

ADDENDUM #2

Architecture Unlimited, PLLC
Jeff Sherer, Architect
2700 Rondeau Court
Matthews, NC 28105
704-451-7436
jshererarchitect@gmail.com

February 7, 2018

UNC Charlotte – Baseball Indoor Training Facility
SCO ID #17-17373-01A
8711 Phillips Road
Charlotte, NC

- A. This Addendum shall be considered part of the bid documents for the above-mentioned project as though it had been issued at the same time and shall be incorporated integrally therewith. Where provisions of the following supplementary data differ from those of the original bid documents, this Addendum shall govern and take precedence.
- B. Bidders are hereby notified that they shall make any necessary adjustments in their bids as a result of this Addendum. It will be construed that each bidder's proposal is submitted with full knowledge of all modifications and supplemental data specified herein.

The bid documents are modified and clarified, as follows:

A. Revised Drawings:

1. Architectural: CS.01, A100, A101 and A301 dated 2/6/18
2. Structural: S101, S102, S202 and S301 dated 2/7/18
3. Electrical: E3.1 dated 2/5/18
4. Mechanical: M0.2 dated 2/5/18 and M1.1 dated 1/31/18

B. Revised Specifications:

1. The CMU walls are to receive dampproofing per Section 071113 and all the exterior brick veneer is to receive the water repellant treatment per Section 0719000
2. Section 07 41 13: Paragraph 2: Acceptable Product: Metal Roofing Systems - MRS System 2500
3. Section 260533 – Raceway and Boxes for Electrical Systems is revised as indicated

4. Section 260548 – Vibration and Seismic Controls for Electrical Systems is revised as indicated
5. Section 262813 – Fuses is revised as indicated
6. Section 265119 – LED Interior Lighting is revised as indicated

C. General Items:

1. Sheet A100:
 - a. Provide 4" concrete at exterior of the building as indicated on the drawing
 - b. The 8' tall construction fence is indicated on the drawing
 - c. Provide three (3) bollards as indicated on drawing
2. Sheet A101:
 - a. All the flooring except the pitcher training area is to be turf flooring
 - b. The entire ceiling shall be 1/2" stained plywood
3. Sheet A201: The precast sign is to be engraved with lettering. Provide costs associated with engraving twenty-five (25) letters in the university approved font 10" inches in height
4. Sheet A302:
 - a. The soffit material shall be as follows: All products by "ABC Seamless" or approved equivalent. All products PVC coated. Color as selected from standard colors by Architect. All items shall be extruded in lengths as long as possible. Fascia (8") and Soffit Trim: 28 gauge Steel wood grain. Soffit Panels (24" wide): Aluminum, full vent, miter corners
 - b. The roof sheathing shall be 3/4" plywood with 15# felt
5. Sheet A401:
 - a. The WN-1 horizontal sliding windows are 8' wide by 8' tall. All glass shall be 1-15/16" clear laminated (inboard) low-e insulated with coating on #2 surface as manufactured by Viracon or approved equivalent
 - b. The D-2 coiling door shall be 8' wide by 10' tall
6. General Notes:
 - a. There shall be no penalties if the existing batting cage poles are damaged during removal
 - b. There is no planting or landscaping on this project (only grass seeding)
7. Sheet M0.1: Fan Equivalent Listing: Add 14' Essence, 120V/1ph wired controller: F-ES2-1401A384Q141V46 Essence 2' Extension tube: M-ES1-0602

8. Gable roof vents shall be "airolite" Aluminum Vents available from Kuester Sales Co., Inc., or approved equivalent. Bidders may submit alternate aluminum gable vents, but should provide proposed vent information and literature along with their bids for full consideration

9. Geo Report: The 1-1/2 to 2 feet of crushed stone will be allowed to remain on site

10. Sheet C2: The modular retaining wall shall be per Typical Reinforced Wall Section on Sheet C4. Provide RidgeRock Beveled Commercial Retaining Wall (www.ridge-rock.com) with associated reinforcing materials or approved equivalent designed by a NC licensed engineer

End of Addendum #2

Sincerely,

Architecture Unlimited

Jeff Sherer

Jeff Sherer

SECTION 260533 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.
- B. Related Sections include the following:
 - 1. Division 26 Section "Underground Ducts and Raceways for Electrical Systems" for exterior ductbanks, manholes, and underground utility construction.
- C. Raceways shall be metal except as specifically noted, or where non-metallic raceway is permitted by these specifications. A Green Grounding conductors shall be provided in all conduit except for telecommunications, data and audio conduits.

1.

Use heavy wall metal conduit (RMC) or intermediate metal conduit (IMC) for any conduit exposed below a height of 60".

2.

