

Memo

To: Prospective Vendors

From: Purchasing Office
Phone: 856-227-7200, ext. 4238
Fax: 856-374-4887

Date: July 1, 2024

Subject: Camden County College Regional Emergency Training Center Smoke Tower Structure
FY24ITB-68

Addendum #1

The College has addressed the following specification updates & questions:

Plans:

A-1 FLOOR PLANS, A-2 4TH FLOOR, ROOF PLANS AND DETAILS and S-1 FOUNDATION PLAN, has been revised. (see attached)

Specifications:

131210 PRE-ENGINEERED TACTICAL TRAINING TOWER

Section 2.20 ADDITIONAL FEATURES TO BE INCLUDED, has been revised. (see attached)

Section 2.23 WARRANTY, has been revised. (see attached)

Section 2.25 SUPPLIERS/SYSTEMS, has been revised. (see attached)

The following questions have been received:

Question 1: E2.0 - duct bank. Is schedule 40 pvc and or direct burial cable allowed in lieu of schedule 80? for underground? Schedule 80 would still be required going up the first 10 feet of the AC electric owned pole.

Answer: Schedule 40 pvc for installation underground is acceptable.

Question 2: Will there be permitting fees applicable to this project, or will permit fees be waived by the municipality? If permitting fees apply, which party is responsible for paying those fees?

Answer: The College does not pay permitting fees in Gloucester Township. If any fees would apply, the College would be responsible for them.

Question 3: Is there any type of requirement for the general contractor to have a field office or job trailer?

Answer: There is no requirement for the general contractor to have a field office or job trailer on site.

Question 4: Do you have an estimated cost of construction for this one?

Answer: The construction budget will not be provided.

Question 5: Please confirm if the Permit Fees and Electric Utility Fees will be paid by Owner or can an Allowance be established in the Bid until such time when these potential fees are assessed?

Answer: The College does not pay permitting fees in Gloucester Township. If any fees would apply, the College would be responsible for them. Electrical utility fees should be a part of the contract, if applicable.

Question 6: Please reference SP-1, please clarify the outside 10' perimeter is the Hot Mix Asphalt Pavement detail and the inside 10' perimeter is the concrete detail. The plan points at each opposite of that intent.

Answer: The outside 10' perimeter is the Hot Mix Asphalt Pavement detail (Estimate of Quantities – No Change) and the inside 10' perimeter is the concrete detail (Estimate of Quantities – No Change).

Question 7: Is it possible to substitute the Asphalt pavement detail for the Concrete detail? Basically, proposing a 20' wide perimeter of concrete in lieu of the 10' concrete perimeter and the 10' wide asphalt perimeter?

Answer: The specifications regarding the asphalt and concrete detail remains as specified in the bid document and on the drawings.

PRE-ENGINEERED STEEL TACTICAL TRAINING TOWER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:

- 1. Tactical Training Tower.
- 2. Design Requirements.

1.3 REFERENCES

- 1. American Iron and Steel Institute (AISI): "Specification for the Design of Cold-Formed Steel Structural Members."
- 2. American Institute of Steel Construction (AISC): "Steel Construction Manual", Allowable Stress or Load and Resistance Factor Design.
- 3. American Society for Testing and Materials (ASTM) Publications:
 - a. ASTM A36 "Standard Specification for Carbon Structural Steel"
 - b. ASTM A123 "Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products"
 - c. ASTM A653 "Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process"
 - d. ASTM A924 "Standard Specification for General Requirements for Steel Sheet, Metallic- Coated by the Hot-Dip Process"
 - e. ASTM A992 "Standard Specification for Structural Steel Shapes"
- 4. National Fire Protection Association (NFPA):
 - a. NFPA 1402 – "Standard On Facilities For Fire Training And Associated Props"
 - b. NFPA 1403 – "Standard On Live Fire Training Evolutions"
- 5. International Code Council (ICC): International Building Code

1.4 DEFINITIONS

- A. Building Width: Measured from outside to outside of sidewall girts. Typically edge to edge of concrete.
- B. Building Length: Measured from outside to outside of end wall girts. Typically edge to edge of concrete
- C. Building Line: Outside face of steel/girt.
- D. Building Eave Height: Measured from the top of the eave member at the outside of the sidewall girt line to the bottom of the sidewall column base plate or to finished floor if columns are on grout or recessed below finished floor.
- E. Bay Spacing: Measured from centerline to centerline of primary frames for interior bays and from centerline of the first interior frame to outside of end wall girts for end bays.

1.5 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

PART 2 - DESCRIPTION

2.1 PURPOSE

- A. This structure will be used to provide safe, accurate, realistic simulations for law enforcement and military personnel to practice and learn tactical procedures necessary to achieve mission objectives and save lives.

2.2 GENERAL

- A. The tower shall utilize a structural steel frame system and curtain wall design. Structural framing systems are considered the norm for high-rise and commercial structures. The curtain wall/exterior wall panel design produces an ideal buffer or protection between the main structural frame of our building and any exterior elements, so that if an exterior wall panel is damaged, no structural damage is likely to occur. This wall panel system also creates a flat surface ideal for ladder or rappelling anywhere on the tower to simulate actual street conditions.

2.3 STRUCTURAL INTEGRITY

- A. The wind loads, deck and the roof loads stated herein represent the standard criteria. Increased loadings, as may be dictated by local jurisdictions, must be accommodated. The primary structural system shall utilize hot-rolled structural steel column and beam frames sized to meet and exceed the loads as indicated. This training simulator shall be considered a nonbuilding structure for both code compliance and load

interpretation. The primary and secondary structural system shall also meet and exceed the loads as indicated while maintaining a maximum deflection of L/240.

2.4 CODE COMPLIANCE

- A. The training structure/tower's primary structural and seismic design shall be in accordance with the currently adopted New Jersey building codes. Due to the unique nature of the intended use of these training structures/towers; handrail extensions, guard openings, riser openings, means of egress, fire wall requirements as well as other construction issues, are not expected to satisfy the criteria of buildings intended to accommodate public occupancy. This may require a building code variance in some locations; however, this simulator shall meet applicable building codes and NFPA 1402 standards. It is the responsibility of the owner to obtain such variance if required. The training structure/tower, Occupancy Group – U (Utility & Miscellaneous), must comply with all building codes listed on this plans set, including but not limited to 2021 International Building Code (New Jersey Edition) and 2020 National Electric Code.

2.5 MATERIALS

- A. All materials shall be new and shall conform to applicable ASTM specifications. All structural or nonstructural materials used, 10 gauge or less in thickness, whether exposed or not to the elements shall be hot dipped galvanized. When any mention of galvanized is noted within these specifications, it shall be implied to mean hot dipped galvanized. Any exposed material which is not galvanized, shall be given one coat of shop paint.

2.6 FASTENERS

- A. All fasteners utilized with galvanized steel panels not exposed to the elements shall be electro-galvanized. All exterior fasteners shall be furnished with a contained EPDM washer under the head for sealing. Structural columns and beams shall be field bolted with (A325) 5/8" diameter electro-galvanized bolts or larger. Anchor bolts shall be furnished by the concrete contractor, unpainted and of the size specified on the anchor bolt plan.

2.7 WEATHER SEALING

- A. All joints in weather tight areas are to be sealed with tape caulk or foam closures as specified on the building plan. Because of the intended use water tightness of simulators is not required or assured.

2.8 ROOF SYSTEMS

- A. Roofs shall be decked with 30" or 36" wide, 18 ga. unpainted galvanized 18 gage steel deck per ASTM A-653, class G60 with recessed fasteners and shall meet the stated design load. Panels must have 6" on center cell spacing with an actual 4 1/4" flats with an actual 1 3/4" wide recesses and a maximum of 1 1/2" deep recesses. Panels must be roll formed.

2.9 EXTERIOR WALL SYSTEM

- A. Wall panel/curtain wall system shall provide for a concentrated rappelling/ladder load of 890 pounds while the primary structural framing supporting this wall system shall provide for a concentrated point load of 2300 pounds. Rake trims, parapet rake trims, and window opening sill trim corners shall be beveled to prevent rope chafing, personal injury, or equipment damage.

2.10 WALL PANELS

- A. The exterior wall panels shall be essentially flat to allow for safe laddering and rappelling anywhere on the simulator without the requirement of additional exterior surface plates to form a flat surface. The exterior wall panels shall be of 18 ga. hot-dipped galvanized steel per ASTM A-924, class G-90. Panels shall have nominal 4 $\frac{3}{4}$ " flats with a maximum 1 $\frac{1}{8}$ " wide recesses and shall be set in the horizontal plane. Since panels are set in the horizontal plane, sealants are not required to make this structure weather tight (sealants in extreme temperature environments will breakdown prematurely). Panels must be brake formed to provide a maximum $\frac{1}{8}$ " inside radius. All end joints of all panels must be backed by a splice panel, which extends a minimum of 12" either side of the joint (24" total). Exterior walls panels shall be painted from the customer's choice of the manufacturer's available colors.
- B. The interior wall panels shall be corrugated for added strength and durability. The interior wall panels consist of hot-dipped galvanized steel per ASTM A-924. The interior wall panels shall have a $\frac{3}{4}$ " deep maximum corrugation at 3 $\frac{1}{2}$ " on center and shall be set in the vertical plane. Interior wall panels shall be painted white.
- C. Painted wall panels (interior and exterior) shall be manufactured from coil coated steel meeting ASTM A-924, hot-dipped galvanized, and painted with a paint system on both sides of the panel. The base coat shall be a 0.2 to 0.25 mil coat of a polyurethane primer. The topcoat shall be a 0.7 to 0.8 mil coat of silicon protected polyester on the face side. The paint, on both sides of the panel, is to be baked on. The finished surfaces are to have a light wax coating applied after painting.

2.11 SECONDARY WALL FRAMING

- A. Wall framing shall be of conventional steel stud construction. Studs are to run vertically to represent common stud construction and be spaced at no more than 24 inches on center. Stud size and gage shall be determined by the design engineer, and shall accommodate all design criteria stated in other sections of this specification. All rough openings shall be framed in the conventional manner and provide fastening surfaces for all interior and exterior finishes and trims as provided with the building system.

2.12 SECONDARY ROOF FRAMING

- A. Roof framing shall be of conventional steel joist construction, Joists are to be spaced at no more than 24 inches on center and shall have a maximum span length of 14 ft. All rough openings shall be framed in the conventional manner and provide fastening surfaces for all floor and roof decks as provided with the building system.

2.13 WINDOW & DOOR LOCATIONS

- A. Window and door locations indicated on the drawings are suggested only. All such openings are to be field cut and with the exception of the stair wall, may be located according to preference.

2.14 WINDOW SHUTTERS

- A. All window openings shall be provided with a swinging shutter of the proper size for the opening. Framed opening studs/jambs shall be 16 ga. galvanized steel. Shutters for all areas shall be made with double skins of 18 ga. galvanized steel per ASTM A-924. Shutters will be provided as a 1-3/8" thick factory welded hollow metal assembly with a minimum of 3 vertical interior hat channel stiffeners and a 14 ga. hinge reinforcement. The hinges shall be ball-bearing swaged mortise mount, 4" x 4" x 5/32" thick stainless steel, commercial grade, and provided with the appropriate quantities per shutter. A hollow metal welded assembly shall be used to prevent premature temperature warping that occurs on single panel/sheet shutters. Galvanized shutters are required to prevent premature rusting. All shutters shall be provided with a galvanized hold open and an operating lever latch with handles on both the inside and outside of the shutter. This latch shall have a padlocking handle and its case shall be 1/8" thick zinc plated steel with a black powder coated finish. See the plans for the swing of each individual shutter.

