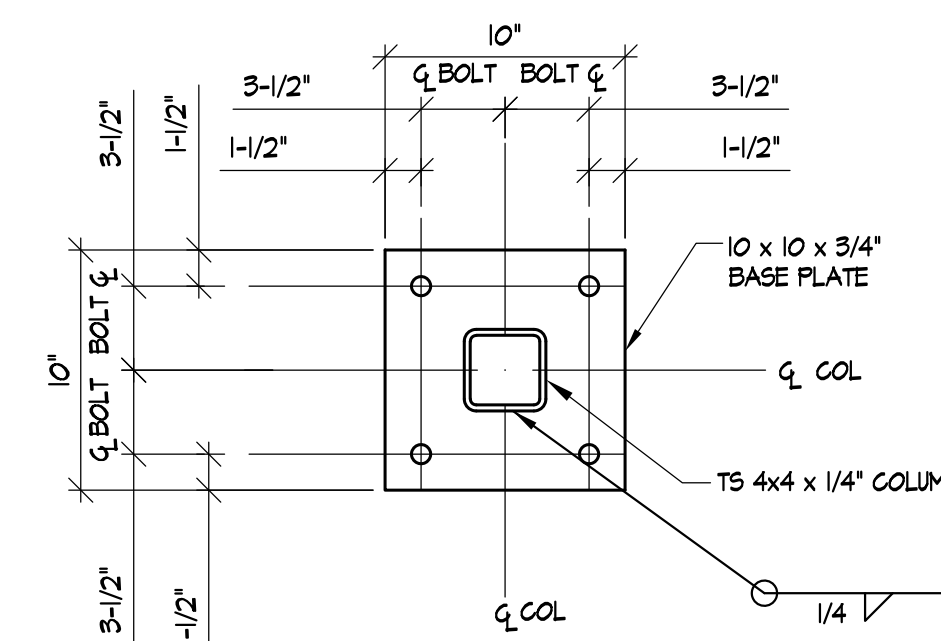


**FOUNDATION PLAN**

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

**NOTES:**

- FOUNDATION PROVIDED FOR INTERMODAL SHIPPING CONTAINER STRUCTURE.
- SEE SHEET A10 FOR SLAB ELEVATIONS AND SLOPES.
- SLOPE TOP & BOTTOM OF SLAB TO MAINTAIN THICKNESS INDICATED.
- DIMENSIONS TO COLUMN LINES A & B AND GRID LINES 1 & 4 ARE INTENDED TO BE TO THE CENTER OF THE COUPLING.



**DETAIL**  
SCALE: 1 1/2" = 1'-0"  
COL. BASE PLATE

PRIME PROFESSIONAL FIRM LOGO

Project Title  
COMMONWEALTH OF VIRGINIA LIVE FIRE TRAINING STRUCTURE PROTOTYPE 4 CLASS B FUEL

SUB-CONSULTANT'S LOGO



Department of Fire Programs

**NOT FOR CONSTRUCTION**

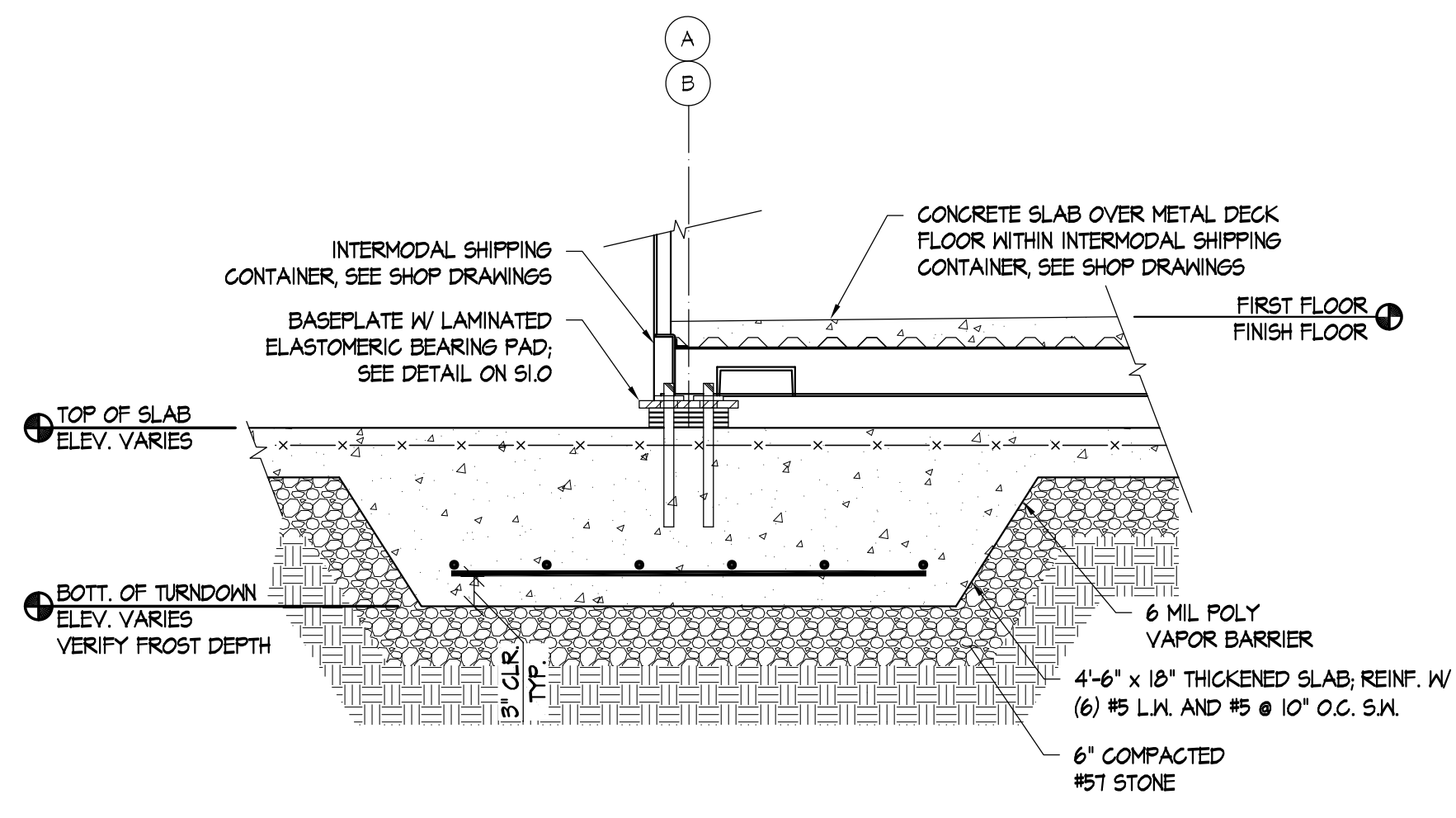
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No.	REVISIONS	Date

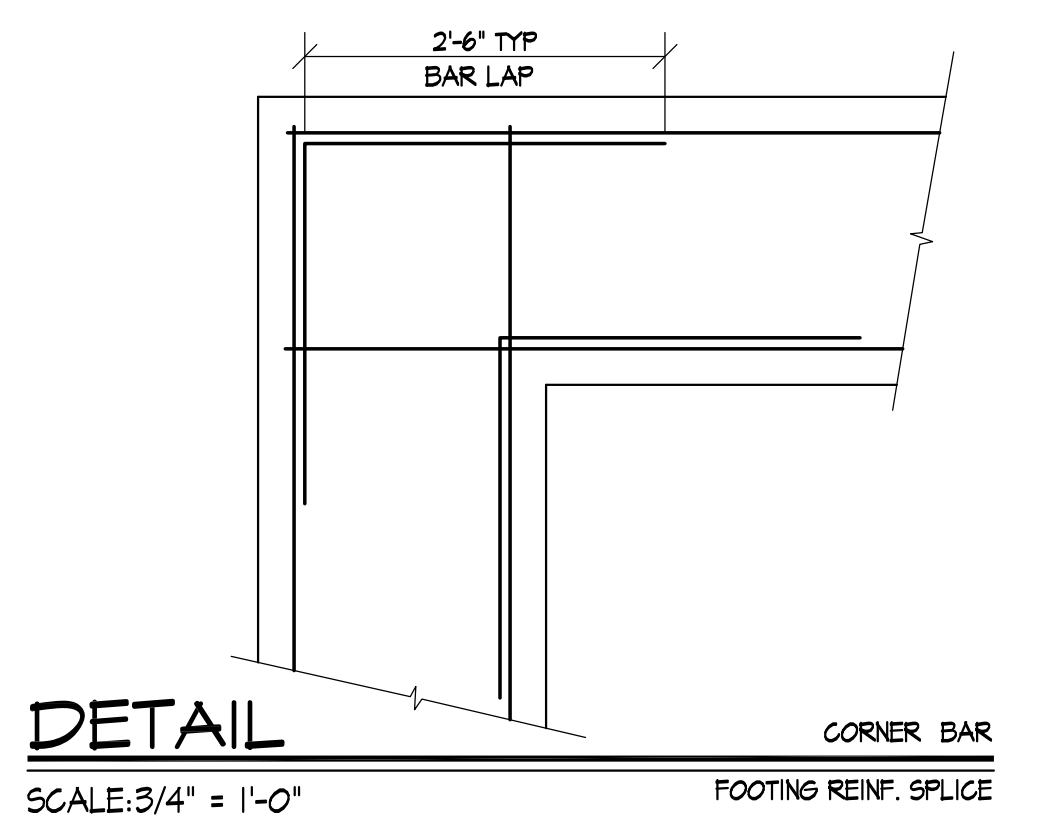
Sheet Title  
**FOUNDATION PLAN**  
CITY/COUNTY VIRGINIA  
Drawn By: ATA Approved By: MAM  
Checked By: MAM Date: 01/31/24