Electric metallic tubing (EMT) is permitted for most other general applications except for:

- a. here tubing, couplings, elbows and fittings would be in direct contact with the earth or underground (in/below slab-on-grade or in earth). W
- b. ny location outdoors where the tubing, etc., would be exposed to the elements. A
- c. here exposed to severe corrosive influence and/or physical damage. W

D. Use flexible conduit for appropriate applications. Use galvanized type for dry locations and liquid-tight type for wet locations, or as noted. Flexible conduit shall be minimum 1/2" diameter. Liquid-tight flexible metal conduit shall be used for final connection to all motors, transformers, and other rotating or vibrating equipment. Flexible metal conduit shall be used for final connection to fluorescent lighting fixtures mounted in or on suspended ceilings, and similar applications with a maximum of 6' length. MC cable shall NOT be allowed to be used as a wiring method for branch circuits.

E. Non-metallic raceway shall be minimum Schedule 40 PVC. In general, non-metallic raceway will be permitted for use underground or in poured concrete (including panel feeders, branch circuits, etc.), provided all 90 degree Ells

up out of the floor are heavy wall rigid metal conduit (RMC), no exception. Non-metallic raceways will not be permitted for any exposed work or for raceways in ceiling spaces, etc.

F.No raceway may be exposed in any finished space unless specifically so approved, in written form, prior to rough-in. Raceways exposed in finished spaces shall be of an appropriate type "wiremold" type surface raceway or approved equal. In the event of an accepted alternate that requires exposed conditions in a finished space, devices and fixtures shall be located to minimize exposure of raceway and maintain all required clearances, coverage, etc. Devices, fixture, etc. shall be positioned aesthetically/orthogonal to the orientation of the room.

1. G.Minimum metal conduit size shall be 3/4" (interior) and 1" (exterior) for premises wiring system. Exception shall be 1/2" for switch legs, control circuits, signal wiring and applications for flexible metal conduits not exceeding four circuit conductors.

1.3 DEFINITIONS

- A. EMT: Electrical metallic tubing.
- B. ENT: Electrical nonmetallic tubing, not allowed on this project.
- C. EPDM: Ethylene-propylene-diene terpolymer rubber.
- D. FMC: Flexible metal conduit.
- E. IMC: Intermediate metal conduit.
- F. LFMC: Liquidtight flexible metal conduit.
- G. LFNC: Liquidtight flexible nonmetallic conduit, not allowed on this project.
- H. NBR: Acrylonitrile-butadiene rubber.
- I. RNC: Rigid nonmetallic conduit.

1.4 SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
- B. Shop Drawings: For the following raceway components. Include plans, elevations, sections, details, and attachments to other work.
 1. Custom enclosures and cabinets.
 2. For handholes and boxes for underground wiring, including the following:
 - a. Duct entry provisions, including locations and duct sizes.
 - b. Frame and cover design.
 - c. Grounding details.
 - d. Dimensioned locations of cable rack inserts, and pulling-in and lifting irons.
 - e. Joint details.

- C. Manufacturer Seismic Qualification Certification: Submit certification that enclosures and cabinets and their mounting provisions, including those for internal components, will withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems." Include the following:
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 - a. The term "withstand" means "the cabinet or enclosure will remain in place without separation of any parts when subjected to the seismic forces specified and the unit will retain its enclosure characteristics, including its interior accessibility, after the seismic event."
 - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 - 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- D. Qualification Data: For professional engineer and testing agency.
- E. Source quality-control test reports.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS -

2.1 METAL CONDUIT AND TUBING

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AFC Cable Systems, Inc.
 - 2. Alflex Inc.
 - 3. Allied Tube & Conduit; a Tyco International Ltd. Co.
 - 4. Anamet Electrical, Inc.; Anaconda Metal Hose.
 - 5. Electri-Flex Co.
 - 6. Manhattan/CDT/Cole-Flex.
 - 7. Maverick Tube Corporation.
 - 8. O-Z Gedney; a unit of General Signal.
 - 9. Wheatland Tube Company.
- B. Rigid Steel Conduit: ANSI C80.1.
- C. IMC: ANSI C80.6..5.

- D. PVC-Coated Steel Conduit: PVC-coated IMC.
 - 1. Comply with NEMA RN 1.
 - 2. Coating Thickness: 0.040 inch, minimum.
- E. EMT: ANSI C80.3.
- F. FMC: Zinc-coated steel.
- G. LFMC: Flexible steel conduit with PVC jacket.
- H. Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.
 - 1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886.
 - 2. Fittings for EMT: Steel, compression type.
 - 3. Coating for Fittings for PVC-Coated Conduit: Minimum thickness, 0.040 inch, with overlapping sleeves protecting threaded joints.
- I. Joint Compound for Rigid Steel Conduit or IMC: Listed for use in cable connector assemblies, and compounded for use to lubricate and protect threaded raceway joints from corrosion and enhance their conductivity.