2.15 DOORS

- A. Doors for all areas shall be double skins of 18 ga. galvanized steel (total thickness), per ASTM A-924, and shall be an insulated hollow metal swing doors with 3 stainless steel ball-bearing hinges and full weather stripping. Framed opening studs/jambs shall be 16 ga. galvanized steel. This 1 3/4" thick door shall have a baked-on enamel finish and will include a lockset. Locksets shall meet ANSI A156.2 Series 4000 Grade 2 certifications and shall be keyed alike.

2.16 PARAPET WALLS

- A. Parapet walls, if utilized, shall be designed to resist a load of 50 lb/ft and a concentrated point load of 200 lbs in any direction at the top. This wall shall incorporate a minimum of 12 ga. galvanized studs at one foot on center with 18 gage wall panels installed on both sides. The parapet shall incorporate an integral draining system that provides for uniform drainage without the need for a concrete roof covering.

2.17 SECONDARY FLOOR SYSTEM

- A. Interior decks shall be six inch wide, unpainted 18 ga. slip resistant galvanized steel per ASTM A-924, A-60 with recessed fasteners and shall meet the stated design load. Panels must have nominal 5" flats with a maximum 1" wide by 1" deep recesses (maximum 1" recess is required to prevent potential injuries). Panels must be brake formed at 90 degrees and provide inside radii no greater than 1/8". All floor and roof decks shall be framed with light gage steel "C" joists spaced at no more than 24 inches on center and shall have a maximum span length of 14 ft. Joists size and gage shall be determined by the design engineer and shall accommodate all design criteria

stated in other sections of this specification. Concrete floor covering shall be specified for the entire floor system. Concrete floor covering is by others.

- B. The concrete shall be a minimum of 1 1/2" thick and shall be fiber reinforced. The concrete shall be pitched toward exterior walls and doors. Even with concrete covering, the steel floor panels, located below, shall alone be designed to carry all of the required loads and shall still be a minimum of 18 ga. thick galv. steel. Concrete is prone to damage in high temperature burn areas and in unheated structures due to freeze/thaw conditions, therefore concrete cannot be used to increase the design strength of the steel floor panels/decks in fire training structures.

2.18 STAIRS AND ACCESSORIES

- A. Stair widths shall be a minimum of 3'-0" wide. Stair rails shall include 36" high handrails and 42" high guardrails on both sides of the stairs. Handrail extensions are not to be utilized to prevent unnecessary hazards when training. Stringers shall be plate, treads and platforms are bar grate, and risers to be open. Bar grate treads (19W4 x 1" deep) are to be factory attached to the stringers and shall include a diamond plate nosing. Stairs shall be designed to resist a loading of 100 psf and a concentrated tread load of 300 lbs/4 sq.in.
- B. Handrails and guardrails shall consist of schedule 40 - 1 1/4" I.D. (1.66" O.D.) round pipe and the openings between guardrails shall not exceed 12" (minimum of three horizontal rails required). Handrails and guardrails shall be designed to resist a linear load of 50 plf and a concentrated point load of 200 lbs. Guardrails on stairs shall be an all factory welded assembly. Guardrails at openings shall have a factory welded post assembly to allow for the attachment of horizontal rails and shall be a minimum of 42" high.
- C. Stairs, stringers, handrails, guardrails, bar grating, ladders, and platform frames shall be hot-dipped galvanized per ASTM A-123. All welds, holes, cutting, and bending must be made prior to hot-dip galvanizing.

2.19 WT-4/COMMISSIONER FEATURES

A. TOWER SECTION

1. 25'-0" x 30'-0" x 40'-0"
2. Flat Roof
3. Wind Load 115 MPH, Exposure C, Risk Category II
4. Roof Live Load 100 PSF
5. Interior Deck Live Load 100 PSF
6. Interior "U" shaped stairs to 4th floor
7. Interior fixed ships ladder, 4th floor to roof
8. 3' x 4' framed window openings with steel shutters (see drawings for Qty.)
9. 3' x 7' exterior steel door (see drawings for Qty.)
10. Parapet roof guard with exclusive roof drainage to the exterior of the building with chained openings

B. RESIDENTIAL SECTION

1. 22'-7" x 30'-0" x 30'-0"
2. Flat Roof
3. Wind Load 115 MPH, Exposure C, Risk Category II
4. Roof live load 100 PSF
5. Floor live load 100 PSF
6. Interior straight stair to third floor
7. 3' x 4' framed window openings, with steel shutters (see drawings for Qty.)
8. 3' x 7' interior steel door (see drawings for Qty.)
9. 3' x 7' exterior steel doors (see drawings for Qty.)
10. Parapet roof guard with exclusive roof drainage to the exterior of the building with chained openings

2.20 ADDITIONAL FEATURES TO BE INCLUDED

A. Cantilevered Balcony

1. Cantilevered balcony shall be constructed of prime painted structural tube and hot-dipped galvanized joists and bar grate deck.
2. Balcony to be approximately 4'-0" wide x 23'-10" long.
3. Balcony shall be cantilevered, without any support columns.
4. Shall include one door to the interior.
5. Perimeter railing shall be 1.25" I.D. (1.66" O.D.) schedule 40 hot-dipped galvanized round pipe.

B. Recessed/Inset Balcony

1. Recessed/inset balcony on the 2nd floor(s) with 1.25" I.D. (1.66" O.D.) schedule 40 hot-dipped galvanized round pipe perimeter railings and access door to interior.

C. Roof Hatch

1. Provide a Bilco 2'-6" x 4'-6" roof hatch in the tower roof. The hatch shall be equipped with compression spring operators, positive latching mechanism, automatic hold open arm, and shall be galvanized steel with prime paint covering.

2. Caged Ladder

1. A caged ladder shall extend from *the residence roof to the tower roof*. The unit shall be constructed of tubular rails and bar steps. The cage is to be made of steel strap and the entire unit is to be provided hot-dipped galvanized.

3. Riser System

1. Brass Siamese fire department connection (4" x 2 ½" x 2 ½"; NST thread) located at the exterior of the tower, with galv. interior 4" diameter riser (34' high).
2. Include a connection (2.5" NST thread) on the towers interior at each deck level and a connection for future sprinklers at each floor.

4. Bilco Floor Door 3'-0" x 3'-0"

1. Provide a Bilco 3'-0" x 3'-0" floor door in the 2nd and 3rd floors.
2. The door shall be rated for 300 psf live load with a ¼" thick diamond plate cover.
3. It shall be hot-dipped galvanized and equipped with both a compression spring lifting mechanism and a hold open arm. – (2) total floor door(s) required

2.21 DESIGN, DRAWINGS & DATA

- A. The supplier shall be responsible for providing the design exclusive of the foundation. The supplier shall submit structural building design calculations, shop drawings, 2 sets of drawings detailing anchor bolt loadings and locations as well as general plans, elevations, structure sections and related details signed and sealed by a New Jersey structural engineer for review and approval. The supplier will submit 2 sets of assembly (steel erection) drawings and 2 sets of assembly manuals concurrent with the shipment of materials. Building parts shall each be identified by individual part numbers clearly written on or attached to the part. Part numbers in the assembly manual shall coincide with the suppliers shop drawings.

2.22 DELIVERY, INSPECTION & STORAGE

- A. All components, assembly manual, and accessories shall arrive via flat bed trailer. Materials for the burn room may arrive separately via common carrier. Inventory of delivered materials must be taken during delivery or shortly thereafter. Damage to, or shortages noted during delivery must be noted on the freight bill and reported at once to the manufacturer. All claims for damages or shortages must be reported within 48 hours of delivery. Security and materials protection in storage is the responsibility of the receiving party. Materials packaged in small cartons must be stored in a secured area to prevent theft and/or damage by the elements. Materials stored outside must be stacked on pallets and covered with suitable waterproof coverings (not plastic).
- B. Store products in manufacturer's unopened packaging until ready for installation.
- C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

2.23 WARRANTY

A. General Warranty

1. The tower supplier shall certify that the training tower and its components have been designed to meet the contract specifications.
2. The tower supplier shall warrant the materials and components to be free of fabricating defects for a period of one year from the date of shipment.
3. Any pre-engineered structure will require the erector to furnish a certain amount of field fabrication and / or modifications as stated in the manufacturer's written instructions/assembly manual.
4. Sections of work requiring field cutting or drilling are indicated on the drawings or in the assembly manual.
5. Other field modifications may be necessitated by site conditions beyond the manufacturer's control. The foregoing are not subject to warranty.

B. Paint Warranty

1. The paint system shall provide a 30/25 year limited warranty on paint finish, which includes chalking and breakdown of film integrity.

C. Structure Warranty

1. A 5-year limited warranty shall be provided on the structure itself.

2.24 SUBMITTALS

A. General: Submit the following in accordance with the Conditions of the Contract and Division 1 Specification Sections:

1. Submit under provisions of Section 013000 - Administrative Requirements.
2. Design Data: Provide detailed shop drawings, structural design criteria and calculations prepared by a licensed New Jersey structural engineer. Shop drawings shall demonstrate compliance with the design criteria detailed on Sheet S-1.
3. Certification: Manufacturer certification that the building conforms to the contract documents and manufacturer's standard design procedures.
4. Shop Drawings: Show building layout, primary and secondary framing member sizes and locations, cross-sections, and product and connection details.
5. Product Data: Information on manufactured products to be incorporated into the project.
6. Samples of the manufacturer's standard color charts covering both the siding colors and the door and window trim colors shall be furnished to the owner.
7. Verification Samples: For each finish product specified, two samples, minimum size 6 inches square, representing actual product, color, and patterns.
8. Certificates: Welder certifications.

B. QUALITY ASSURANCE

1. Manufacturer Qualifications: The manufacturer shall have a minimum of 10 years successful experience in designing and manufacturing Training Towers of similar size and scope as project requires.
2. Member of the Metal Building Manufacturer's Association (MBMA).
3. Engineering Professional Qualifications: The engineering professional who designs the structure for the project must be registered in the State of New Jersey.

2.25 SUPPLIERS/SYSTEMS

A. Manufacturer:

- a. Tactical Training Systems, 314 Wilburn Road, Sun Prairie, WI, 53590, Phone: 800/929-3726 or 608/327-4100, Fax: 866/639-7012 or 608/834-1843, E-mail: info@tacticaltrainingsystems.com, Website: www.tacticaltrainingsystems.com
- b. WHP Trainingtowers; 519 Duck Road, Grandview, MO 64030. TEL: (800) 351-2525 or (913) 385-3663. FAX: (800) 736-7594. Email:info@trainingtowers.com Website:www.trainingtowers.com
- c. Or equivalent

B. Alternate Suppliers/Systems:

- a. For all systems/materials in question, the supplier/contractor shall provide samples, structural calculations, written specifications, warranties, full set of drawings, and MSDS.
- b. Submittal package should include but not limited to doors, door frames, hardware, shutters, and paint
- c. Provide an itemized list, specifically referencing each item of this specification section where the proposed substitution deviates from the specified product.
- d. In any case, all performance and warranty criteria stated herein must be met without exception.

PART 3 - EXECUTION

3.1 GENERAL: Comply with the manufacturers recommendations for preparation and storage of the tower components.

- 3.2 Verification of Conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper and or timely completion.
- 1. Verify foundations are properly installed, to correct dimensions and within acceptable tolerances.
 - 2. Verify location of covered or built-in work.
 - 3. Do not proceed until unsatisfactory conditions have been corrected.

3.3 PREPARATION

- A. Framing Erection: Erect framing in compliance with AIS Specification and the latest edition of the MBMA metal building systems manual.
- B. Provide for erection and wind loads. Provide temporary bracing to maintain structure plumb and in alignment until completion of erection and installation of permanent bracing. Locate braced bays as required by manufacturer.