PROFESSIONAL SEAL

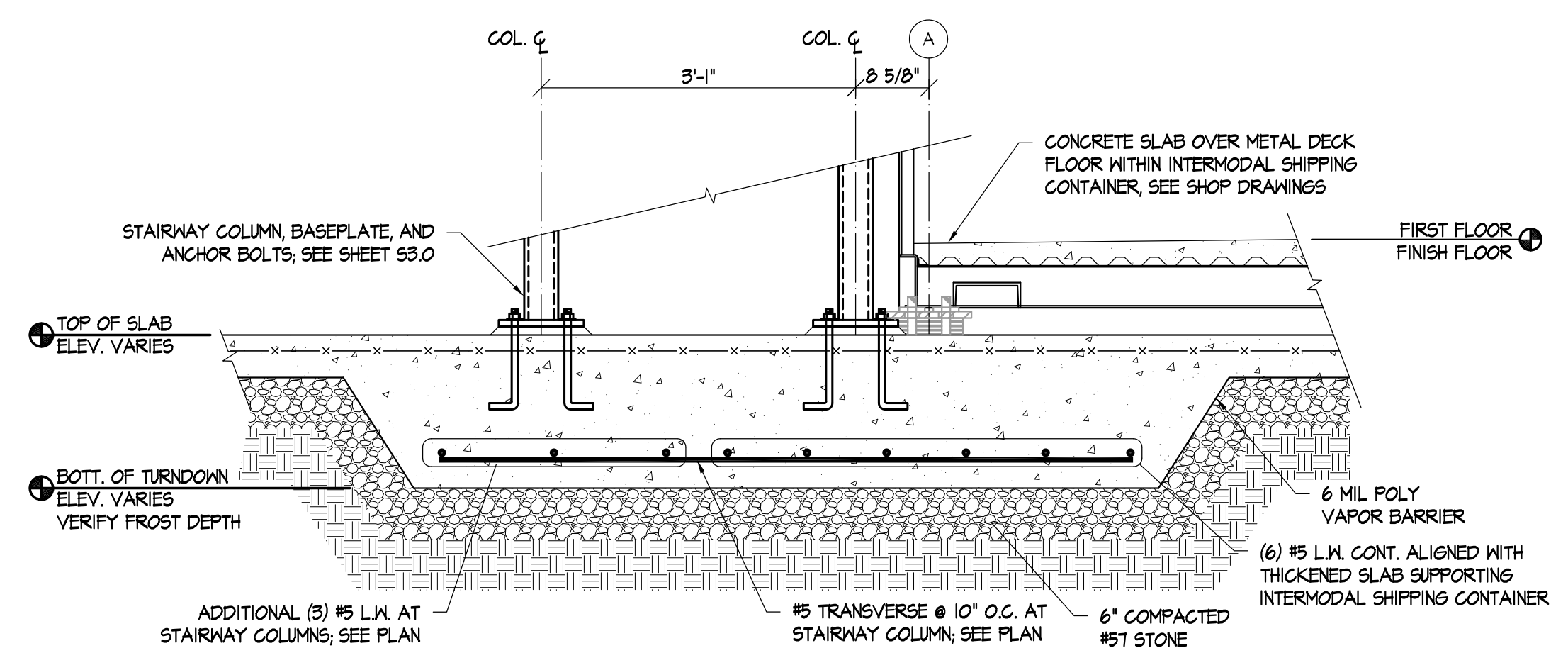
Sheet No.  
**S1.0**  
11 of 16



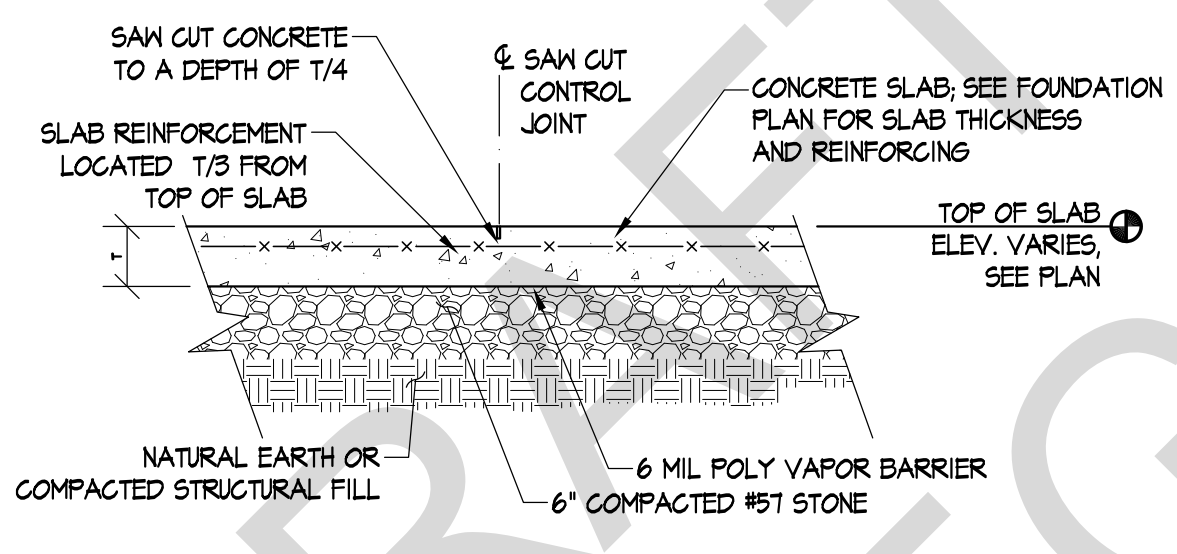
**SECTION A**  
SCALE: 3/4" = 1'-0"



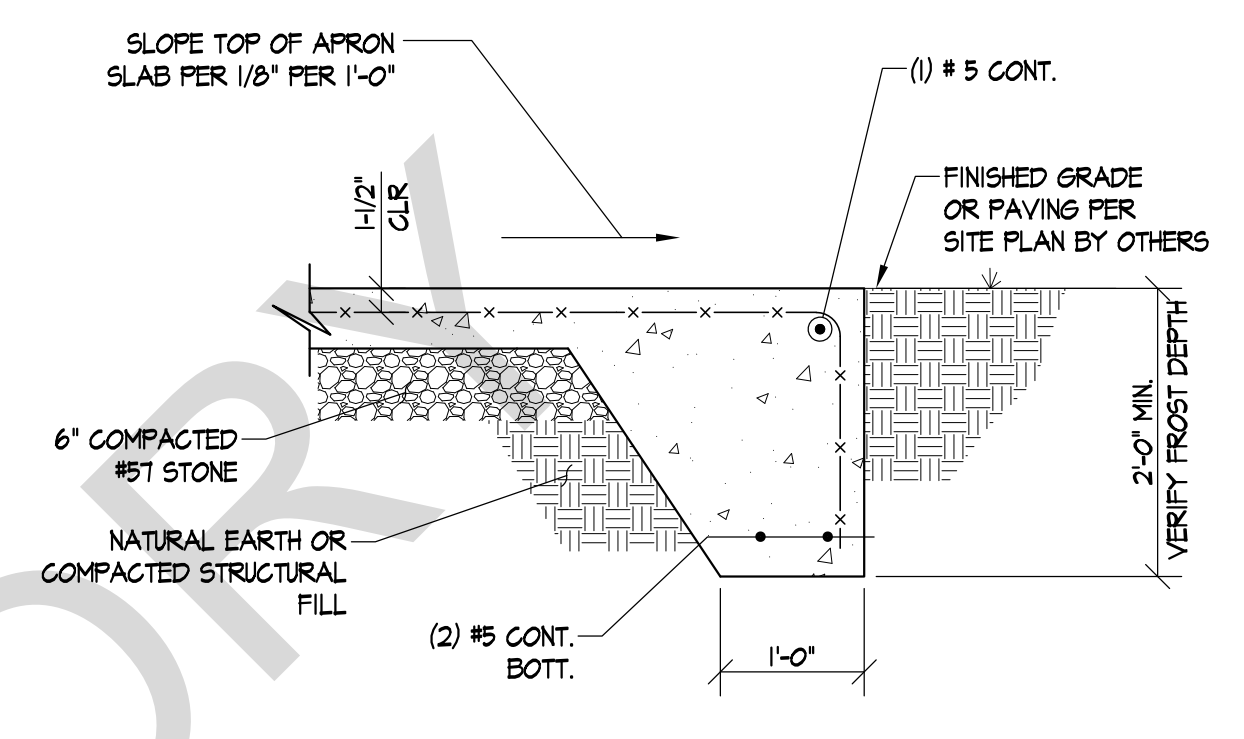
**DETAIL**  
SCALE: 3/4" = 1'-0"



**SECTION B**  
SCALE: 3/4" = 1'-0"



**DETAIL**  
SCALE: 3/4" = 1'-0"



**SECTION C**  
SCALE: 3/4" = 1'-0"

AWAITING REGULATORY APPROVAL

PRIME PROFESSIONAL FIRM LOGO

Project Title  
**COMMONWEALTH OF VIRGINIA LIVE FIRE TRAINING STRUCTURE PROTOTYPE 4 CLASS B FUEL**

SUB-CONSULTANT'S LOGO



**Department of Fire Programs**

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No.	REVISIONS	Date

Sheet Title  
**FOUNDATION SECTIONS & DETAILS**  
CITY/COUNTY: VIRGINIA  
Drawn By: ATA Approved By: MAM  
Checked By: MAM Date: 01/31/24