2.2 NONMETALLIC CONDUIT AND TUBING

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AFC Cable Systems, Inc.
 - 2. Anamet Electrical, Inc.; Anaconda Metal Hose.
 - 3. Arnco Corporation.
 - 4. CANTEX Inc.
 - 5. CertainTeed Corp.; Pipe & Plastics Group.
 - 6. Condux International, Inc.
 - 7. ElecSYS, Inc.
 - 8. Electri-Flex Co.
 - 9. Lamson & Sessions; Carlon Electrical Products.
 - 10. Manhattan/CDT/Cole-Flex.
 - 11. RACO; a Hubbell Company.
 - 12. Thomas & Betts Corporation.
- B. ENT: Not allowed.
- C. RNC: NEMA TC 2, Type EPC-40-PVC, unless otherwise indicated.
- D. LFNC: Not allowed.
- E. Fittings for RNC: NEMA TC 3; match to conduit or tubing type and material.

2.3 OPTICAL FIBER/COMMUNICATIONS CABLE RACEWAY AND FITTINGS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Arnco Corporation.
 - 2. Endot Industries Inc.
 - 3. IPEX Inc.
 - 4. Lamson & Sessions; Carlon Electrical Products.
- B. Description: Comply with UL 2024; flexible type, approved for plenum installation.

2.4 METAL WIREWAYS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cooper B-Line, Inc.
 - 2. Hoffman.
 - 3. Square D; Schneider Electric.
- B. Description: Sheet metal sized and shaped as indicated, NEMA 250, Type 12, unless otherwise indicated.
- C. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
- D. Wireway Covers: Hinged type.
- E. Finish: Manufacturer's standard enamel finish.

2.5 SURFACE RACEWAYS

- A. Surface Metal Raceways: Galvanized metallic with snap-on covers. Manufacturer's standard enamel finish in color selected by Architect.
- B.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Thomas & Betts Corporation.
 - b. Walker Systems, Inc.; Wiremold Company (The).
 - c. Wiremold Company (The); Electrical Sales Division.

2.6 BOXES, ENCLOSURES, AND CABINETS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.

2. EGS/Appleton Electric.
3. Erickson Electrical Equipment Company.
4. Hoffman.
5. Hubbell Incorporated; Killark Electric Manufacturing Co. Division.
6. O-Z/Gedney; a unit of General Signal.
7. RACO; a Hubbell Company.
8. Robroy Industries, Inc.; Enclosure Division.
9. Scott Fetzer Co.; Adalet Division.
10. Spring City Electrical Manufacturing Company.
11. Thomas & Betts Corporation.
12. Walker Systems, Inc.; Wiremold Company (The).
13. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary.

- B. Sheet Metal Outlet and Device Boxes: NEMA OS 1.
- C. Cast-Metal Outlet and Device Boxes: NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.
- D. Nonmetallic Outlet and Device Boxes: NEMA OS 2.
- E. Metal Floor Boxes: Cast or sheet metal, fully adjustable, rectangular.
- F. Nonmetallic Floor Boxes: Nonadjustable, round.
- G. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- H. Cast-Metal Access, Pull, and Junction Boxes: NEMA FB 1, galvanized, cast iron with gasketed cover.
- I. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous-hinge cover with flush latch, unless otherwise indicated.
1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
 2. Nonmetallic Enclosures: Plastic.
- J. Cabinets:
1. NEMA 250, Type 1, galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
 2. Hinged door in front cover with flush latch and concealed hinge.
 3. Key latch to match panelboards.
 4. Metal barriers to separate wiring of different systems and voltage.
 5. Accessory feet where required for freestanding equipment.

2.7 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

- A. Description: Comply with SCTE 77.
1. Color of Frame and Cover: See drawings.
 2. Configuration: Units shall be designed for flush burial and have open bottom, unless otherwise indicated.

3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure.
 4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
 5. Cover Legend: Molded lettering, as indicated for each service.
 6. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
 7. Handholes 12 inches wide by 24 inches long and larger shall have inserts for cable racks and pulling-in irons installed before concrete is poured.
- B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel or fiberglass or a combination of the two.
- C.
1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
 - a. Armorcast Products Company.
 - b. Carson Industries LLC.
 - c. CDR Systems Corporation.
 - d. NewBasis.
- D. Fiberglass Handholes and Boxes with Polymer-Concrete Frame and Cover: Sheet-molded, fiberglass-reinforced, polyester-resin enclosure joined to polymer-concrete top ring or frame.
- E.
1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
 - a. Armorcast Products Company.
 - b. Carson Industries LLC.
 - c. Christy Concrete Products.
 - d. Synertech Moulded Products, Inc.; a division of Oldcastle Precast.
- F. Fiberglass Handholes and Boxes: Molded of fiberglass-reinforced polyester resin, with covers of polymer concrete.
- G.
1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
 - a. Carson Industries LLC.
 - b. Christy Concrete Products.
 - c. Nordic Fiberglass, Inc.
- 2.8 SLEEVES FOR RACEWAYS
- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.
- B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

- C. Sleeves for Rectangular Openings: Galvanized sheet steel with minimum 0.052- or 0.138-inch thickness as indicated and of length to suit application.
- D. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