3.4 EXAMINATION: Verify that concrete work has cured a minimum of 14 days. Verify that anchor bolts are at the proper spacing and protrude the proper amount above the concrete. Report any variances to the owner's representative prior to proceeding with erection.

3.4 ERECTION: Follow the manufacturer's written instructions/assembly manual and details supplied by the manufacturer. Report any discrepancies to the manufacturer prior to proceeding.

- A. Do not field cut or alter structural members without written approval.
- B. After erection, prime welds, abrasions, and surfaces not primed with primer used in shop painting.

3.5 INSTALLATION

- A. Install in compliance with manufacturer's instructions and approved submittals.
 - 1. Exercise care when cutting prefinished material to ensure cuttings do not remain on finish surface.
 - 2. Fasten cladding system to structural supports, aligned level and plumb.
 - 3. Locate end laps over supports. End lap panels according to manufacturer's recommendations. Place side laps over adjacent panel and mechanically seam or stitch fastener per erection guidelines.
 - 4. Provide expansion joints where indicated.
 - 5. Use concealed fasteners.
 - 6. Install sealant and gaskets to prevent weather penetration.
 - 7. Install system free of rattles, noise due to thermal movement, and wind whistles.
 - 8. Install door frames, service doors, overhead doors, window and glass, and gutter system in compliance with manufacturer's instructions.
 - 9. Seal wall and roof accessories watertight and weather tight with sealant in compliance with building manufacturer's standard procedures.
 - 10. Rigidly support and secure gutters and downspouts. Joint lengths with formed seams sealed watertight. Flash and seal gutters to downspouts.

3.5 FIELD QUALITY CONTROL

- A. Defective Work: Materials, components and assemblies not complying with the manufacturer's installation recommendations shall be repaired or replaced, at the option of the manufacturer.
- B. INSPECTION:
 - 1. Verify that all bolted connections are tight, self-drilling screws with integral washers are seated snugly without washer distortion and rivets have not pulled through the attached materials. Replace improperly set or damaged fasteners.

2. Inspect all panels, trims and accessories for proper installation and fit. Replace any item which is damaged, warped or distorted. Insure that all field mitered corners fit tightly and smoothly.

C. ADJUSTING

1. Adjust all shutters, swing doors and hatches so that they swing smoothly without binding and so that the appropriate hardware latches without forcing or slamming. Insure that all closures are adjusted so that they close smoothly.
2. Check all electrical and mechanical devices to make sure that they are working properly. Fans must be tested and demonstrated as working at all speeds.

D. CLEAN-UP

1. At the end of each day check the site and pick all debris and garbage. Insure that all materials are secured in a neat and orderly fashion.
2. Thoroughly clean the tower inside and out at the completion of the erection process to remove all debris, garbage, packing materials, metal shavings and dirt.

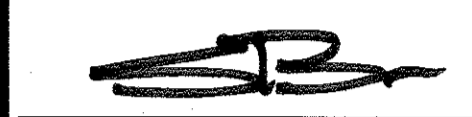
END OF SECTION



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NJ PROFESSIONAL ENGINEER No. 24GE04150700
NJ PROFESSIONAL PLANNER No. 33J00555700
NJ REGISTERED ARCHITECT No. 21A01487200

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

PROJECT:

CAMDEN COUNTY COLLEGE
SMOKE TOWER STRUCTURE
CAMDEN COUNTY FIRE ACADEMY AT THE
REGIONAL EMERGENCY TRAINING CENTER
420 NORTH WOODBURY-TURNERSVILLE ROAD
BLACKWOOD, NEW JERSEY 08012

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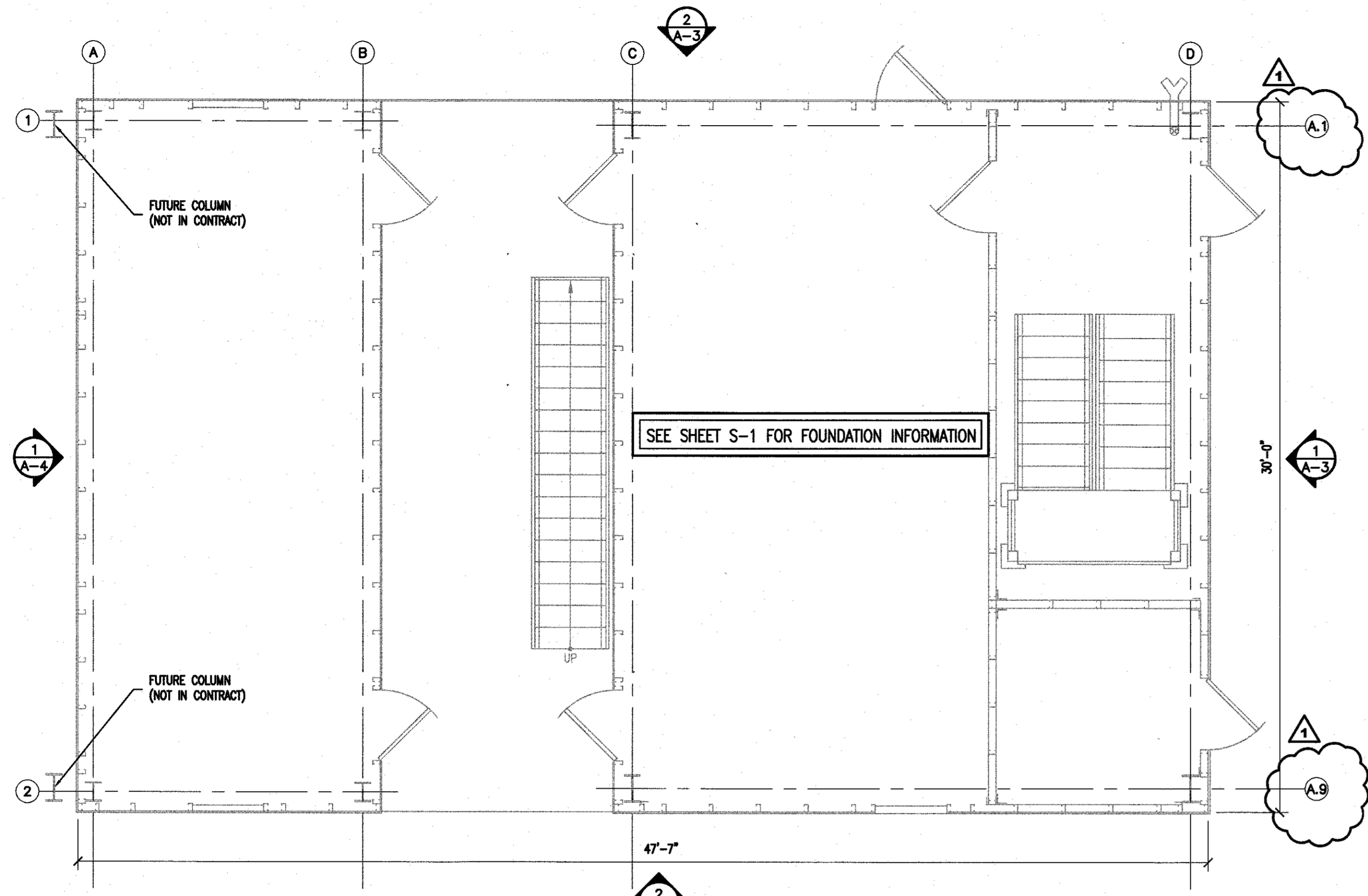
REVISIONS		
NO.	DESCRIPTION	DATE
1	PLANS REVISED - ADDENDUM NO. 1	06/24/24

DRAWING TITLE:

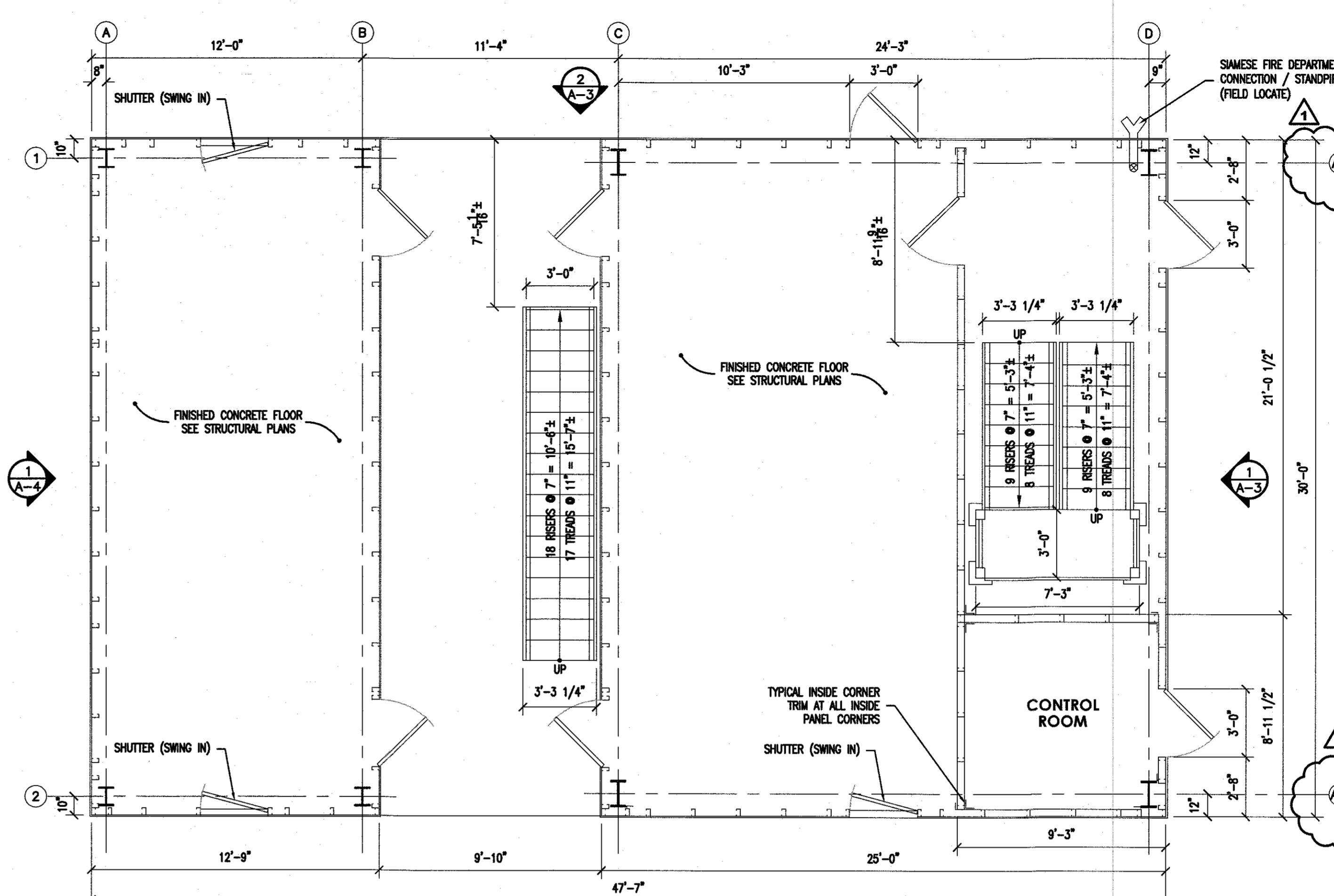
FLOOR PLANS

JOB NO: CCC2023-01	DESIGNED BY: DM3
DATE: MAY 30, 2024	DRAWN BY: DM3
SCALE: AS NOTED	CHECKED BY: SMB
DRAWING NUMBER:	