PROFESSIONAL SEAL

Sheet No.  
**S2.0**  
12 of 16

PRIME PROFESSIONAL FIRM LOGO

Project Title  
**COMMONWEALTH OF VIRGINIA LIVE FIRE TRAINING STRUCTURE PROTOTYPE 4 CLASS B FUEL**

SUB-CONSULTANT'S LOGO



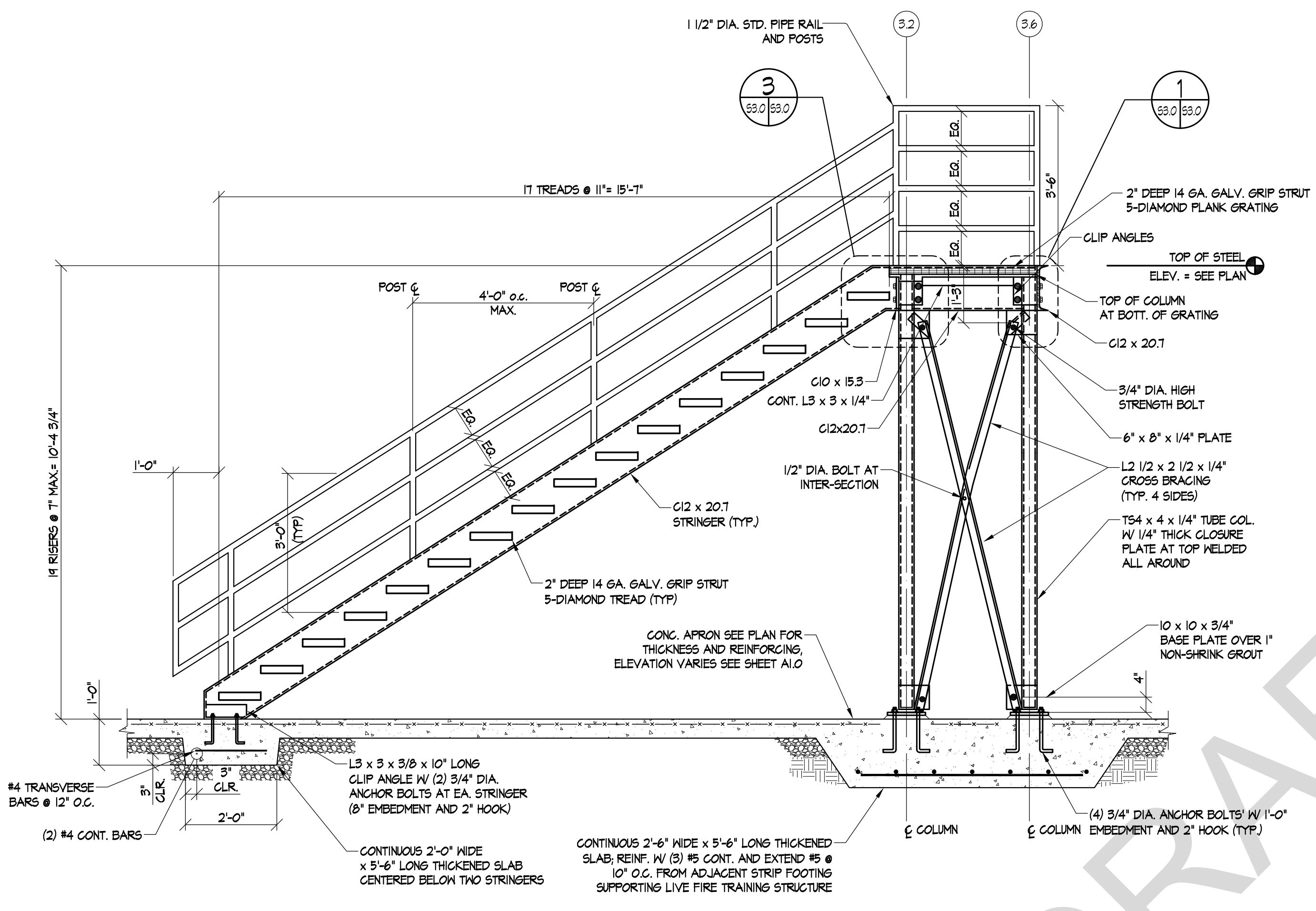
Department of Fire Programs

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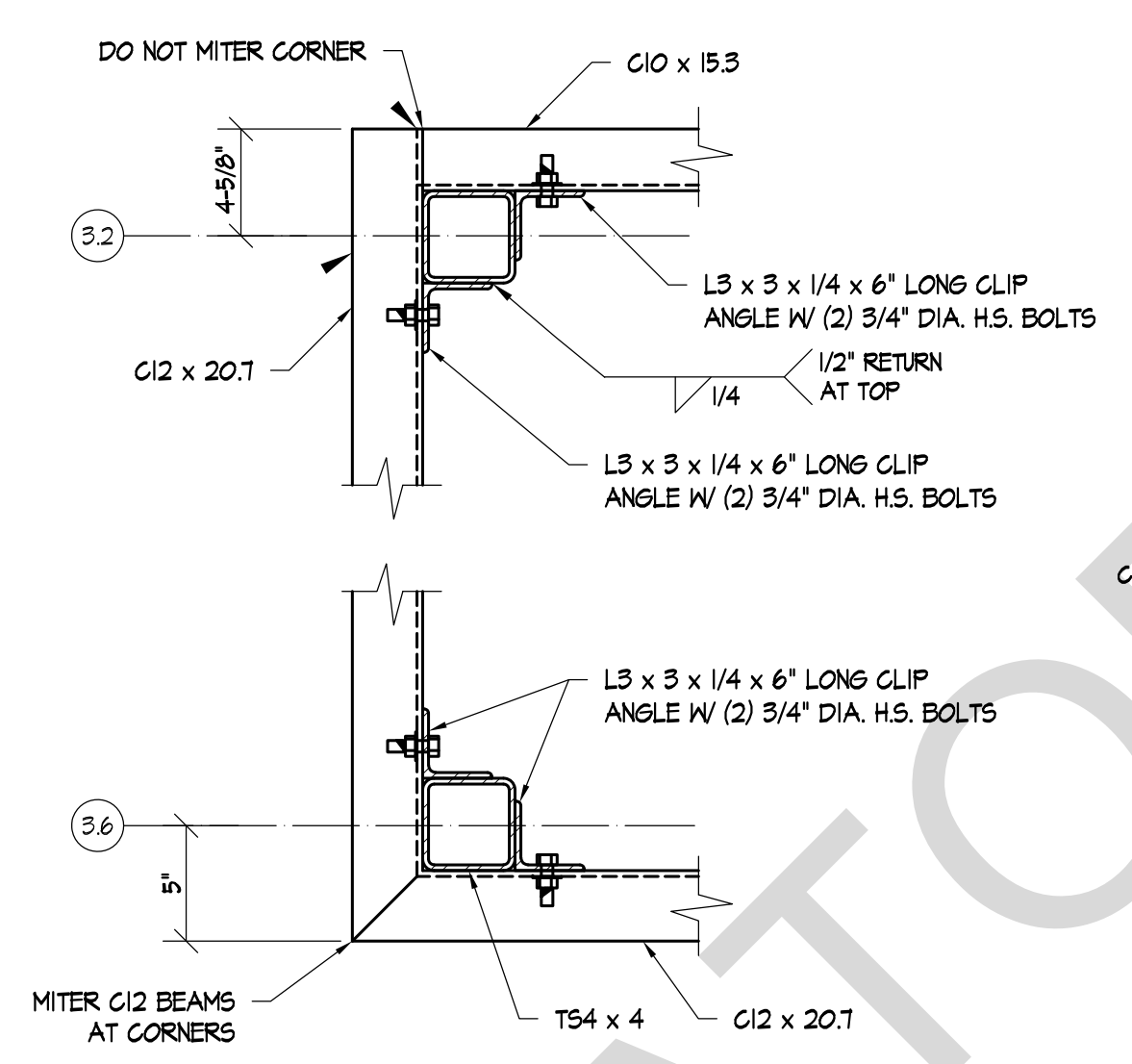
Sheet Title  
**EXTERIOR STEEL STAIR ELEVATION, SECTIONS, & DETAILS**  
 CITY/COUNTY VIRGINIA  
 Drawn By: ATA Approved By: MAM  
 Checked By: MAM Date: 01/31/24

Sheet No.  
**S3.0**  
 13 of 16

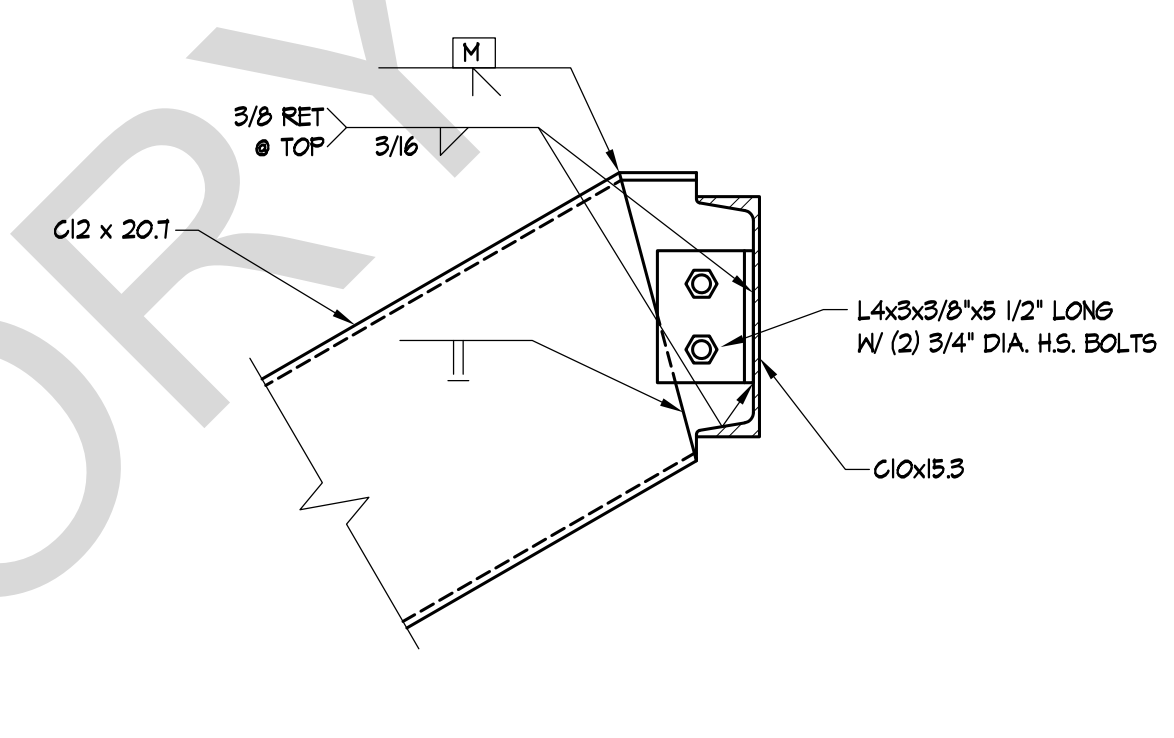


NOTE: ALL STEEL AND GRATING IN THIS SECTION SHALL BE GALVANIZED UNO.