2.9 SLEEVE SEALS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
 - 1. Advance Products & Systems, Inc.
 - 2. Calpico, Inc.
 - 3. Metraflex Co.
 - 4. Pipeline Seal and Insulator, Inc.
- B. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and cable.
 - 1. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
 - 2. Pressure Plates: Carbon steel. Include two for each sealing element.
 - 3. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.10 SOURCE QUALITY CONTROL FOR UNDERGROUND ENCLOSURES

- A. Handhole and Pull-Box Prototype Test: Test prototypes of handholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.
 - 1. Tests of materials shall be performed by a independent testing agency.
 - 2. Strength tests of complete boxes and covers shall be by either an independent testing agency or manufacturer. A qualified registered professional engineer, licenased in North Carolina, shall certify tests by manufacturer.
 - 3. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012, and traceable to NIST standards.

PART 3 - EXECUTION

3.1 RACEWAY INSTALLATION

- A. Underground runs, except under concrete floor slabs, shall have a minimum of 24" cover. Backfill shall be made in 6" layers – tamping each layer to a density of 95% of maximum possible.
- B. Raceways run external to building foundation walls, with the exception of branch circuit raceways, shall be encased with a minimum of 3" of concrete on all sides. Encased raceways

- C. shall have a minimum cover of 18", except for raceways containing circuits with voltages above 600 volts, which shall have a minimum cover of 30".
- D. All underground raceways shall be identified by underground line marking tape located directly above the raceway at 6" to 8" below finished grade. Tape shall be permanent, bright colored, continuous printed, metal compounded for direct burial not less than 6" wide and 4 mils thick. Printed legend on tape shall indicate general type of underground line below.

3.2 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:
 - 1. Exposed Conduit: Rigid steel conduit
 - 2. Concealed Conduit, Aboveground: IMC (including elbows that turn up from below grade).
 - 3. Underground Conduit: RNC, Type EPC- 80-PVC, direct buried.
 - 4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
 - 5. Boxes and Enclosures, Aboveground: NEMA 250, Type 4.
 - 6. Application of Handholes and Boxes for Underground Wiring:
 - a. Handholes and Pull Boxes in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Nondeliberate Loading by Heavy Vehicles: Polymer concrete, SCTE 77, Tier 15 structural load rating.
 - b. Handholes and Pull Boxes in Sidewalk and Similar Applications with a Safety Factor for Nondeliberate Loading by Vehicles: Polymer-concrete units, SCTE 77, Tier 8 structural load rating.
 - c. Handholes and Pull Boxes Subject to Light-Duty Pedestrian Traffic Only: Fiberglass-reinforced polyester resin, structurally tested according to SCTE 77 with 3000-lbf vertical loading.
- B. Comply with the following indoor applications, unless otherwise indicated:
 - 1. Exposed, Not Subject to Physical Damage: EMT.
 - 2. Exposed, Not Subject to Severe Physical Damage: EMT.
 - 3. Exposed and Subject to Severe Physical Damage: Rigid steel conduit. Includes raceways in the following locations:
 - a. Loading dock.
 - b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
 - c. Mechanical rooms.
 - 4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
 - 5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
 - 6. Damp or Wet Locations: IMC.
 - 7. Raceways for Optical Fiber or Communications Cable in Spaces Used for Environmental Air: Plenum-type, optical fiber/communications cable raceway.
 - 8. Raceways for Optical Fiber or Communications Cable Risers in Vertical Shafts: Riser-type, optical fiber/communications cable raceway.
 - 9. Raceways for Concealed General Purpose Distribution of Optical Fiber or Communications Cable: General-use, optical fiber/communications cable raceway.

10. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4, nonmetallic in damp or wet locations.
- C. Minimum Raceway Size: 3/4-inch trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
 1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.
 2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with that material. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer.
- E. .

3.3 INSTALLATION

- A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.
- B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- C. Complete raceway installation before starting conductor installation.
- D. Support raceways as specified in Division 26 Section "Hangers and Supports for Electrical Systems."
- E. Arrange stub-ups so curved portions of bends are not visible above the finished slab.
- F. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.
- G. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.
- H. Raceways Embedded in Slabs:
 1. Run conduit larger than 1-inch trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
 2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
- I. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- J. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors, including conductors smaller than No. 4 AWG.