A-1

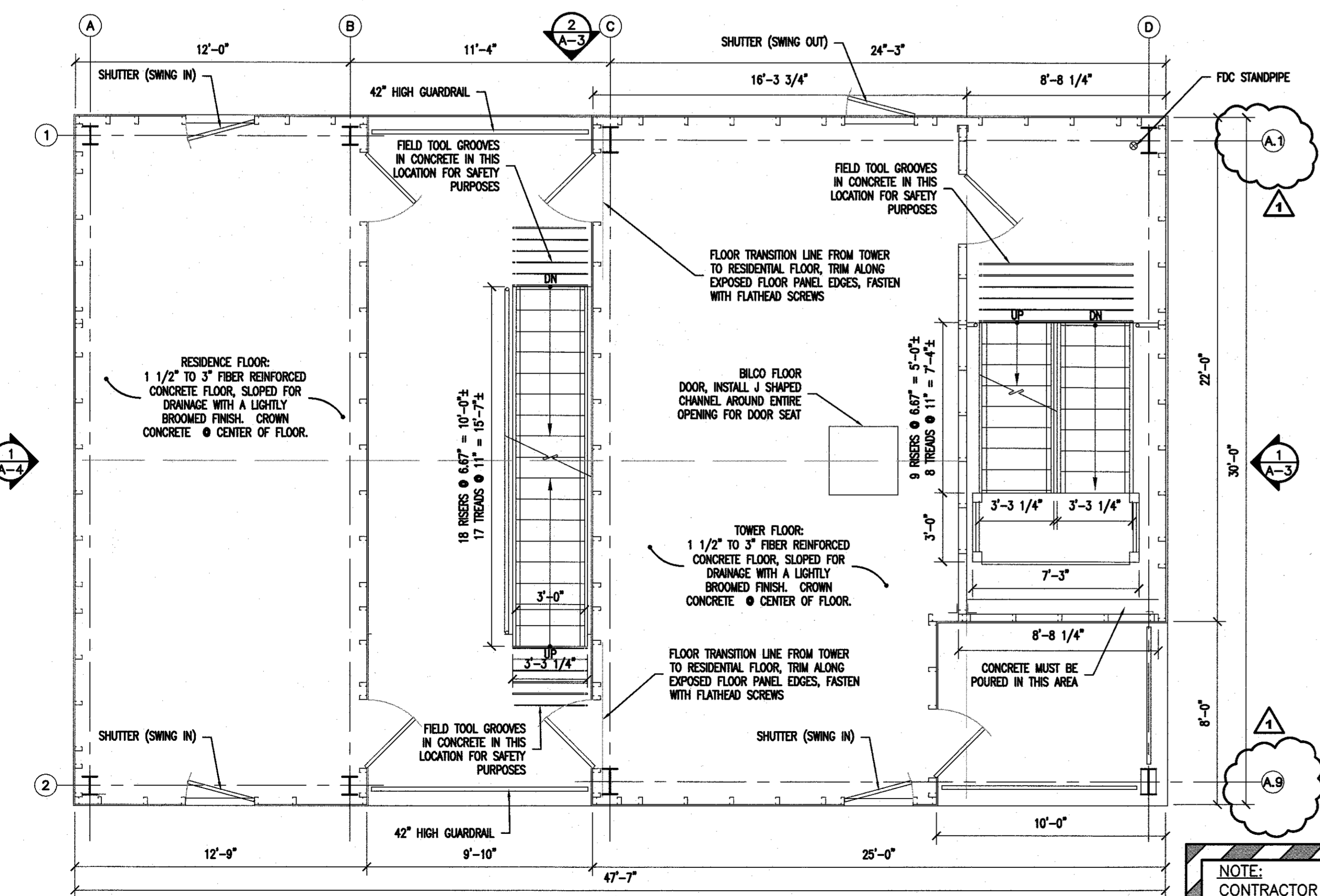


1 FOUNDATION PLAN
SCALE: 1/4" = 1'-0"



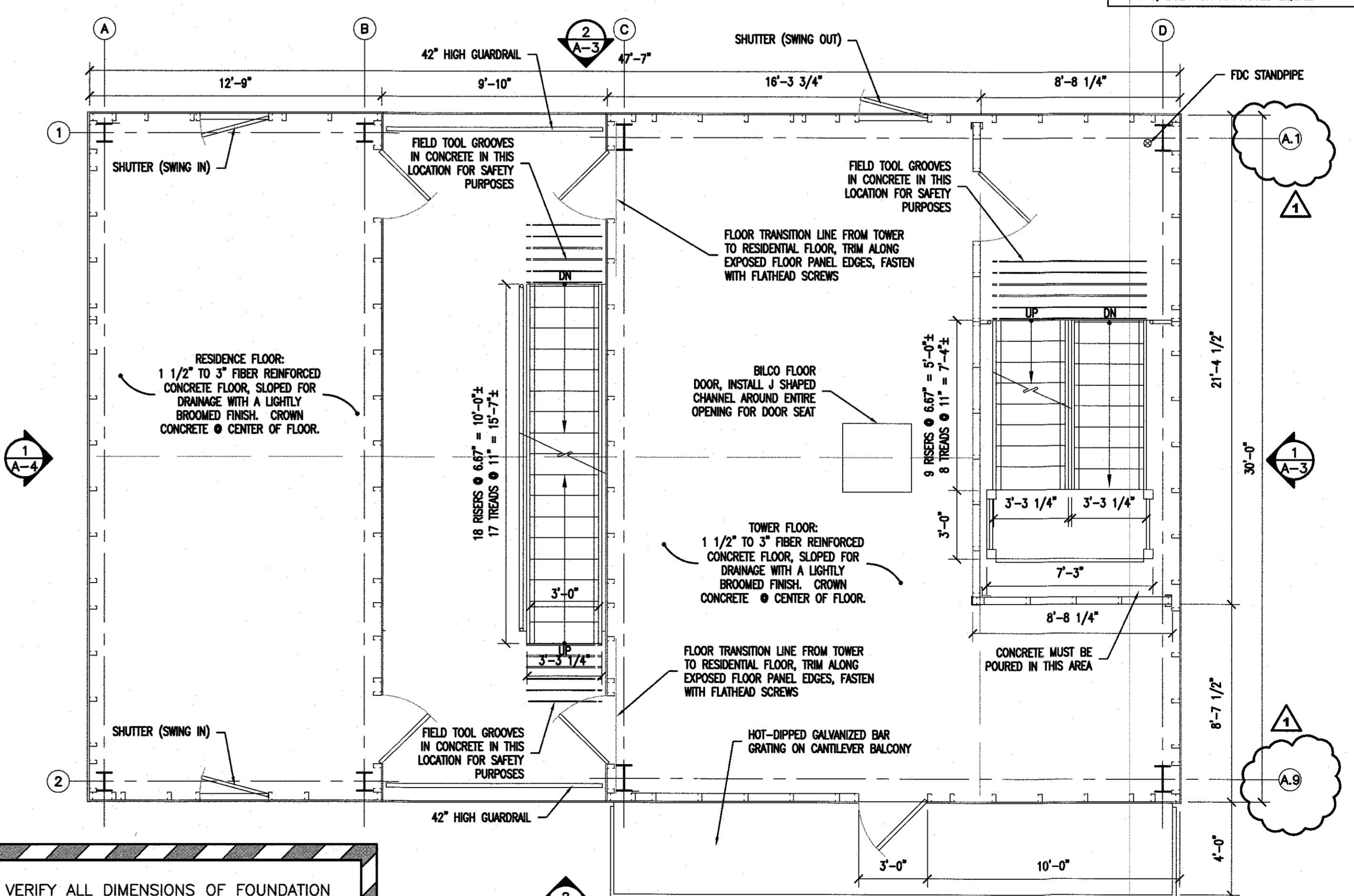
2 FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"

NOTE:
BURN TRAINING STRUCTURE, TACTICAL TRAINING SYSTEMS, A DIVISION OF FIRE FACILITIES, INC., 314 WILBURN ROAD, SUN PRAIRIE, WI 53590 608-327-4400, WESCO MODEL WT-4, DATED APRIL 1, 2024 OR APPROVED EQUAL.



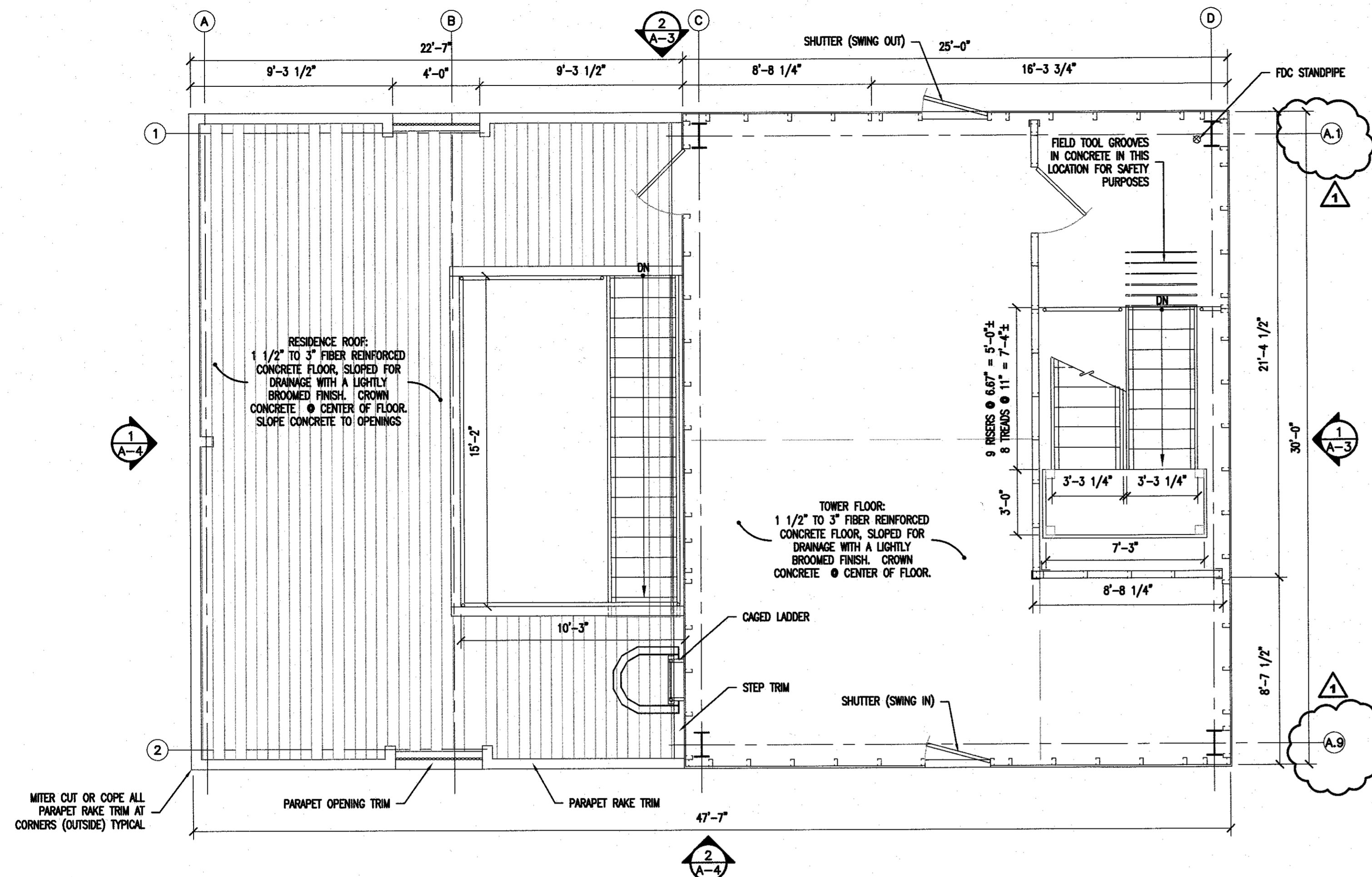
3 SECOND FLOOR PLAN
SCALE: 1/4" = 1'-0"

NOTE:
CONTRACTOR TO VERIFY ALL DIMENSIONS OF FOUNDATION PLAN / DETAILS AND PRE-ENGINEERED STRUCTURE PRIOR TO CONSTRUCTION. FOUNDATION DIMENSIONS ARE BASED ON THE PRE-ENGINEERED ARCHITECTURAL SET PREPARED BY FIRE FACILITIES, INC.