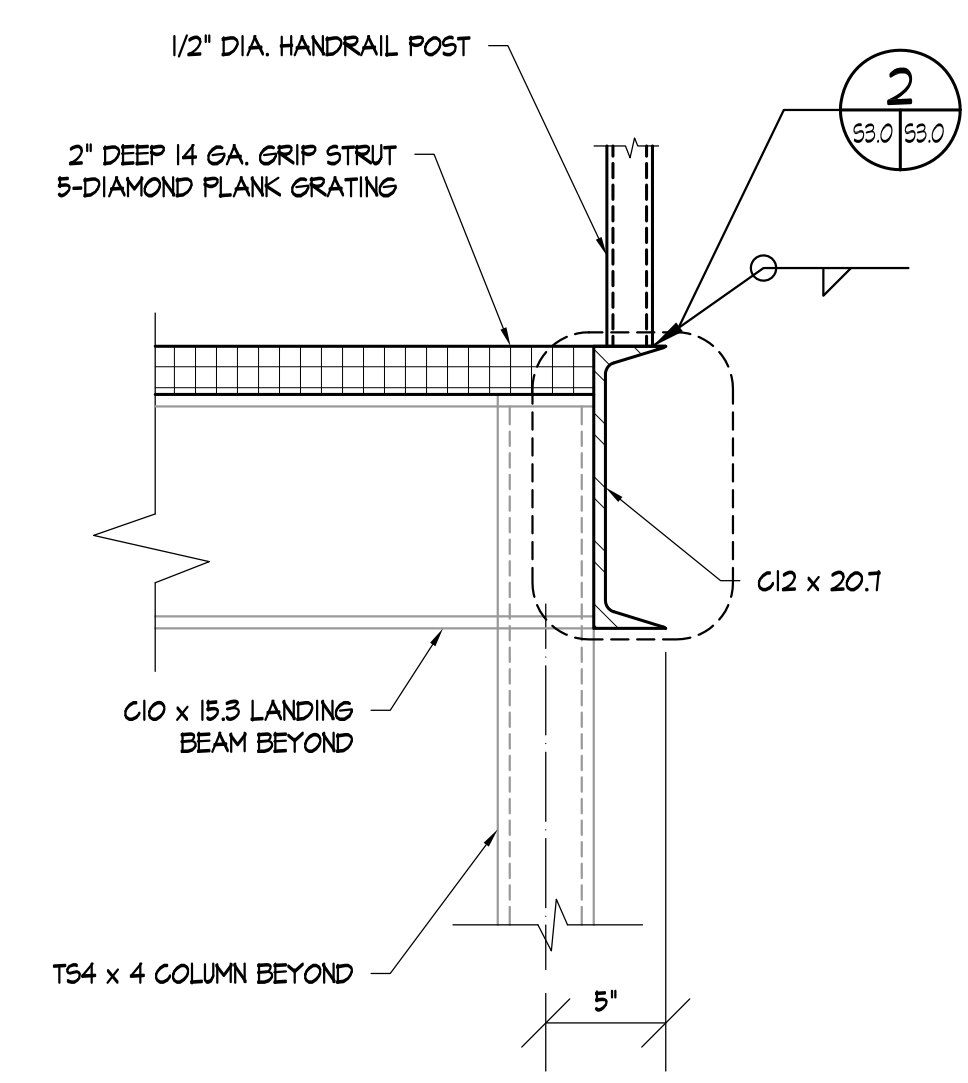
**ELEVATION**  
 EXTERIOR STAIRS  
 SCALE: 1/2" = 1'-0"



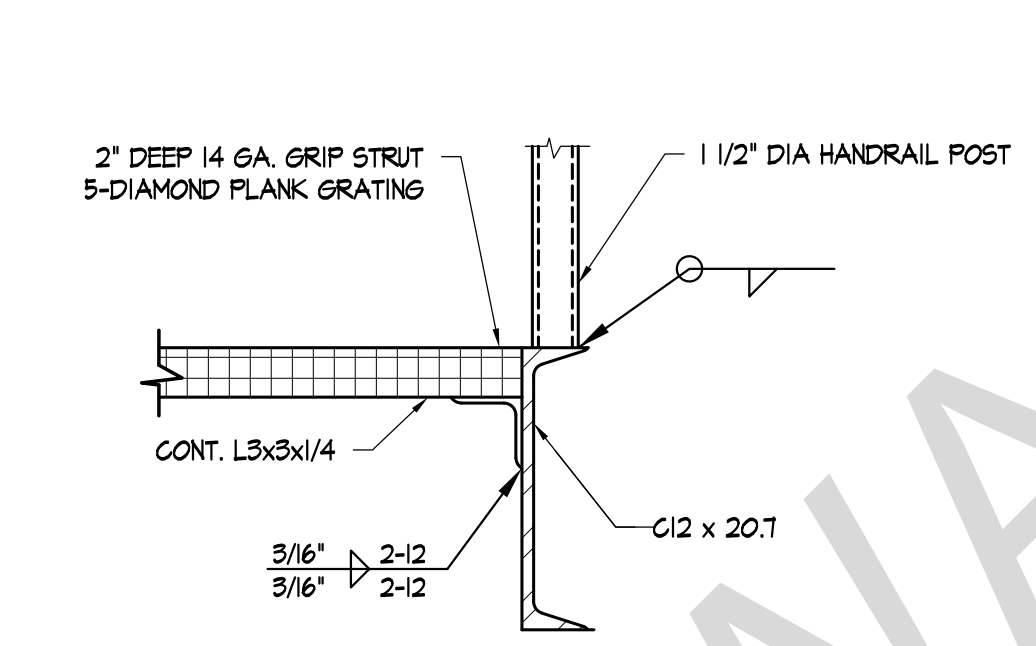
**DETAIL**  
 LANDING BEAMS TO COLUMNS  
 SCALE: 1 1/2" = 1'-0"



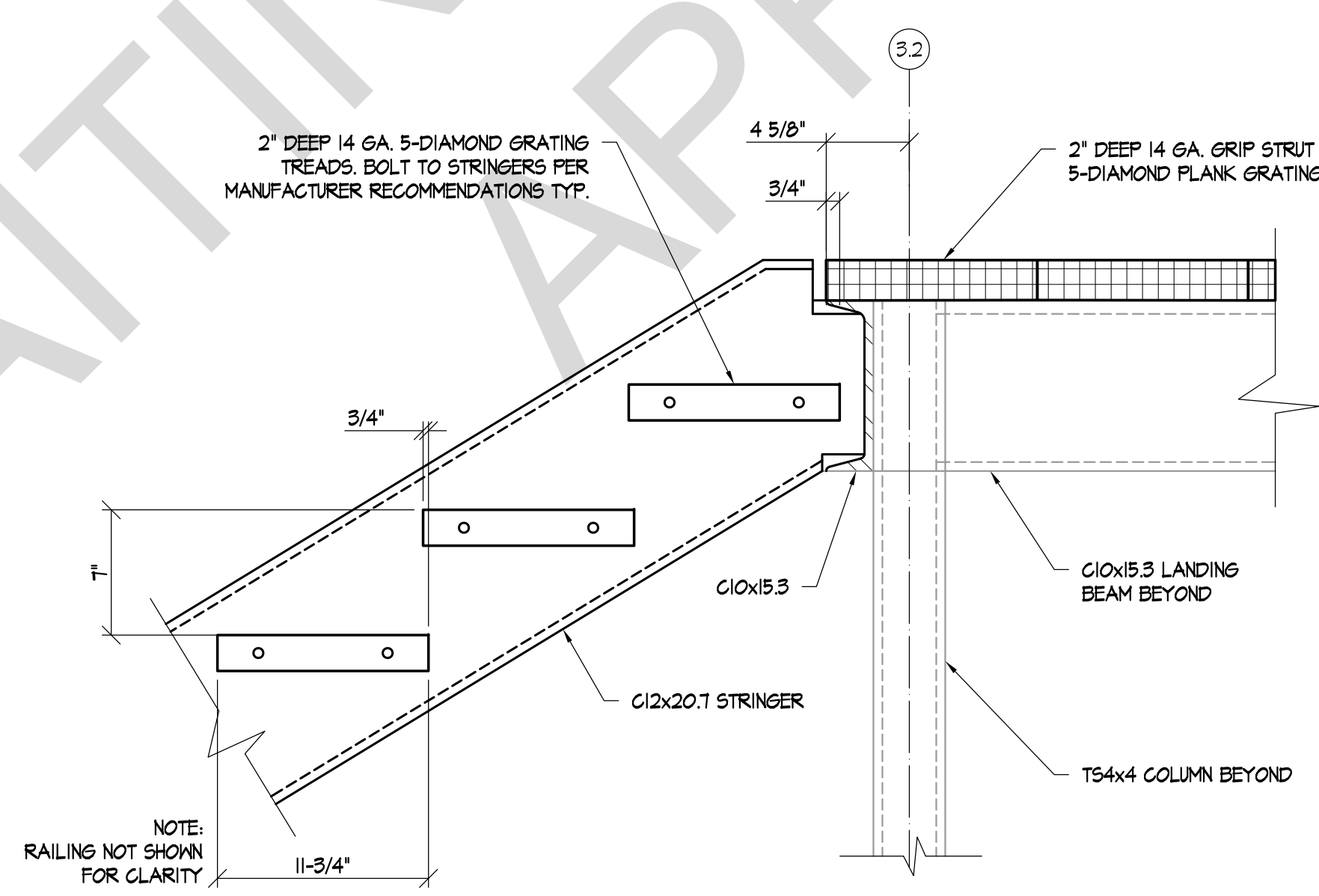
**DETAIL**  
 STAIR STRINGER SPLICE AND CONNECTION  
 SCALE: 1 1/2" = 1'-0"