- K. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire.
- L. Raceways for Optical Fiber and Communications Cable: Install raceways, metallic and nonmetallic, rigid and flexible, as follows:
1. 3/4-Inch Trade Size and Smaller: Install raceways in maximum lengths of 50 feet.
 2. 1-Inch Trade Size and Larger: Install raceways in maximum lengths of 75 feet.
 3. Install with a maximum of two 90-degree bends or equivalent for each length of raceway unless Drawings show stricter requirements. Separate lengths with pull or junction boxes or terminations at distribution frames or cabinets where necessary to comply with these requirements.
- M. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:
1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
 2. Where otherwise required by NFPA 70.
- N. Expansion-Joint Fittings for RNC: Install in each run of aboveground conduit that is located where environmental temperature change may exceed 30 deg F, and that has straight-run length that exceeds 25 feet.
1. Install expansion-joint fittings for each of the following locations, and provide type and quantity of fittings that accommodate temperature change listed for location:
 - a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
 - b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
 - c. Indoor Spaces: Connected with the Outdoors without Physical Separation: 125 deg F temperature change.
 - d. Attics: 135 deg F temperature change.
 2. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change.
 3. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at the time of installation.
- O. Flexible Conduit Connections: Use maximum of 72 inches of flexible conduit for recessed and semirecessed lighting fixtures, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
1. Use LFMC in damp or wet locations subject to severe physical damage.
 2. Use LFMC in damp or wet locations not subject to severe physical damage.
- P. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall.
- Q. Set metal floor boxes level and flush with finished floor surface.
- R. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.

3.4 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Division 31 Section "Earth Moving" for pipe less than 6 inches in nominal diameter.
2. Install backfill as specified in Division 31 Section "Earth Moving."
3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Division 31 Section "Earth Moving."
4. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through the floor, unless otherwise indicated. Encase elbows for stub-up ducts throughout the length of the elbow.
5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.
 - a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
 - b. For stub-ups at equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.
6. All underground raceways shall be identified by underground line marking tape located directly above the raceway at 6 to 8 inches below finished grade. Tape shall be permanent, bright-colored, continuous printed, plastic tape compounded for direct burial not less than 6 inches wide and 4 mils thick. Printed legend shall be indicative of general type of underground line below.

3.5 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

- A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.
- B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.
- C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.
- D. Install handholes and boxes with bottom below the frost line, below grade.
- E. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables, but short enough to preserve adequate working clearances in the enclosure.

- F. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.6 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."
- B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.
- C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
- D. Rectangular Sleeve Minimum Metal Thickness:
 - 1. For sleeve cross-section rectangle perimeter less than 50 inches and no side greater than 16 inches, thickness shall be 0.052 inch.
 - 2. For sleeve cross-section rectangle perimeter equal to, or greater than, 50 inches and 1 or more sides equal to, or greater than, 16 inches, thickness shall be 0.138 inch.
- E. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.
- F. Cut sleeves to length for mounting flush with both surfaces of walls.
- G. Extend sleeves installed in floors 2 inches above finished floor level.
- H. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway unless sleeve seal is to be installed or unless seismic criteria require different clearance.
- I. Seal space outside of sleeves with grout for penetrations of concrete and masonry and with approved joint compound for gypsum board assemblies.
- J. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway, using joint sealant appropriate for size, depth, and location of joint. Refer to Division 07 Section "Joint Sealants" for materials and installation.
- K. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway penetrations. Install sleeves and seal with firestop materials. Comply with Division 07 Section "Penetration Firestopping."
- L. Roof-Penetration Sleeves: Seal penetration of individual raceways with flexible, boot-type flashing units applied in coordination with roofing work.
- M. Aboveground, Exterior-Wall Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

- N. Underground, Exterior-Wall Penetrations: Install cast-iron "wall pipes" for sleeves. Size sleeves to allow for 1-inch annular clear space between raceway and sleeve for installing mechanical sleeve seals.

3.7 SLEEVE-SEAL INSTALLATION

- A. Install to seal underground, exterior wall penetrations.
- B. Use type and number of sealing elements recommended by manufacturer for raceway material and size. Position raceway in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.8 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 07 Section "Penetration Firestopping."

3.9 PROTECTION

- A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Completion.
 - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
 - 2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

SECTION 260548 - VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Isolation pads.
 - 2. Spring isolators.
 - 3. Restrained spring isolators.
 - 4. Channel support systems.
 - 5. Restraint cables.
 - 6. Hanger rod stiffeners.
 - 7. Anchorage bushings and washers.
- B. Related Sections include the following:
 - 1. Division 26 Section "Hangers and Supports For Electrical Systems" for commonly used electrical supports and installation requirements.

1.3 DEFINITIONS

- A. The IBC: International Building Code.
- B. ICC-ES: ICC-Evaluation Service.