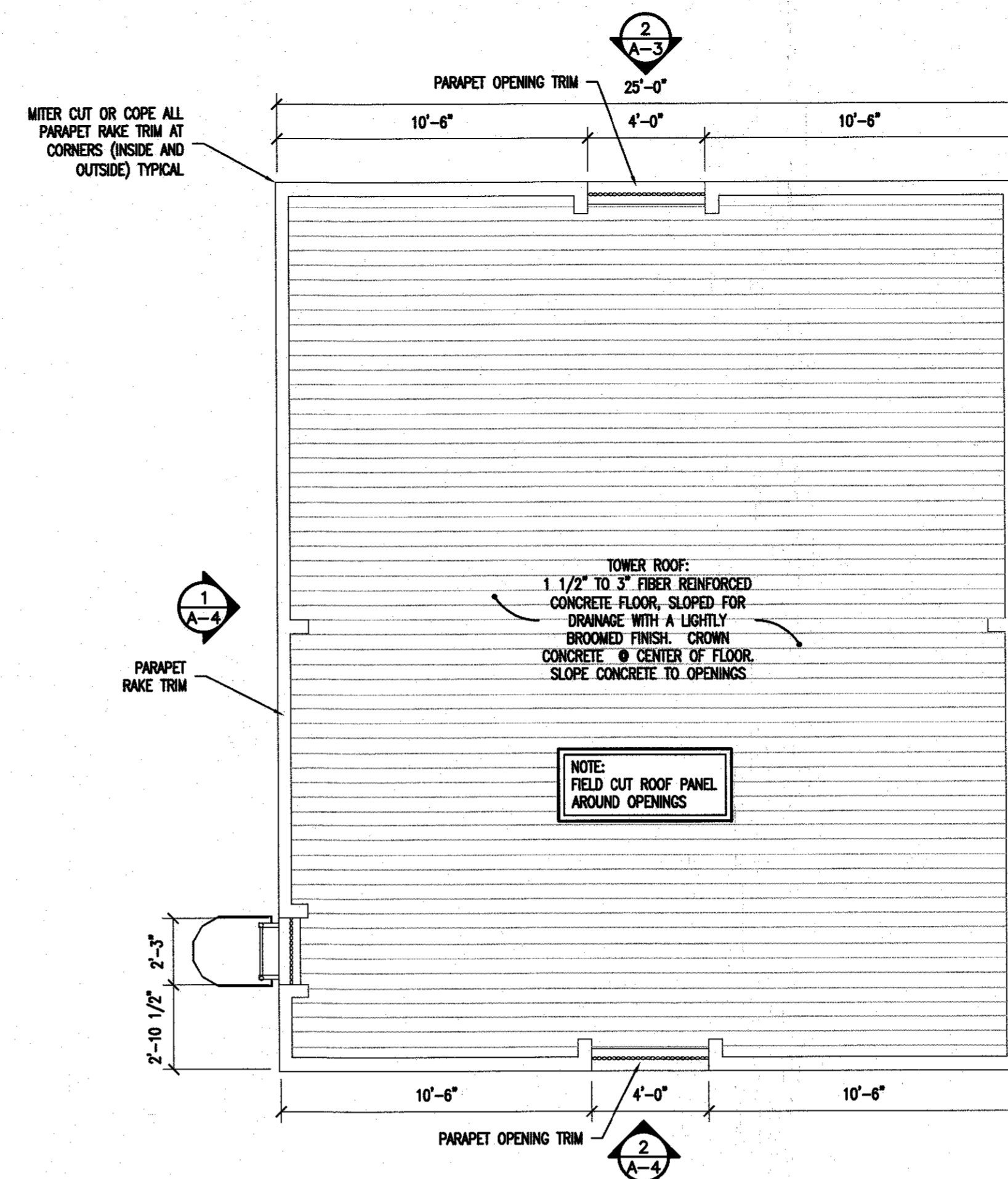


4 THIRD FLOOR PLAN
SCALE: 1/4" = 1'-0"

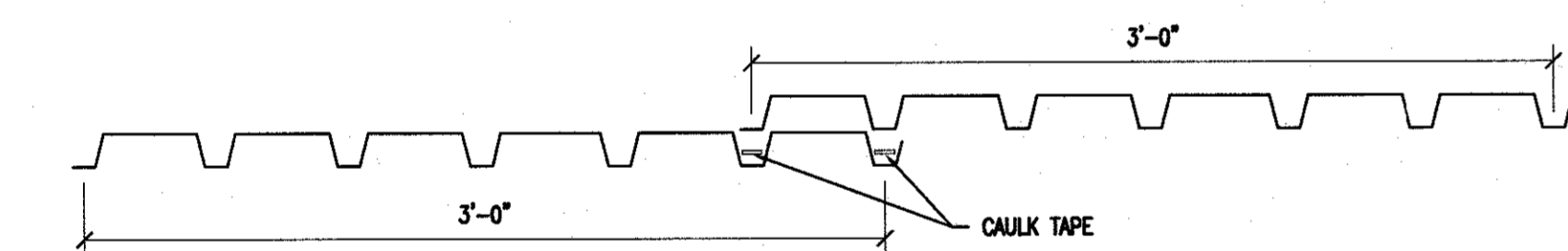
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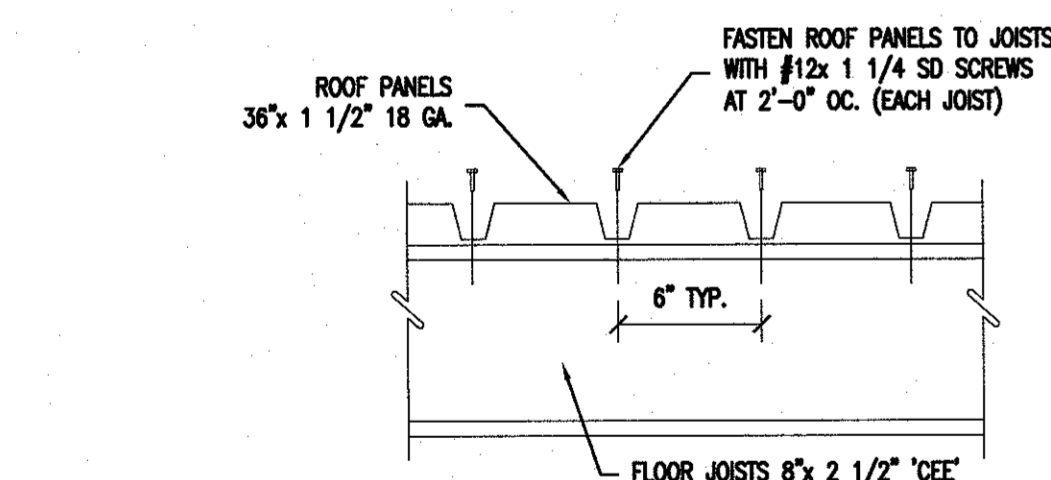
1 FOURTH FLOOR / ROOF PLAN
SCALE: 1/4" = 1'-0"



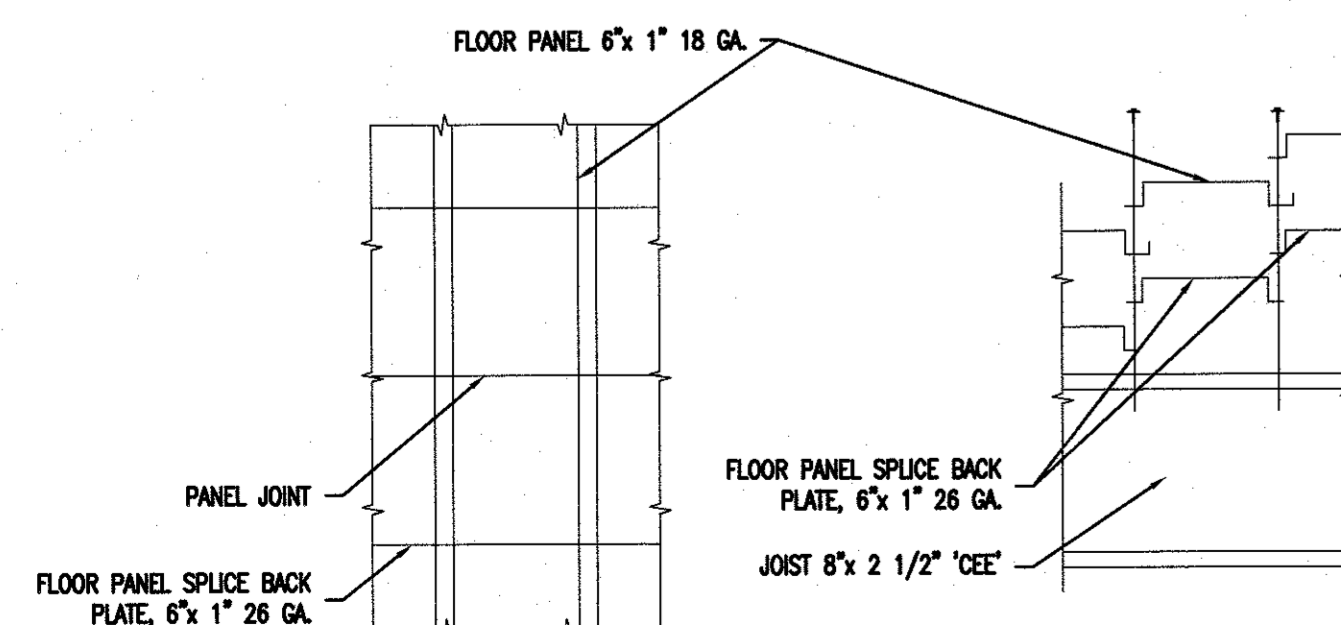
2 ROOF PLAN
SCALE: 1/4" = 1'-0"