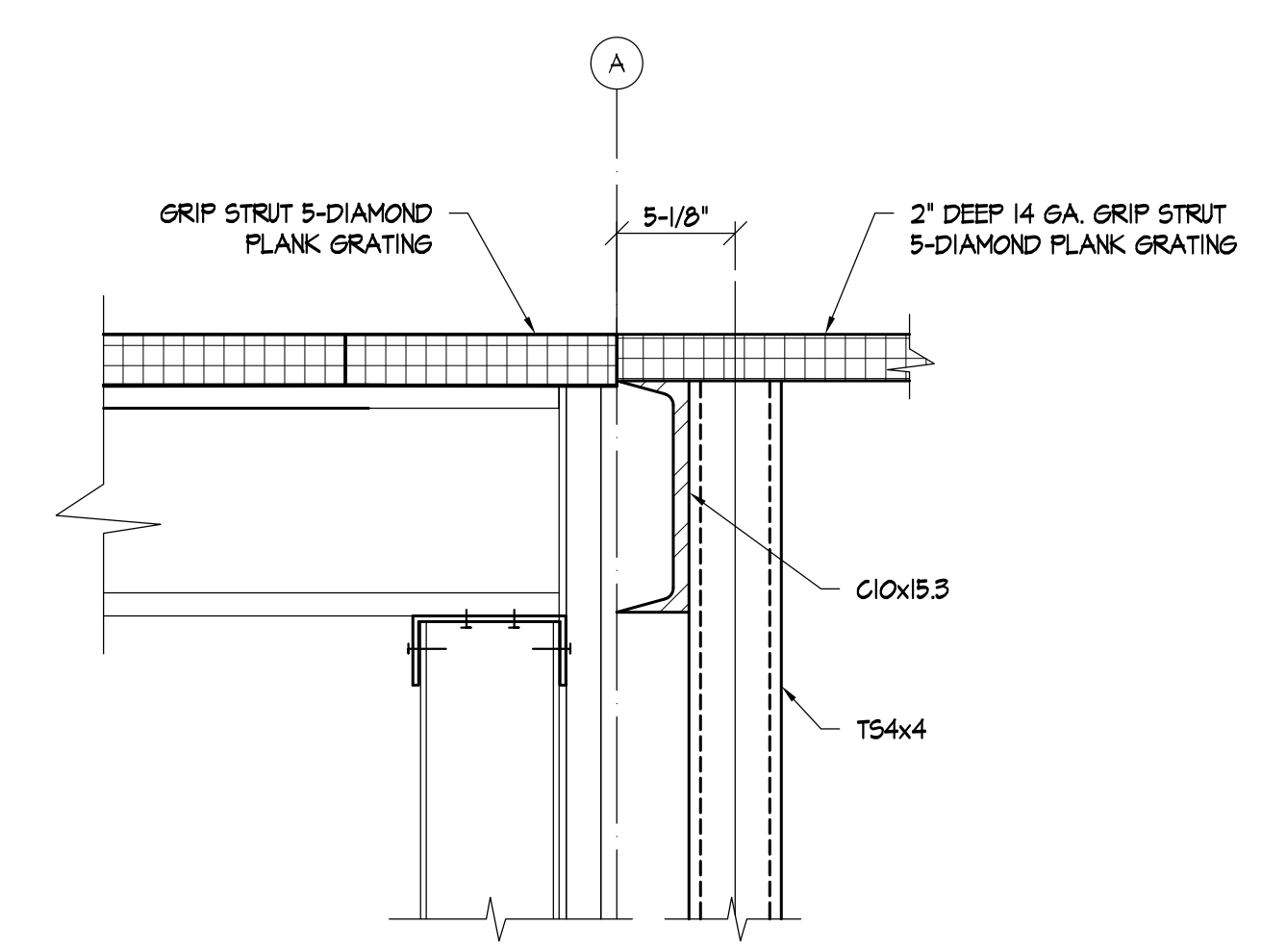
**DETAIL**  
 SCALE: 1 1/2" = 1'-0"



**DETAIL**  
 SCALE: 1 1/2" = 1'-0"



**DETAIL**  
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**DETAIL**  
 SCALE: 1 1/2" = 1'-0"



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Project Title  
**COMMONWEALTH OF VIRGINIA LIVE FIRE TRAINING STRUCTURE PROTOTYPE 4 CLASS B FUEL**

SUB-CONSULTANT'S LOGO



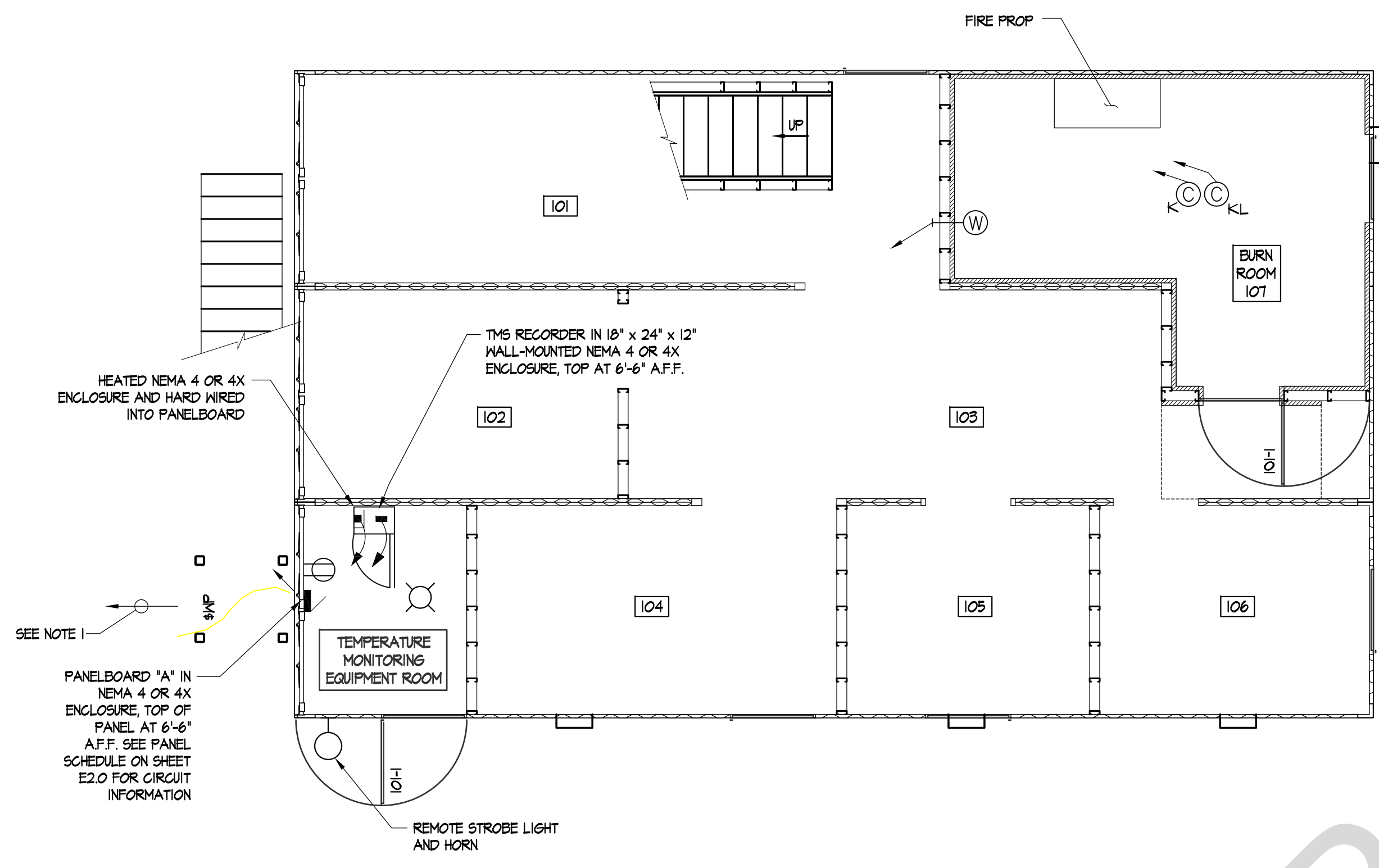
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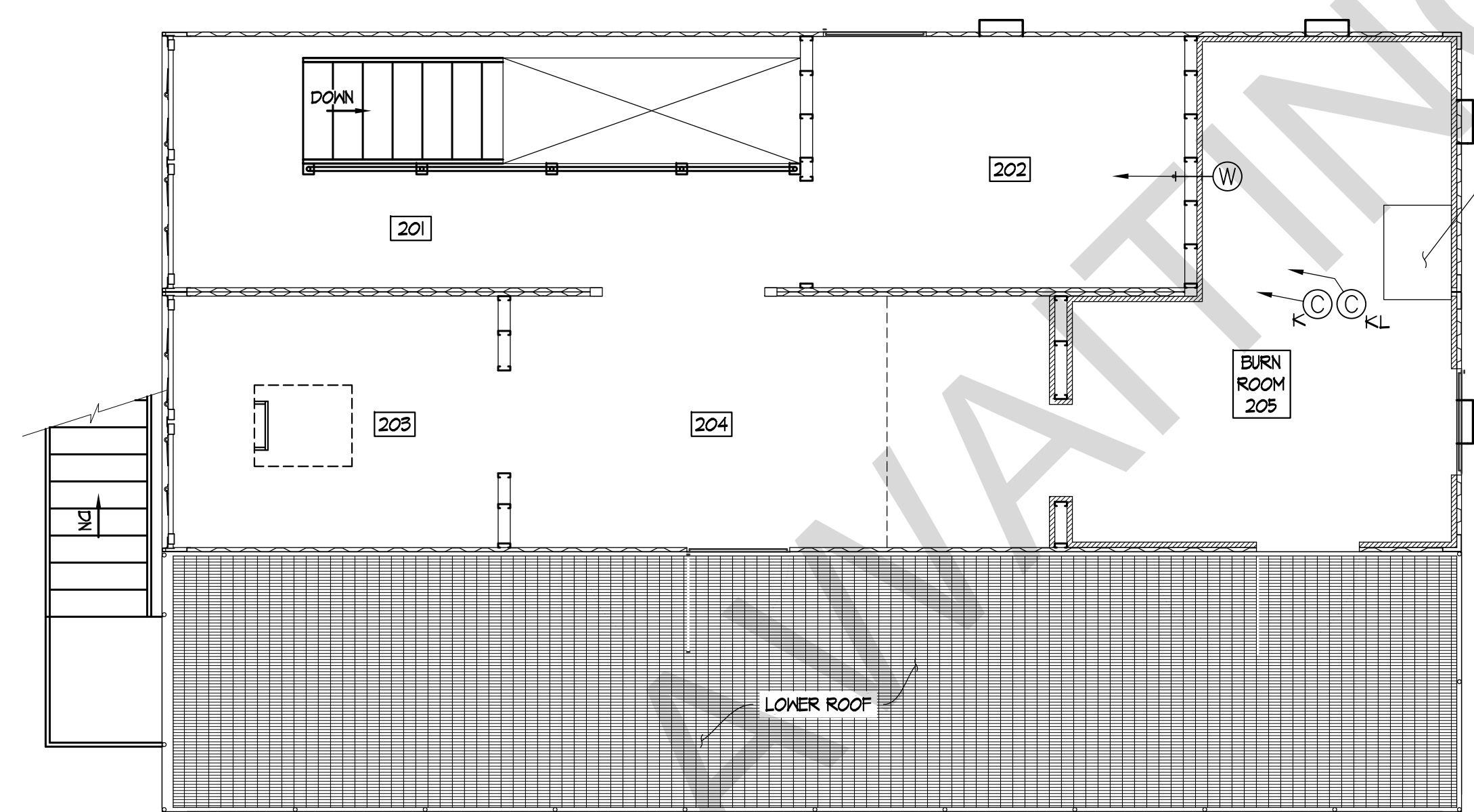
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Sheet Title  
**FIRST & SECOND FLOOR ELECTRICAL PLAN, NOTES SYMBOLS & ABBREVIATIONS**  
 CITY/COUNTY VIRGINIA  
 Drawn By: ATA Approved By: MAM  
 Checked By: MAM Date: 01/31/24