1.4 PERFORMANCE REQUIREMENTS

- A. Seismic-Restraint Loading:
 - 1. Site Class as Defined in the IBC: D
 - 2. Assigned Seismic Use Group or Building Category as Defined in the IBC: I
 - a. Component Importance Factor: 1.25
 - b. Component Response Modification Factor:
 - c. Component Amplification Factor:
 - 3. Design Spectral Response Acceleration at Short Periods (0.2 Second):
 - 4. Design Spectral Response Acceleration at 1.0-Second Period:

1.5 SUBMITTALS

- A. Product Data: For the following:

1. Include rated load, rated deflection, and overload capacity for each vibration isolation device.
 2. Illustrate and indicate style, material, strength, fastening provision, and finish for each type and size of seismic-restraint component used.
 - a. Tabulate types and sizes of seismic restraints, complete with report numbers and rated strength in tension and shear as evaluated by an agency acceptable to authorities having jurisdiction.
 - b. Annotate to indicate application of each product submitted and compliance with requirements.
 3. Restrained-Isolation Devices: Include ratings for horizontal, vertical, and combined loads.
- B. Delegated-Design Submittal: For vibration isolation and seismic-restraint details indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer, licensed in North Carolina, responsible for their preparation.
1. Design Calculations: Calculate static and dynamic loading due to equipment weight and operation, seismic forces required to select vibration isolators and seismic restraints.
 - a. Coordinate design calculations with wind-load calculations required for equipment mounted outdoors. Comply with requirements in other Division 26 Sections for equipment mounted outdoors.
 2. Indicate materials and dimensions and identify hardware, including attachment and anchorage devices.
 3. Field-fabricated supports.
 4. Seismic-Restraint Details:
 - a. Design Analysis: To support selection and arrangement of seismic restraints. Include calculations of combined tensile and shear loads.
 - b. Details: Indicate fabrication and arrangement. Detail attachments of restraints to the restrained items and to the structure. Show attachment locations, methods, and spacings. Identify components, list their strengths, and indicate directions and values of forces transmitted to the structure during seismic events. Indicate association with vibration isolation devices.
 - c. Preapproval and Evaluation Documentation: an agency acceptable to authorities having jurisdiction, showing maximum ratings of restraint items and the basis for approval (tests or calculations).
- C. Coordination Drawings: Show coordination of seismic bracing for electrical components with other systems and equipment in the vicinity, including other supports and seismic restraints.
- D. Welding certificates.
- E. Qualification Data: For professional engineer and testing agency.

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

- B. Comply with seismic-restraint requirements in the IBC unless requirements in this Section are more stringent.
- C. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- D. Seismic-restraint devices shall have horizontal and vertical load testing and analysis and shall bear anchorage preapproval OPA number from OSHPD, preapproval by ICC-ES, or preapproval by another agency acceptable to authorities having jurisdiction, showing maximum seismic-restraint ratings. Ratings based on independent testing are preferred to ratings based on calculations. If preapproved ratings are not available, submittals based on independent testing are preferred. Calculations (including combining shear and tensile loads) to support seismic-restraint designs must be signed and sealed by a qualified professional engineer.
- E. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 VIBRATION ISOLATORS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
 - 1. Ace Mountings Co., Inc.
 - 2. Amber/Booth Company, Inc.
 - 3. California Dynamics Corporation.
 - 4. Isolation Technology, Inc.
 - 5. Kinetics Noise Control.
 - 6. Mason Industries.
 - 7. Vibration Eliminator Co., Inc.
 - 8. Vibration Isolation.
 - 9. Vibration Mountings & Controls, Inc.
- B. Pads: Arrange in single or multiple layers of sufficient stiffness for uniform loading over pad area, molded with a nonslip pattern and galvanized-steel baseplates, and factory cut to sizes that match requirements of supported equipment.
 - 1. Resilient Material: Oil- and water-resistant neoprene rubber hermetically sealed compressed fiberglass.
- C. Spring Isolators: Freestanding, laterally stable, open-spring isolators.
 - 1. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
 - 2. Minimum Additional Travel: 50 percent of the required deflection at rated load.
 - 3. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 - 4. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
 - 5. Baseplates: Factory drilled for bolting to structure and bonded to 1/4-inch- thick, rubber isolator pad attached to baseplate underside. Baseplates shall limit floor load to 500 psig.
 - 6. Top Plate and Adjustment Bolt: Threaded top plate with adjustment bolt and cap screw to fasten and level equipment.

- D. Restrained Spring Isolators: Freestanding, steel, open-spring isolators with seismic or limit-stop restraint.
 - 1. Housing: Steel with resilient vertical-limit stops to prevent spring extension due to weight being removed; factory-drilled baseplate bonded to 1/4-inch- thick, neoprene or rubber isolator pad attached to baseplate underside; and adjustable equipment mounting and leveling bolt that acts as blocking during installation.
 - 2. Restraint: Seismic or limit-stop as required for equipment and authorities having jurisdiction.
 - 3. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
 - 4. Minimum Additional Travel: 50 percent of the required deflection at rated load.
 - 5. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 - 6. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.