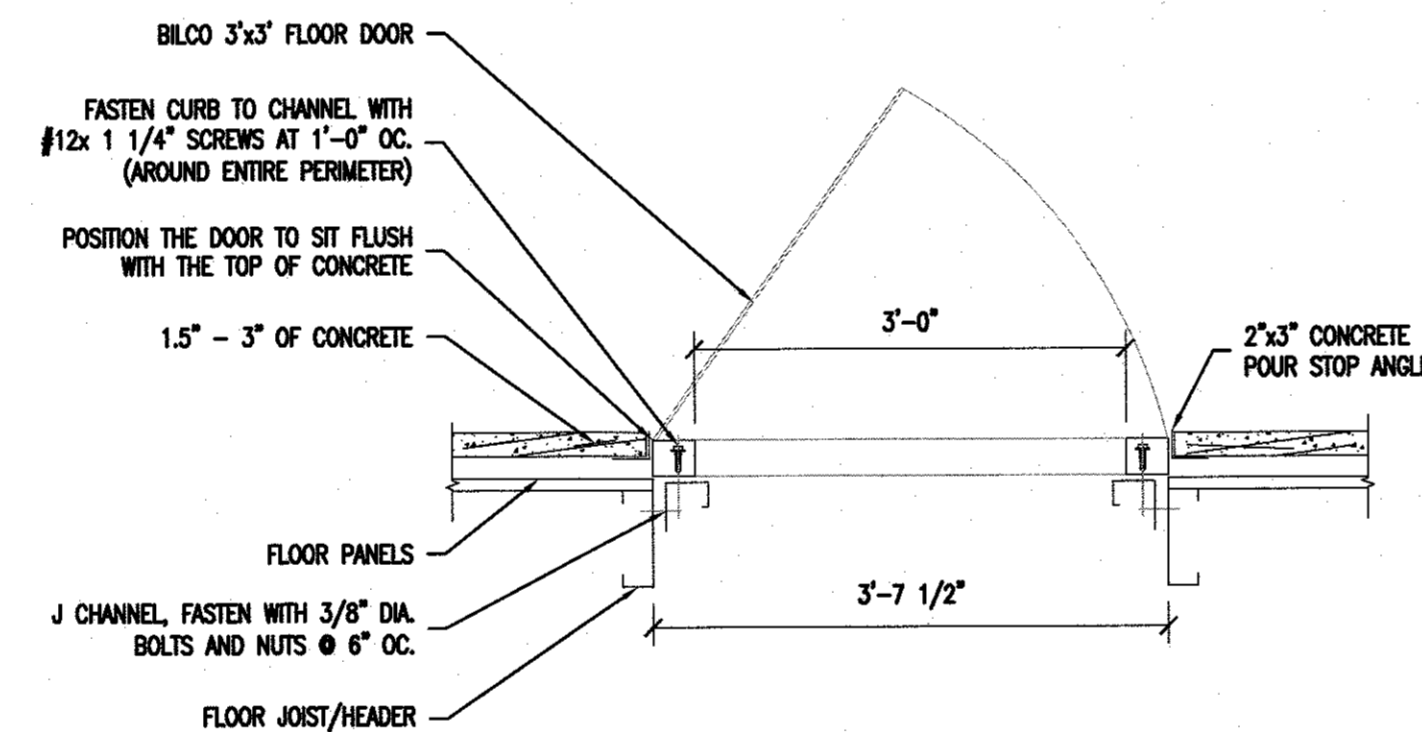
3 TYPICAL ROOF PANEL OVERLAP
SCALE: NOT TO SCALE



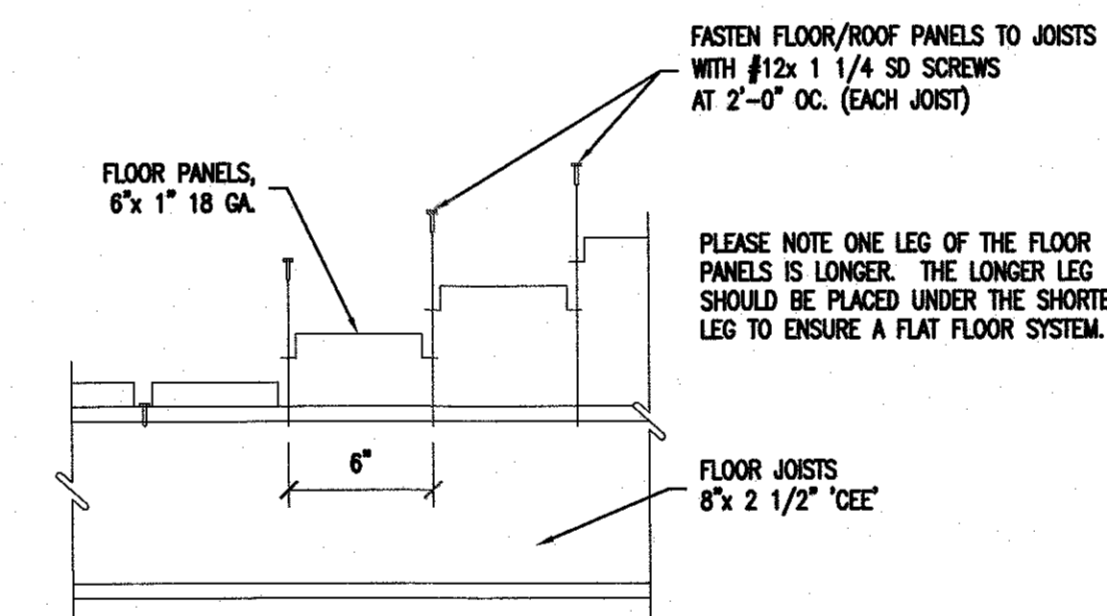
7 TYPICAL ROOF PANEL FASTENING DETAIL
SCALE: NOT TO SCALE



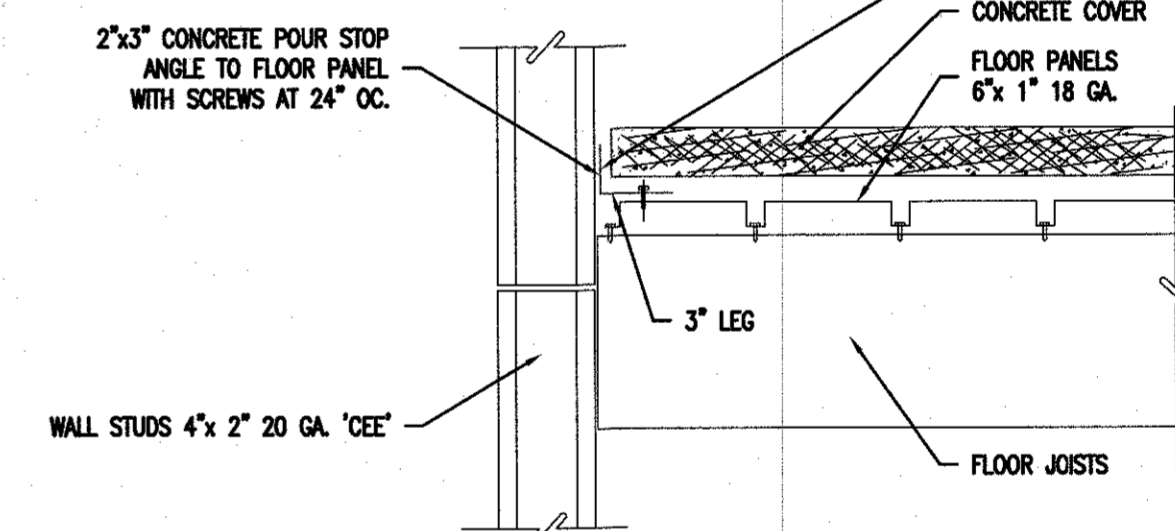
8 FLOOR PANEL SPLICE PLATE
SCALE: NOT TO SCALE



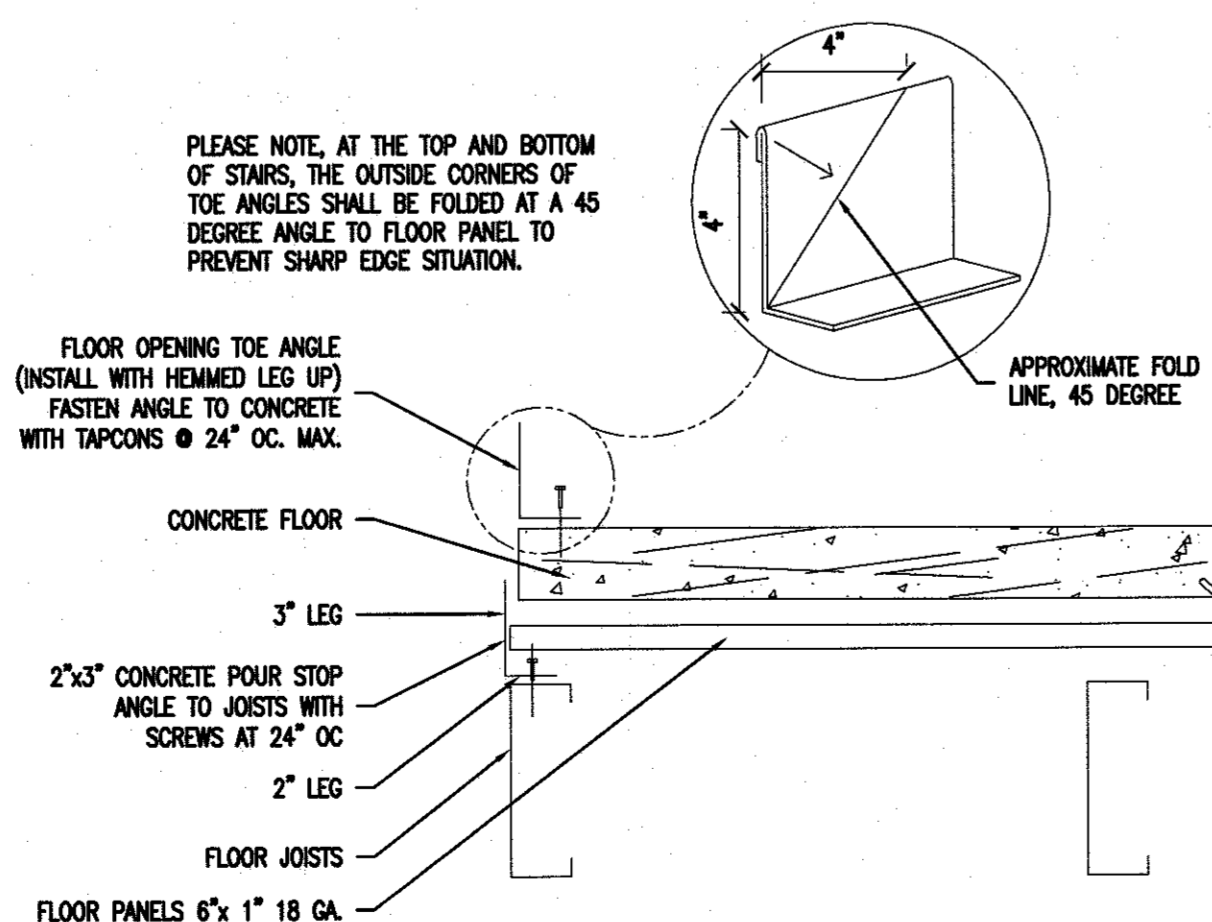
4 3'x3' BILCO FLOOR DOOR DETAIL
SCALE: NOT TO SCALE



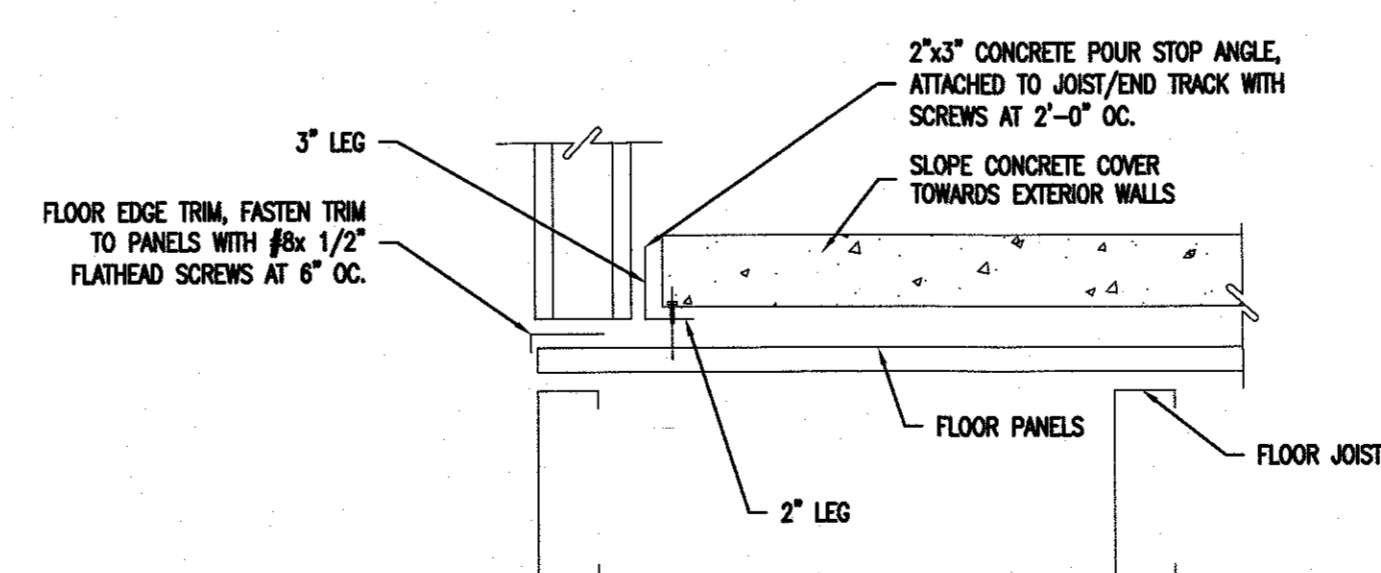
5 TYPICAL FLOOR PANEL FASTENING DETAIL
SCALE: NOT TO SCALE