Sheet No.  
**E1.0**  
 14 of 16



**FIRST FLOOR ELECTRICAL PLAN**  
 SCALE: 1/4" = 1'-0"



**SECOND FLOOR ELECTRICAL PLAN**  
 SCALE: 1/4" = 1'-0"

**ELECTRICAL NOTES:**

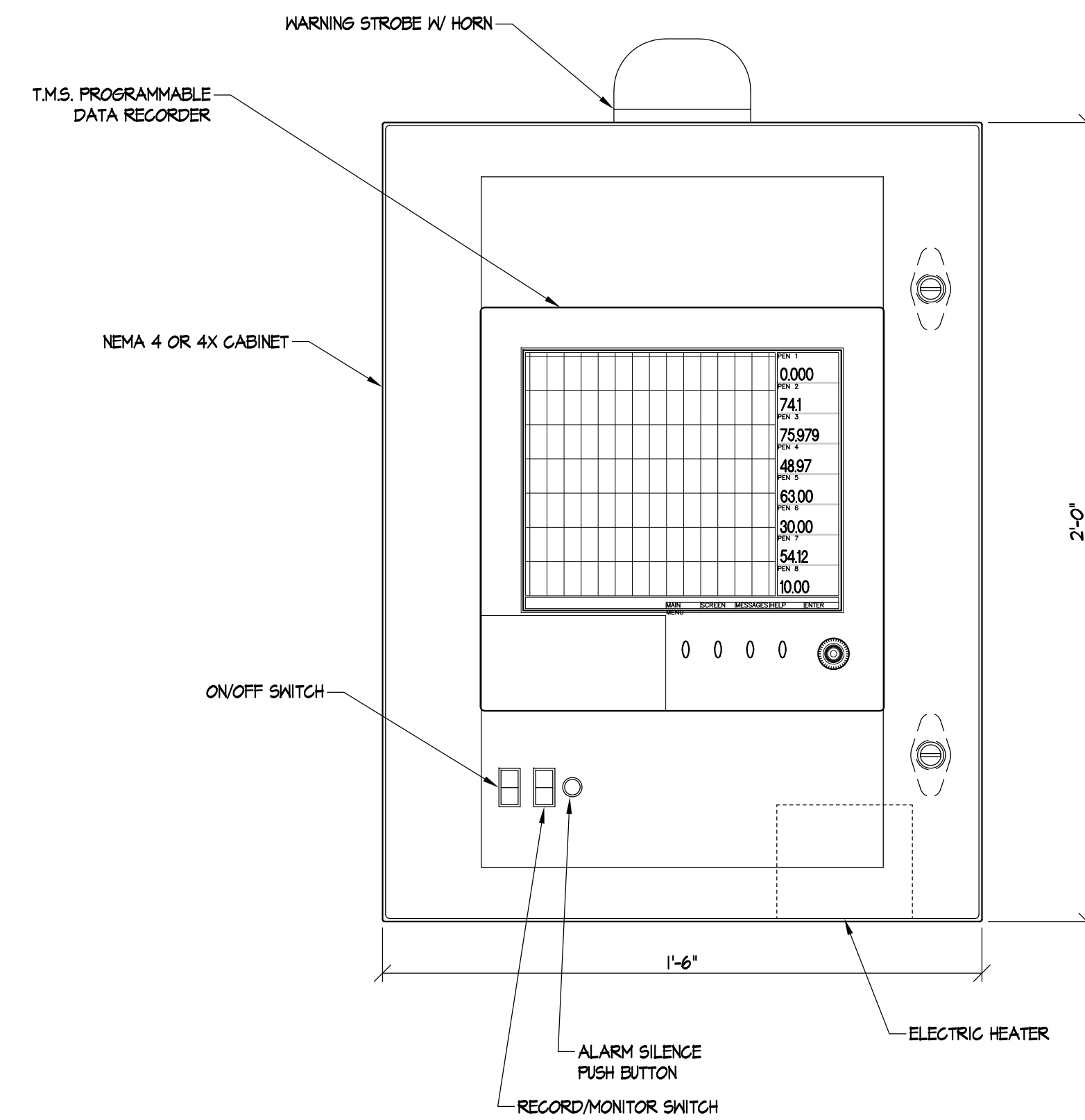
- ELECTRICAL PANEL "A" SHALL BE 120/208 VOLT 3 PHASE, 4 WIRE 200AMP MAIN CIRCUIT BREAKER, 30 POLE PANEL. CONTRACTOR SHALL COORDINATE POWER SOURCE TO PANEL AND SIZE FEEDER TO ACCOMMODATE VOLTAGE DROP. CONDUIT SHALL BE RUN AT A MINIMUM OF 36" BELOW GRADE AND SHALL BE PVC COATED RIGID STEEL.
- CONTRACTOR SHALL PROVIDE AN ALTERNATE PRICE FOR INSTALLATION OF EXTERIOR DUPLEX RECEPTAGLES. RECEPTAGLES SHALL BE RECESSED MOUNTED. PROVIDE CAST IRON RECEPTACLE WITH DIE CAST ALUMINUM COVERPLATE. DUPLEX RECEPTACLE SHALL BE CERAMIC AND HEAVY DUTY TYPE.
- ALL ELECTRICAL FIXTURES SHALL BE G.F.C.I.
- ALL WIRING SHALL COMPLY WITH THE APPLICABLE NATIONAL, STATE, AND LOCAL ELECTRICAL CODES. USE MINIMUM OF #12 AWG IN 1/2 INCH RIGID STEEL CONDUITS, UNLESS OTHERWISE NOTED.

**ABBREVIATIONS:**

- A. AMPERE (S)
- A.F.F. ABOVE FINISHED FLOOR
- A.I.C. AMPERE INTERRUPTING CAPACITY
- AWG AMERICAN WIRE GAUGE
- G.F.I. GROUND FAULT INTERRUPT
- GND GROUND
- MCB MAIN CIRCUIT BREAKER
- #WP WEATHERPROOF SINGLE POLE 20 AMP SWITCH. SURFACE MOUNTED 42" MOUNTING HEIGHT A.F.F.
- T.L. THERMAL LINING
- T.M.S. TEMPERATURE MONITORING SYSTEM
- V VOLT (S)
- W WATT
- WP WEATHERPROOF (NEMA 4X)

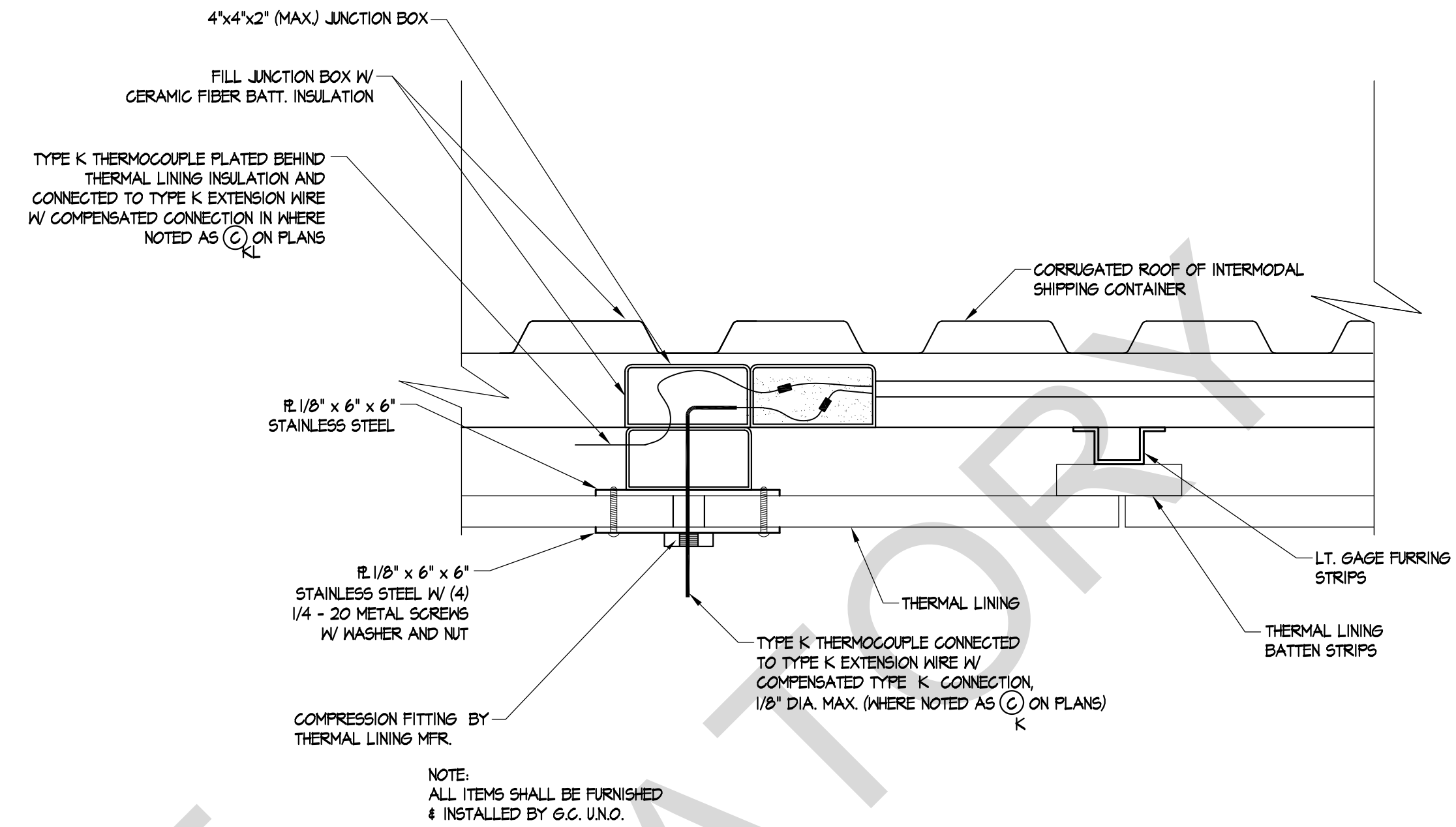
**SYMBOLS:**

- WEATHERPROOF CEILING MOUNTED, 100W, 120V, INCANDESCENT FIXTURE.
- WEATHERPROOF DUPLEX RECEPTACLE, 20A, 125V, GROUNDING TYPE HAVING NEMA TYPE 5-20 R CONFIGURATION SURFACE MOUNTED, 18" MOUNTING HEIGHT A.F.F.
- JUNCTION BOX
- CONDUIT TURNED UP
- CONDUIT TURNED DOWN
- CONDUIT RUN TO RECORDER FOR TEMPERATURE MONITORING SYSTEM U.O.N.
- WALL-MOUNTED TYPE K DUPLEX THERMOCOUPLE, 60" A.F.F. SEE 2-16/17 U.O.N.
- RECESSED CEILING-MOUNTED TYPE K DUPLEX THERMOCOUPLE SEE 2-16/17
- RECESSED CEILING-MOUNTED TYPE K DUPLEX THERMOCOUPLE SEE 2-16/17
- PLACED BEHIND INSULATION OF THERMAL LINING SEE 2-16/17
- EXISTING METER
- BRANCH CIRCUIT CONDUIT WITH 2 #12 AWG + GROUND WIRE U.O.N. RUN EXPOSED TO PANELBOARD CONNECTION POINT
- REMOTE STROBE LIGHT & HORN