2.2 SEISMIC-RESTRAINT DEVICES

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
 - 1. Amber/Booth Company, Inc.
 - 2. California Dynamics Corporation.
 - 3. Cooper B-Line, Inc.; a division of Cooper Industries.
 - 4. Hilti Inc.
 - 5. Loos & Co.; Seismic Earthquake Division.
 - 6. Mason Industries.
 - 7. TOLCO Incorporated; a brand of NIBCO INC.
 - 8. Unistrut; Tyco International, Ltd.
- B. General Requirements for Restraint Components: Rated strengths, features, and application requirements shall be as defined in reports by an evaluation service member of ICC-ES OSHPD an agency acceptable to authorities having jurisdiction.
 - 1. Structural Safety Factor: Allowable strength in tension, shear, and pullout force of components shall be at least four times the maximum seismic forces to which they will be subjected.
- C. Channel Support System: MFMA-3, shop- or field-fabricated support assembly made of slotted steel channels with accessories for attachment to braced component at one end and to building structure at the other end and other matching components and with corrosion-resistant coating; and rated in tension, compression, and torsion forces.
- D. Restraint Cables: ASTM A 603 galvanized -steel cables with end connections made of steel assemblies with thimbles, brackets, swivels, and bolts designed for restraining cable service; and with a minimum of two clamping bolts for cable engagement.
- E. Hanger Rod Stiffener: Steel tube or steel slotted-support-system sleeve with internally bolted connections to hanger rod. Do not weld stiffeners to rods.
- F. Bushings for Floor-Mounted Equipment Anchor: Neoprene bushings designed for rigid equipment mountings, and matched to type and size of anchors and studs.

- G. Bushing Assemblies for Wall-Mounted Equipment Anchorage: Assemblies of neoprene elements and steel sleeves designed for rigid equipment mountings, and matched to type and size of attachment devices.
- H. Resilient Isolation Washers and Bushings: One-piece, molded, oil- and water-resistant neoprene, with a flat washer face.
- I. Mechanical Anchor: Drilled-in and stud-wedge or female-wedge type in zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchors with strength required for anchor and as tested according to ASTM E 488. Minimum length of eight times diameter.
- J. Adhesive Anchor: Drilled-in and capsule anchor system containing polyvinyl or urethane methacrylate-based resin and accelerator, or injected polymer or hybrid mortar adhesive. Provide anchor bolts and hardware with zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488.

2.3 FACTORY FINISHES

- A. Finish: Manufacturer's standard prime-coat finish ready for field painting.
- B. Finish: Manufacturer's standard paint applied to factory-assembled and -tested equipment before shipping.
 - 1. Powder coating on springs and housings.
 - 2. All hardware shall be galvanized. Hot-dip galvanize metal components for exterior use.
 - 3. Baked enamel or powder coat for metal components on isolators for interior use.
 - 4. Color-code or otherwise mark vibration isolation and seismic-control devices to indicate capacity range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and equipment to receive vibration isolation and seismic-control devices for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine roughing-in of reinforcement and cast-in-place anchors to verify actual locations before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLICATIONS

- A. Multiple Raceways or Cables: Secure raceways and cables to trapeze member with clamps approved for application by an agency acceptable to authorities having jurisdiction.

- B. Hanger Rod Stiffeners: Install hanger rod stiffeners where indicated or scheduled on Drawings to receive them and where required to prevent buckling of hanger rods due to seismic forces.
- C. Strength of Support and Seismic-Restraint Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static and seismic loads within specified loading limits.

3.3 SEISMIC-RESTRAINT DEVICE INSTALLATION

- A. Equipment and Hanger Restraints:
 - 1. Install restrained isolators on electrical equipment.
 - 2. Install resilient, bolt-isolation washers on equipment anchor bolts where clearance between anchor and adjacent surface exceeds 0.125 inch.
 - 3. Install seismic-restraint devices using methods approved by an agency acceptable to authorities having jurisdiction providing required submittals for component.
- B. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media where equipment or equipment-mounting channels are attached to wall.
- C. Attachment to Structure: If specific attachment is not indicated, anchor bracing to structure at flanges of beams, at upper truss chords of bar joists, or at concrete members.
- D. Drilled-in Anchors:
 - 1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling. Notify the structural engineer if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid prestressed tendons, electrical and telecommunications conduit, and gas lines.
 - 2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
 - 3. Wedge Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.
 - 4. Adhesive Anchors: Clean holes to remove loose material and drilling dust prior to installation of adhesive. Place adhesive in holes proceeding from the bottom of the hole and progressing toward the surface in such a manner as to avoid introduction of air pockets in the adhesive.
 - 5. Set anchors to manufacturer's recommended torque, using a torque wrench.
 - 6. Install zinc-coated steel anchors for interior and stainless-steel anchors for exterior applications.