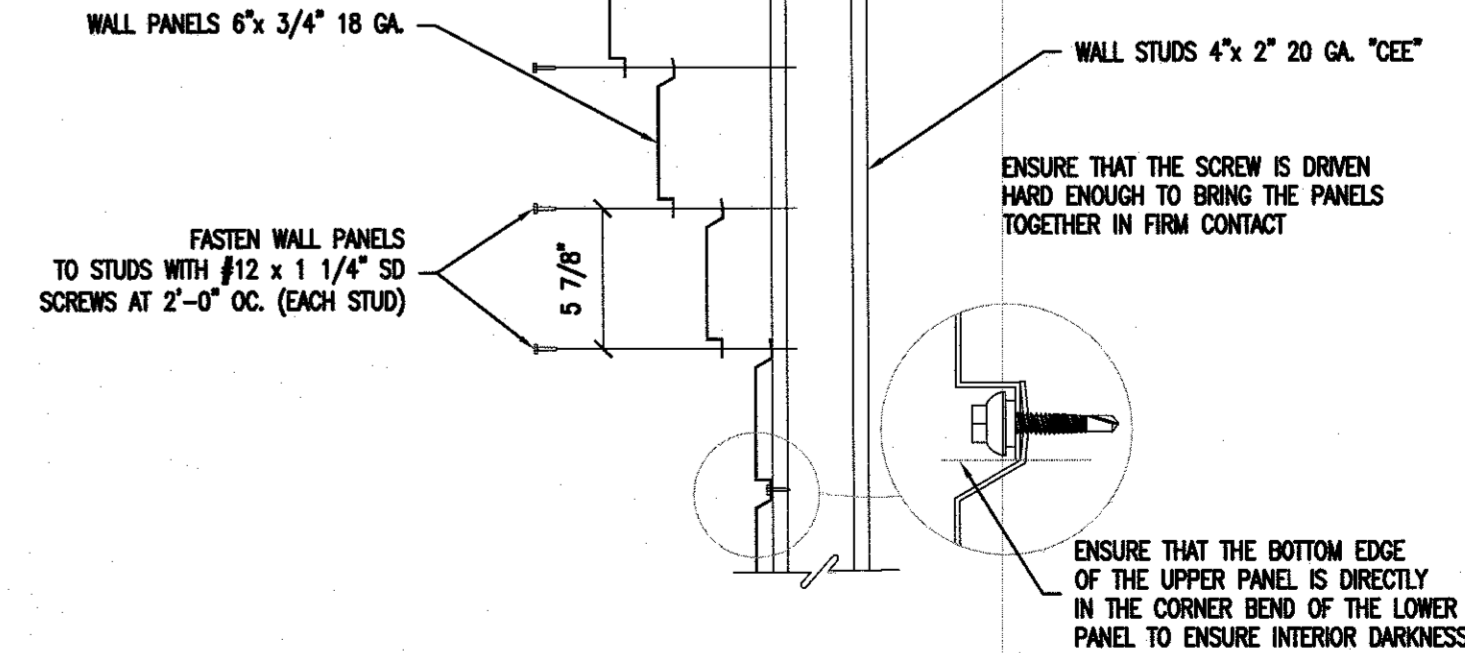
6 TYPICAL FLOOR EDGE TRIM DETAIL
SCALE: NOT TO SCALE



9 TYPICAL FLOOR OPENING TRIM DETAIL AT GUARD RAILS
SCALE: NOT TO SCALE



10 ENCLOSED STAIR OPENING DETAIL
SCALE: NOT TO SCALE



11 TYPICAL WALL PANEL FASTENING DETAIL
SCALE: NOT TO SCALE

NOTES:

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ALL SHUTTERS IN THE BURN STRUCTURE TO SWING IN.

WALL PANEL MUST BE FIELD CUT AROUND FRAMING OPENINGS.

TRIMS ARE IN STANDARD 10 FOOT LENGTHS, SOME FIELD CUTTING OF TRIMS IS REQUIRED.

SMOKE TOWER STRUCTURE DIMENSION ARE TAKEN FROM STEEL BEAMS OR METAL STUDS.

CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO METAL BUILDING FABRICATION.



BACH Associates, PC
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SEALS:



STEVEN M. BACH, PE, RA, PP, CME
NJ PROFESSIONAL ENGINEER No. 24604150700
NJ PROFESSIONAL PLANNER No. 33J0055700
NJ REGISTERED ARCHITECT No. 21A01487200

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

PROJECT:

CAMDEN COUNTY COLLEGE
SMOKE TOWER STRUCTURE
CAMDEN COUNTY FIRE ACADEMY AT THE
REGIONAL EMERGENCY TRAINING CENTER
420 NORTH WOODBURY-TURNERSVILLE ROAD
BLACKWOOD, NEW JERSEY 08012

ALL DOCUMENTS PREPARED BY BACH ASSOCIATES, PC ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY BACH ASSOCIATES, PC FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO BACH ASSOCIATES, PC AND OWNER SHALL INDEMNIFY AND HOLD BACH ASSOCIATES, PC FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

REVISIONS		
NO.	DESCRIPTION	DATE
1	PLANS REVISED - ADDENDUM NO. 1	06/24/24

DRAWING TITLE:
4TH FLOOR, ROOF PLANS AND DETAILS

JOB NO: CCC2023-01	DESIGNED BY: DM3
DATE: MAY 30, 2024	DRAWN BY: DM3
SCALE: AS NOTED	CHECKED BY: SMB
DRAWING NUMBER:	

A-2

1. STRUCTURAL CONSTRUCTION DOCUMENTS SHALL BE USED WITH OTHER CONSTRUCTION DOCUMENTS, INCLUDING ARCHITECTURAL AND SITE DOCUMENTS. COORDINATE WITH THESE DOCUMENTS FOR LOCATIONS AND DIMENSIONS NOT INDICATED ON THE STRUCTURAL DOCUMENTS.
2. ALL DIMENSIONS AND CONDITIONS SHALL BE FIELD VERIFIED. THE ENGINEER SHALL BE NOTIFIED OF DISCREPANCIES PRIOR TO PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.
3. SECTIONS AND DETAILS SHOWN ON ANY STRUCTURAL DOCUMENTS SHALL BE CONSIDERED TYPICAL FOR SIMILAR CONDITIONS THAT DO NOT HAVE A SPECIFIC SECTION INDICATED, AND SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
4. APPLICABLE FEDERAL, STATE AND MUNICIPAL REGULATIONS SHALL BE FOLLOWED, INCLUDING THE FEDERAL DEPARTMENT OF LABOR OSHA.
5. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED ON THE STRUCTURE. CONSTRUCTION LOADS SHALL NOT EXCEED THE SPECIFIED DESIGN LOADS. CONCRETE FOUNDATIONS SHALL NOT BE LOADED UNTIL THE CONCRETE HAS REACHED AT LEAST 75% OF THE SPECIFIED DESIGN COMPRESSIVE STRENGTH.
6. IN THE ABSENCE OF SPECIFIC INSTRUCTIONS TO THE CONTRARY IN THE CONTRACT DOCUMENTS, THE TRADE PRACTICES THAT ARE DEFINED IN ANY CODE OF STANDARD PRACTICE SHALL GOVERN.

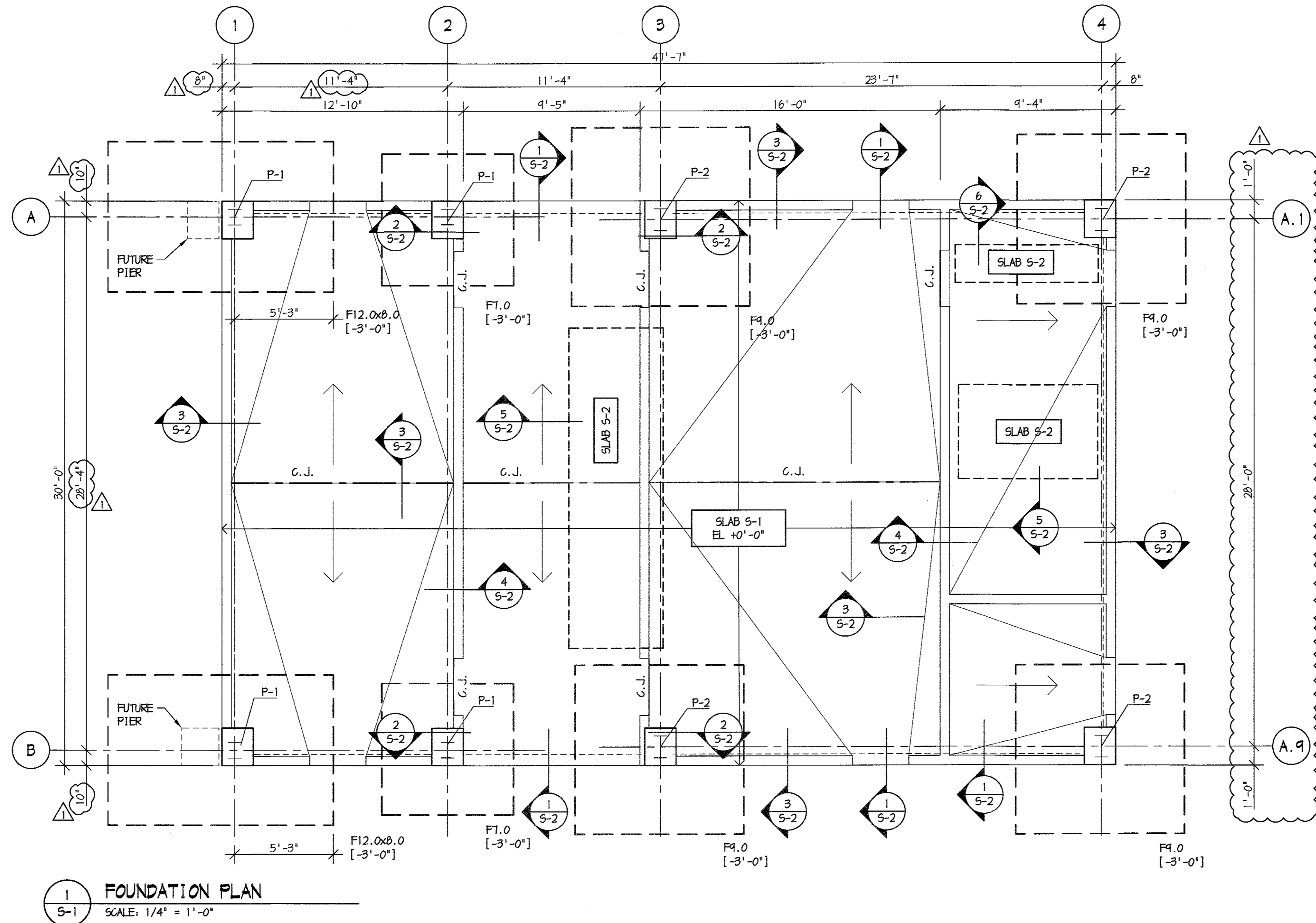
1.	DESIGN LOADS ARE IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE, NEW JERSEY EDITION, ASCE 7-16 AND LOCAL CODE.	
2.	DESIGN DEAD LOADS	
	ROOF	50 PSF
	FLOORS	50 PSF
3.	DESIGN LIVE LOADS	
	ROOF	100 PSF
	FLOORS	100 PSF
4.	OCCUPANCY GROUP = U (UTILITY & MISCELLANEOUS)	
	RISK CATEGORY = II	
5.	SNOW LOADING IS BASED ON THE FOLLOWING.	
	GROUND SNOW LOAD (P_g)	20 PSF
	FLAT-ROOF SNOW LOAD (P_f)	16.0 PSF
	SNOW EXPOSURE FACTOR (C_e)	1.0
	SNOW LOAD IMPORTANCE FACTOR (I)	1.0
	SNOW THERMAL FACTOR (C_t)	1.2
6.	WIND LOADING IS BASED ON THE FOLLOWING:	
	ULTIMATE WIND SPEED (3 SEC GUST)	115 MPH
	NOMINAL WIND SPEED	89.1 MPH
	WIND IMPORTANCE FACTOR	1.0
	WIND EXPOSURE	C
7.	SEISMIC LOADING IS BASED ON THE FOLLOWING:	
	SEISMIC IMPORTANCE FACTOR	1.0
	SPECTRAL RESPONSE ACCEL. (S_s)	0.170g
	SPECTRAL RESPONSE ACCEL. (S_1)	0.046g
	SITE CLASS (PRESUMED)	D
	SPECTRAL RESPONSE COEFF. (S_{ds})	0.181
	SPECTRAL RESPONSE COEFF. (S_{d1})	0.073
	SEISMIC DESIGN CATEGORY	B