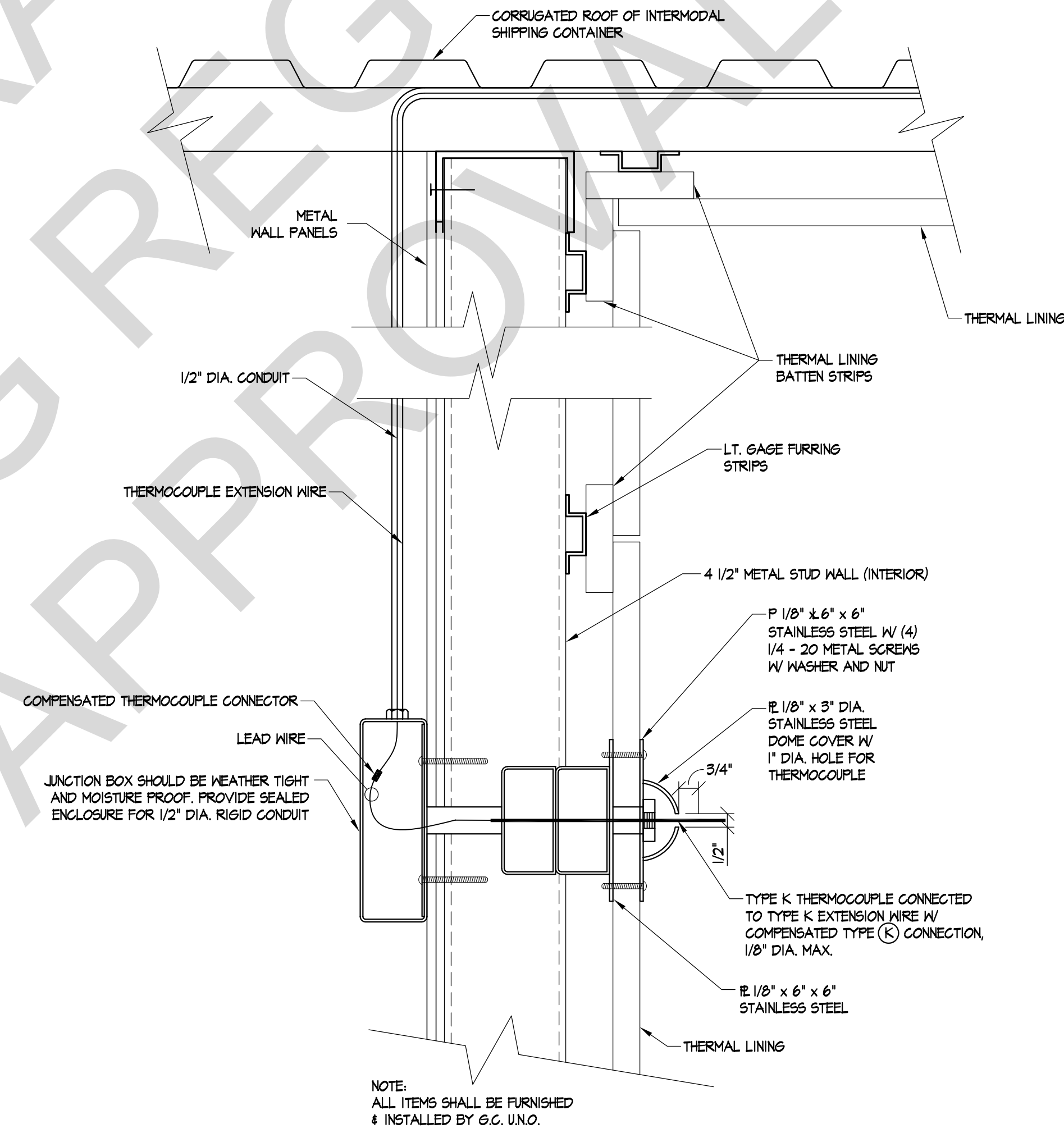


**ELEVATION** T.M.S. INDICATOR PANEL  
SCALE: 3" = 1'-0"

PANELBOARD SCHEDULE LP-1											
LOCATION: 105			FED FROM: SHED MEB			[1]- GFI					
SERVICE: 208Y/120V 3-P 4-W			NEUTRAL BUS: 100%			[2]- SHUNT TRIP					
MAIN LUGS: A			GROUND BUS: STANDARD			[3]- BREAKER LOCK					
MAIN BUS TYPE: -			MOUNTING: SURFACE			[4]- HACR					
INTERRUPT RATING: -			ENCLOSURE: NEMA 1								
AIC											
DESCRIPTION	CCT. NO.	CIRCUIT BREAKER	CIRCUIT LOAD	CONNECTED LOAD (VA)			CIRCUIT LOAD	CIRCUIT BREAKER	CCT. NO.	DESCRIPTION	(E)
T.M.S. PANEL	(N)	1	20A-IP	500	680		180	20A-IP	2	RECEPTACLE	
		3	20A-IP					20A-IP	4		
		5	20A-IP					20A-IP	6		
		7	20A-IP					20A-IP	8		
		9	20A-IP					20A-IP	10		
		11	20A-IP					20A-IP	12		
		13	20A-IP					20A-IP	14		
		15	20A-IP					20A-IP	16		
		17	20A-IP					20A-IP	18		
		19	20A-IP					20A-IP	20		
		21	20A-IP					20A-IP	22		
		23	20A-IP					20A-IP	24		
		25	20A-IP					20A-IP	26		
		27	20A-IP					20A-IP	28		
		29	20A-IP					20A-IP	30		
				680							
				TOTAL VA PER PHASE							



**DETAIL**  
SCALE: 3" = 1'-0"



**DETAIL**  
SCALE: 3" = 1'-0"

PRIME PROFESSIONAL FIRM LOGO

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Department of Fire Programs

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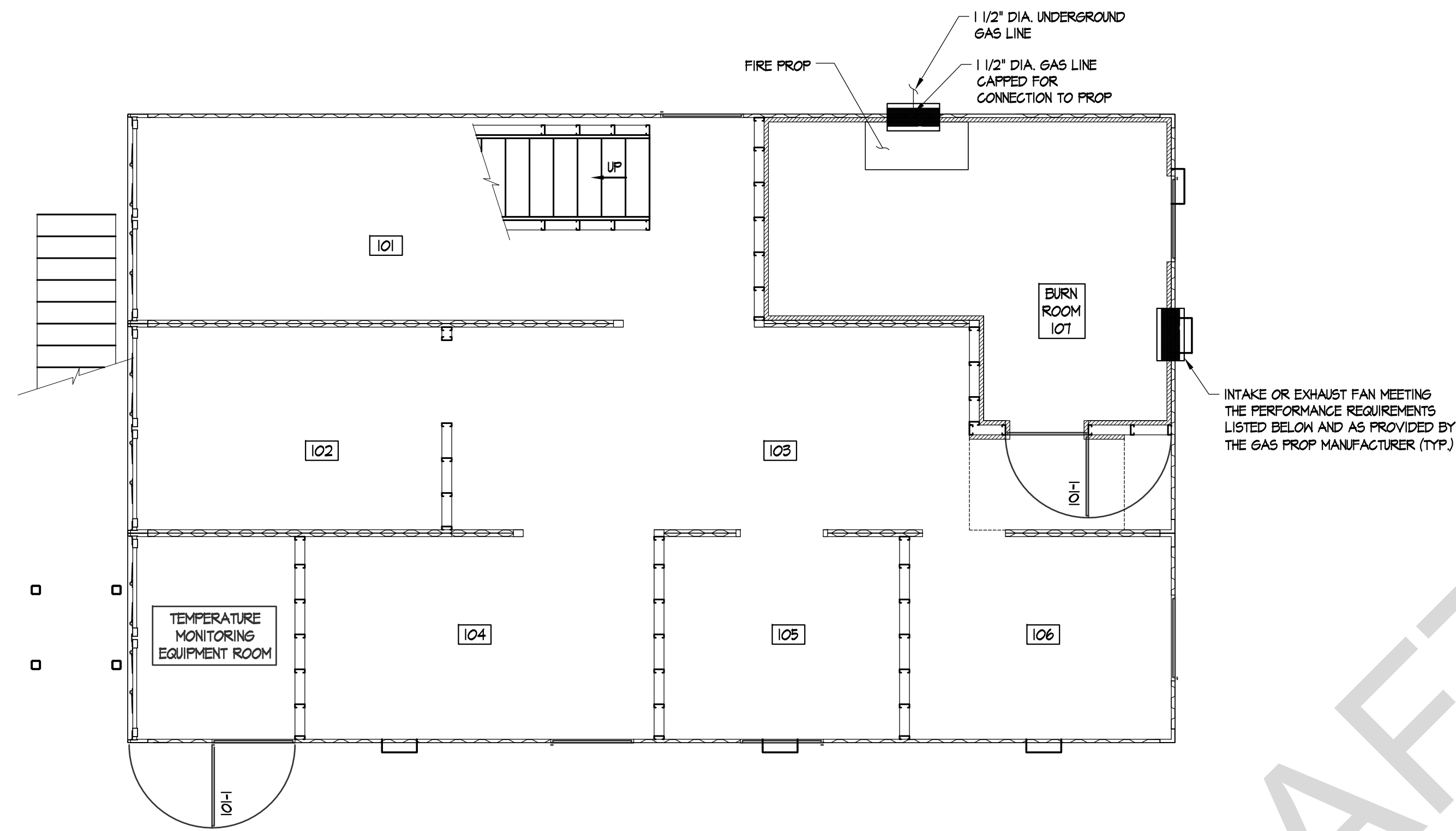
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Sheet Title  
**ELECTRICAL DETAILS & PANELBOARD SCHEDULE**  
CITY/COUNTY VIRGINIA  
Drawn By: ATA Approved By: MAM  
Checked By: MAM Date: 01/31/24