1. FOUNDATIONS HAVE BEEN DESIGNED BASED UPON THE GEOTECHNICAL ENGINEERING REPORT PREPARED BY DIGNO ENGINEERING, DATED FEBRUARY 23, 2024.
2. SPREAD FOOTINGS SHALL BEAR ON UNDISTURBED SOIL OR COMPACTED STRUCTURAL FILL HAVING A MINIMUM SAFE BEARING CAPACITY OF 3,000 PSF.
3. THE BOTTOMS OF EXTERIOR FOOTINGS SHALL BE 36 IN. MINIMUM BELOW FINISHED GRADE.
4. EDGES OF FOOTINGS SHALL NOT BE PLACED AT A GREATER THAN 1 (VERTICAL) TO 2 (HORIZ) SLOPE WITH RESPECT TO ANY ADJACENT FOOTING OR EXCAVATION.
5. FOUNDATION CONCRETE SHALL BE NORMAL HEAVY HAVING A MINIMUM 28 DAY DESIGN COMPRESSIVE STRENGTH AS FOLLOWS:

SPREAD FOOTINGS & PIERS	3000 PSI
SLAB-ON-GRADE (EXTERIOR)	4500 PSI, 0.45 W/C MAX.
6. PROVIDE 6% (± 1 ") AIR-ENTRAINMENT IN ALL CONCRETE.

1. THE BUILDING SITE SHALL BE STRIPPED OF ANY TOPSOIL, ORGANIC MATTER, VEGETATION, FILL MATERIALS, AND OTHERWISE UNSUITABLE OR SOFT SUBGRADE MATERIALS.
2. EXCAVATION SHALL EXTEND A MINIMUM OF 24 INCHES BELOW GRADE, AS INDICATED IN THE GEOTECHNICAL ENGINEERING REPORT PROVIDED IN THE SPECIFICATIONS BOOK.
3. THESE UNSUITABLE MATERIALS SHALL BE EXCAVATED DOWN TO RESIDUAL SOIL ELEVATIONS, UNDER THE DIRECTION OF THE APPROVED INSPECTION AGENCY, AND THE EXCAVATION BACKFILLED WITH COMPACTED STRUCTURAL FILL. SOIL BEARING CAPACITY SHALL BE VERIFIED BY THE APPROVED INSPECTION AGENCY PRIOR TO BACKFILLING EXCAVATIONS.
4. COMPACTED STRUCTURAL FILL SHALL CONSIST OF ML OR BETTER MATERIAL (ASTM D2487-11) WITH A MAXIMUM PARTICLE SIZE OF 3 INCHES, AND SHALL BE PLACED ON APPROVED SUBGRADE IN LIFTS NOT EXCEEDING 8 INCHES IN LOOSE THICKNESS, AND SHALL BE COMPACTED TO AT LEAST 98% OF THE MAX. DRY DENSITY CORRESPONDING TO ASTM D698, STANDARD PROCTOR.
5. AT SLAB-ON-GRADE AREAS, FOLLOWING STRIPPING, THE SUBGRADES SHALL BE PROFFERROLLED WITH A LOADED TANDEN AXLE PUMP TRUCK OR TEN-TON ROLLER UNDER OBSERVATION OF THE APPROVED INSPECTION AGENCY. AREAS WHICH EXHIBIT EXCESSIVE PUMPING OR HEAVING AS DETERMINED BY THE APPROVED INSPECTION AGENCY SHALL BE REMOVED AND REPLACED WITH NEW COMPACTED STRUCTURAL FILL.
6. COMPACTED FILL SHALL BE USED TO RAISE EXISTING GRADES TO THE PROPOSED NEW ELEVATION, WHERE REQUIRED. A 4 INCH WASHED GRAVEL OR CRUSHED STONE DRAINAGE LAYER CORRESPONDING TO AASHTO SIZE NO. 57 AGGREGATE SHALL BE USED BENEATH THE SLAB-ON-GRADE.

1. REINFORCED CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318-14.
2. CONCRETE REINFORCING SHALL CONFORM TO THE FOLLOWING DESIGNATIONS:
 DEFORMED BARS ASTM A615, GRADE 60
 HELDED WIRE FABRIC ASTM A185
3. LAP DEFORMED BARS 40 DIA., UNO, PROVIDE CORNER AND L BARS AT CORNERS AND INTERSECTIONS. DETAILING: CROSS-WIRES AS CONTINUOUS. SHALL BE LAPPED. HOOKS SHALL BE STANDARD HOOKS. UNO. LAP HELDED WIRE FABRIC SUCH THAT THE OVERLAP OF THE OUTERMOST CROSS-WIRES OF EACH ADJOINING SHEET IS NOT LESS THAN THE SPACING OF THE CROSS-WIRES PLUS TWO IN., UNO.
4. CONCRETE PROTECTION FOR REINFORCEMENT:
 CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3 IN.
 CONCRETE EXPOSED TO EARTH OR WEATHER: 2 IN.
 NO. 6 THROUGH NO. 18 BARS: 1-1/2 IN.
 NO. 3 BAR AND SMALLER:
5. REINFORCING FOR SLABS ON GRADE, WHERE NOT OTHERWISE SPECIFIED, SHALL BE AS FOLLOWS:
 REINFORCING BARS: SEE FOUNDATION AND TYPICAL DETAILS. AT SLAB BLOCKOUT AND RE-ENTRANT CORNERS, PROVIDE 2-#4 x 4'-0" DIAGONALS.
 WIRE MESH: 6x6-x2.1 x X2.1 WVF. REINFORCING SHALL BE SUPPORTED AT MIN. HEIGHT OF SLAB.
6. DETAILING MANUAL FOR CONCRETE REINFORCING AND ACCESSORIES SHALL CONFORM TO ACI DETAILING MANUAL SP-66, AND NTHA ACI 315, MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES.



1. FLOOR SLAB + 0'-0" IS REFERENCED RELATIVE TO ELEVATION 60.0'.
2. ELEVATIONS ARE NOTED FROM REF. EL. 0'-0 AS FOLLOWING:
 (-#'-#") INDICATES TOP OF CONCRETE SLAB
 (+#'-#") INDICATES TOP OF FOOTING
3. FOUNDATION MEMBERS SHALL BE AT THE FOLLOWING ELEVATIONS, UNO:
 SLABS = +0'-0"
 FOOTINGS = -3'-0"
 PIERS = +0'-4"
 CURBS = +0'-4"
4. FOUNDATION MEMBERS ARE DESIGNATED AS FOLLOWS:
 F#.# FOOTING MARK - SEE SCHEDULE.
5. PROVIDE DETAIL #2 4x4'-0" DIAGONAL BARS AT ALL RE-ENTRANT SLAB-ON-GRADE CORNERS. SEE DETAIL 5/5-2.
6. REFER TO DRAWING 5-2 FOR FOUNDATION & SLAB SECTIONS & DETAILS.

SLAB S-1: 6" CONC. SLAB ON GRADE w/ 6x6-M2. 9xM2. 9
W/F ON 4" COMPACTED GRANULAR BASE

SLAB S-2: 8" CONC. SLAB ON GRADE w/ 6x6-M2. 9xM2. 9
W/F TOP & #4 @ 12" o/c BOTTOM EA WAY ON
4" COMPACTED GRANULAR BASE

MARK	SIZE	REINFORCING
P-1	20"x24"	(6)#6 VERT. #3 TIES @ 12" o/c
P-2	20"x24"	(6)#6 VERT. #3 TIES @ 12" o/c

MARK	SIZE	REINFORCING
F1.0	1'-0" x 1'-0" x 1'-6"	7-#6 BOT. EN
F4.0	4'-0" x 4'-0" x 2'-0"	4-#7 BOT. EN
F12.0x8.0	12'-0" x 8'-0" x 2'-0"	8-#7 BOT. LW 12-#7 BOT. SW

1. TYPICAL DETAILS APPLY AT ALL APPROPRIATE LOCATIONS.
2. TYPICAL DETAILS ARE GENERALLY NOT CUT ON THE PLANS.
3. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL TYPICAL DETAIL APPLICATIONS.

1. CONCRETE FOUNDATIONS & SLABS:
CONCRETE MIX DESIGNS FOR STRENGTHS INDICATED
CONCRETE REINFORCING SHOP DRAWINGS
2. PRE-ENGINEERED METAL BUILDING:
DETAILED SHOP DRAWINGS AND STRUCTURAL CALCULATIONS PREPARED
BY A PROFESSIONAL ENGINEER LICENSED IN NEW JERSEY

1. 40 FOOT TALL TOWER COLUMNS:
GRAVITY = 250 KIPS
UPLIFT = 10 KIPS
LATERAL = 19 KIPS
2. 30 FOOT TALL RESIDENCE COLUMNS:
GRAVITY = 145 KIPS
UPLIFT = 4 KIPS
LATERAL = 12 KIPS
3. FOUNDATION DESIGN IS BASED UPON THE LOADS SHOWN ABOVE. FOUNDATION DESIGN WILL BE REVIEWED FOLLOWING SUBMISSION OF METAL BUILDING SHOP DRAWINGS TO DETERMINE IF ANY REVISIONS TO THE DESIGN ARE REQUIRED.



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Brian D. McGlade, PE
NJ PE # 34227

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**CAMDEN COUNTY COLLEGE
SMOKE TOWER STRUCTURE
CAMDEN COUNTY FIRE ACADEMY AT THE
REGIONAL EMERGENCY TRAINING CENTER**

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[illegible]

FOUNDATION PLAN

JOB NO: H15461-23	DESIGNED BY: BDM
DATE: JUNE 20, 2024	DRAWN BY: DMM
SCALE: AS NOTED	CHECKED BY: BDM

DRAWING NUMBER:

S-1