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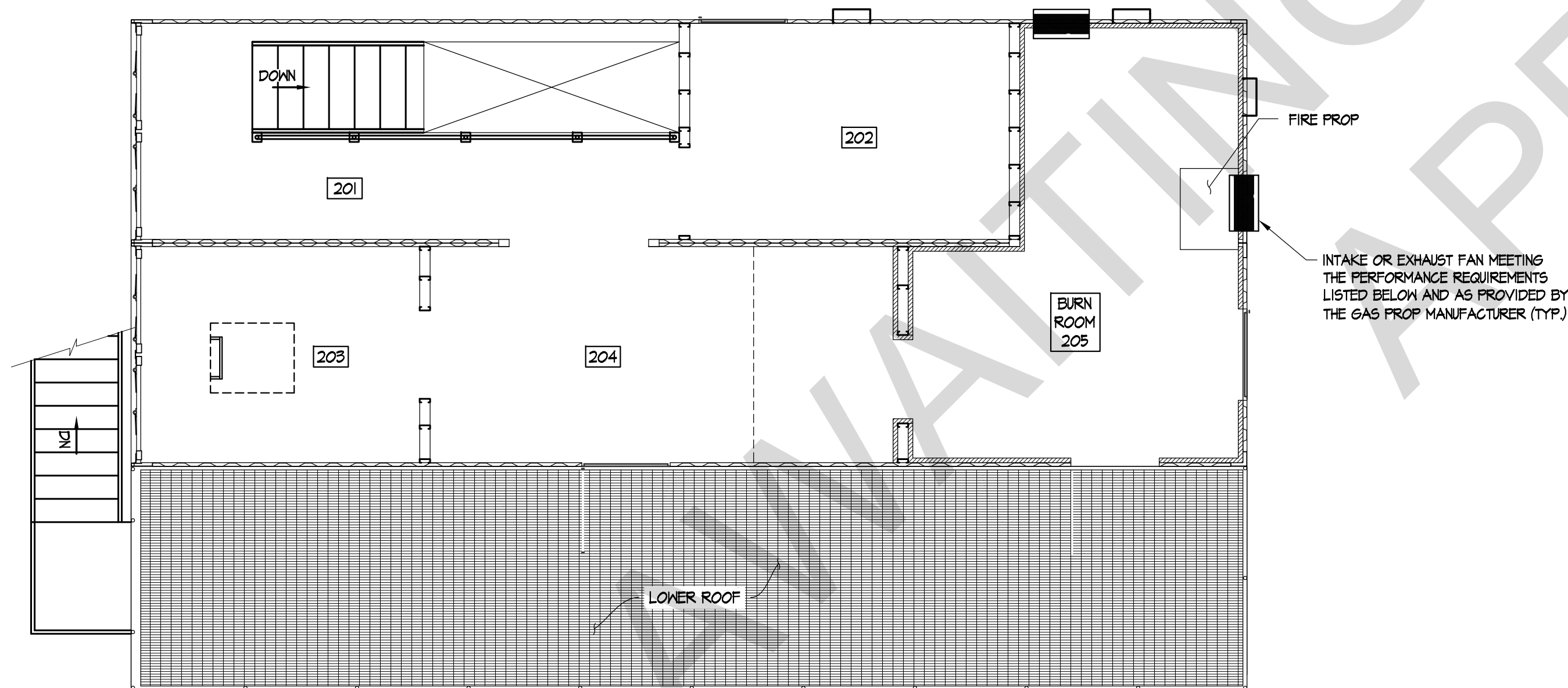
Sheet No.  
**E2.0**  
15 of 16





**FIRST FLOOR MECHANICAL PLAN**

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



**SECOND FLOOR MECHANICAL PLAN**

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

**MECHANICAL NOTES:**

- THE AUTOMATED LIVE FIRE CLASS B FUEL SYSTEM SHALL BE EQUIPPED WITH A VENTILATION SYSTEM TO REMOVE EXCESS HEAT, COMBUSTION BY-PRODUCTS, AND UNBURNED GAS FROM EACH TRAINING COMPARTMENT WITHIN THE BUILDING AND VENTILATION SYSTEM SHALL BE DESIGNED TO FULLY PURGE EACH TRAINING COMPARTMENT AT THE RATE OF ONE (1) AIR CHANGE PER MINUTE AS PER NFPA 1403. THE LIVE FIRE TRAINING SYSTEM SHALL CONTROL THE OPERATION AND MONITOR THE AIRFLOW OF THE VENTILATION SYSTEM IN THE BURN BUILDING. THE VENTILATION SYSTEM SHALL ONLY BE ACTIVATED DURING THE FOLLOWING CONDITIONS:
  - TO FULLY PURGE THE TRAINING COMPARTMENTS AT POWER UP.
  - TO FLUSH THE BURN BUILDING PRIOR TO TRAINING.
  - TO FULLY PURGE THE TRAINING COMPARTMENTS WHEN EXCESSIVE GAS OR TEMPERATURE LEVELS ARE DETECTED DURING TRAINING.
- THE LIVE FIRE CLASS B FUEL SYSTEM SHALL HAVE A COMPARTMENT TEMPERATURE DETECTION SENSOR THAT MONITORS TEMPERATURES AT 5' A.F.F. IF TEMPERATURES IN THE TRAINING COMPARTMENT EXCEED 550° THE VENTILATION SYSTEM SHALL RUN. IF TEMPERATURES AT THE 5' LEVEL EXCEED 700°, THE SYSTEM SHALL SHUTDOWN AND THE VENTILATION SYSTEM SHALL RUN UNTIL TEMPERATURES ARE REDUCED.
- THE LIVE FIRE CLASS B FUEL SYSTEM SHALL HAVE A HARD-WIRED EMERGENCY SHUTDOWN CIRCUIT THROUGHOUT THE FACILITY TO PROVIDE WIDESPREAD ACCESS TO SHUTDOWN (E-STOP) PUSH BUTTONS. E-STOP PUSH BUTTONS SHALL BE LOCATED AT THE ENTRANCE(S) TO EACH TRAINING COMPARTMENT, ON THE SCENARIO CONTROL ASSEMBLIES, AND ON EACH CONTROL PENDANT. THE EFFECT OF PUSHING ANY E-STOP BUTTON SHALL CAUSE ALL BURNER CONTROL VALVES TO CLOSE, FACILITY GAS SUPPLY TO BE SECURED AND SMOKE PRODUCTION TO STOP. VENTILATION FANS WILL AUTOMATICALLY RUN AT MAXIMUM ONCE THE E-STOP PUSH BUTTON HAS BEEN ACTIVATED. THE VENTILATION SYSTEM WILL RUN CONTINUOUSLY AT MAXIMUM LEVEL UNTIL THE E-STOP HAS BEEN MANUALLY RESET AND SAFE OPERATING CONDITIONS EXIST.
- THE LIVE FIRE CLASS B FUEL SYSTEM SHALL HAVE A GAS DETECTION SYSTEM WHICH CONTINUALLY MONITORS UNBURNED GLASS "B" FUEL LEVELS IN THE TRAINING COMPARTMENTS AND ANY EQUIPMENT ROOMS WHERE GLASS "B" FUEL LINES ARE INSTALLED. A MINIMUM OF TWO (2) GAS SENSORS SHALL BE SUPPLIED PER TRAINING COMPARTMENT. IF GAS LEVELS REACH 10% LEL, THE VENTILATION SYSTEM SHALL RUN. IF GAS LEVELS REACH 25% LEL, THE VENTILATION SYSTEM SHALL RUN AT MAXIMUM SPEED AND ALL GAS VALVES SHALL CLOSE. THE VENTILATION SYSTEM SHALL CONTINUOUSLY RUN UNTIL GAS LEVELS ARE REDUCED BELOW 10% LEL.
- THE LIVE FIRE CLASS B FUEL SYSTEM FUEL CONTROL ASSEMBLY SHALL CONNECT TO THE CLASS "B" FUEL SUPPLY LINE. THE FUEL CONTROL ASSEMBLY SHALL CONSIST OF BOTH HIGH AND LOW PRESSURE SWITCHES. THE LINE PRESSURE SHALL BE MONITORED FOR ABNORMAL CONDITIONS AND SHALL SHUT DOWN THE SYSTEM IF THE LINE PRESSURE IS TOO HIGH OR TOO LOW. SHOULD A HIGH-PRESSURE CONDITION EXIST, THE VENTILATION SYSTEM SHALL START AND AN EMERGENCY SHUTDOWN SHALL OCCUR.
- A MINIMUM OF TWO (2) EXTINGUISHING AGENT SENSORS SHALL BE LOCATED IN EACH BURN ROOM WITH ONE (1) DIRECTLY WITHIN THE BURN PROP. THE OUTPUT OF THESE SENSORS SHALL BE UTILIZED BY THE INSTRUCTOR TO DETERMINE THE EFFECTIVENESS OF AGENT APPLICATION WITH REGARD TO RATE AT WHICH FIRE IS EXTINGUISHED.
- ALL COMPONENTS IN THIS SYSTEM SHALL PERFORM WITHIN THE FOLLOWING MINIMUM STANDARDS:
  - CONTROL ROOM EQUIPMENT:
    - TEMPERATURE: 65 TO 85° F (OPERATING)  
20 TO 125° F (STORAGE)
    - HUMIDITY: 0 TO 45% (NON-CONDENSING)
  - OUTDOOR EQUIPMENT:
    - TEMPERATURE: 20 TO 100° F (OPERATING)  
-20 TO 125° F (STORAGE)
    - HUMIDITY: 0 TO 100%
  - COMPARTMENT EQUIPMENT:
    - TEMPERATURE: 52° F TO MAX. (OPERATING)  
-20 TO 125° F (STORAGE)
    - HUMIDITY: 0 TO 100%
  - MECHANICAL: ALL TRAINING COMPARTMENT EQUIPMENT SHALL WITHSTAND DIRECT HOSE PRESSURE OF 100 PSI AT 150 GPM FROM A DISTANCE OF THREE (3) FEET.
  - TOTAL TRAINING SYSTEM: MTBF (MEAN TIME BETWEEN FAILURES) > 500 HOURS (OPERATING).
  - MTTR (MEAN TIME TO REPAIR) < 30 MINUTES (WHEN REPAIRS ARE PERFORMED BY QUALIFIED SERVICE PERSONNEL).

PRIME PROFESSIONAL FIRM LOGO

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Department of Fire Programs

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Sheet Title  
**MECHANICAL PLANS & NOTES**

CITY/COUNTY VIRGINIA  
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16 of 16