3.4 ACCOMMODATION OF DIFFERENTIAL SEISMIC MOTION

- A. Install flexible connections in runs of raceways, cables, wireways, cable trays, and busways where they cross seismic joints, where adjacent sections or branches are supported by different structural elements, and where they terminate with connection to equipment that is anchored to a different structural element from the one supporting them as they approach equipment.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections and prepare test reports.
- B. Tests and Inspections:
 - 1. Provide evidence of recent calibration of test equipment by a testing agency acceptable to authorities having jurisdiction.
 - 2. Schedule test with Owner, through Architect, before connecting anchorage device to restrained component (unless postconnection testing has been approved), and with at least seven days' advance notice.
 - 3. Obtain Architect's approval before transmitting test loads to structure. Provide temporary load-spreading members.
 - 4. Test at least four of each type and size of installed anchors and fasteners selected by Architect.
 - 5. Test to 90 percent of rated proof load of device.
 - 6. Measure isolator restraint clearance.
 - 7. Measure isolator deflection.
 - 8. Verify snubber minimum clearances.
 - 9. If a device fails test, modify all installations of same type and retest until satisfactory results are achieved.
- C. Remove and replace malfunctioning units and retest as specified above.
- D. Prepare test and inspection reports.

3.6 ADJUSTING

- A. Adjust isolators after isolated equipment is at operating weight.
- B. Adjust limit stops on restrained spring isolators to mount equipment at normal operating height. After equipment installation is complete, adjust limit stops so they are out of contact during normal operation.
- C. Adjust active height of spring isolators.

Adjust restraints to permit free movement of equipment within normal mode of operation.

END OF SECTION 260548

SECTION 262813 - FUSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Cartridge fuses rated 600 V and less for use in switches panelboards switchboards controllers and motor-control centers.

1.3 SUBMITTALS

- A. Product Data: Include the following for each fuse type indicated:
 - 1. Dimensions and manufacturer's technical data on features, performance, electrical characteristics, and ratings.
 - 2. Let-through current curves for fuses with current-limiting characteristics.
 - 3. Time-current curves, coordination charts and tables, and related data.
 - 4. Fuse size for elevator feeders and elevator disconnect switches.
- B. Ambient Temperature Adjustment Information: If ratings of fuses have been adjusted to accommodate ambient temperatures, provide list of fuses with adjusted ratings.
 - 1. For each fuse having adjusted ratings, include location of fuse, original fuse rating, local ambient temperature, and adjusted fuse rating.
 - 2. Provide manufacturer's technical data on which ambient temperature adjustment calculations are based.
- C. Operation and Maintenance Data: For fuses to include in emergency, operation, and maintenance manuals.
 - 1. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:
 - a. Let-through current curves for fuses with current-limiting characteristics.
 - b. Time-current curves, coordination charts and tables, and related data.
 - c. Ambient temperature adjustment information.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain fuses from a single manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Comply with NEMA FU 1.

- D. Comply with NFPA 70.

1.5 PROJECT CONDITIONS

- A. Where ambient temperature to which fuses are directly exposed is less than 40 deg F or more than 100 deg F, apply manufacturer's ambient temperature adjustment factors to fuse ratings.

1.6 COORDINATION

- A. Coordinate fuse ratings with utilization equipment nameplate limitations of maximum fuse size.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Fuses: Quantity equal to 5 percent of each fuse type and size, but no fewer than 3 of each type and size.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Cooper Bussman, Inc.
 2. Eagle Electric Mfg. Co., Inc.; Cooper Industries, Inc.
 3. Ferraz Shawmut, Inc.
 4. Tracor, Inc.; Littelfuse, Inc. Subsidiary.

2.2 CARTRIDGE FUSES

- A. Characteristics: NEMA FU 1, nonrenewable cartridge fuse; class and current rating indicated; voltage rating consistent with circuit voltage.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine utilization equipment nameplates and installation instructions. Install fuses of sizes and with characteristics appropriate for each piece of equipment.
- B. Evaluate ambient temperatures to determine if fuse rating adjustment factors must be applied to fuse ratings.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

FUSES

3.2 FUSE APPLICATIONS

- A. Service Entrance: Class L, time delay J, fast acting J, time delay T, fast acting.
- B. Feeders: Class L, time delay J, time delay RK5, time delay.
- C. Motor Branch Circuits: Class RK5, time delay.
- D. Other Branch Circuits: Class RK1, time delay.

3.3 INSTALLATION

- A. Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse.
- B. Install spare-fuse cabinet(s).

3.4 IDENTIFICATION

- A. Install labels indicating fuse replacement information on inside door of each fused switch.

END OF SECTION 262813

SECTION 26 51 19 - LED INTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior solid-state luminaires that use LED technology.
2. Lighting fixture supports.

B. Related Requirements:

1. Section 26 09 23 "Lighting Control Devices" for automatic control of lighting, including time switches, photoelectric relays, occupancy sensors, and multipole lighting relays and contactors.
2. Section 26 09 26 "Lighting Control Panelboards" for panelboards used for lighting control.
3. Section 26 09 33 "Central Dimming Controls" or Section 26 09 36.19 "Standalone Multipreset Modular Dimming Controls" for architectural dimming systems and for fluorescent dimming controls with dimming ballasts specified in interior lighting Sections.
4. Section 26 09 43.16 "Addressable-Fixture Lighting Controls" and Section 26 09 43.23 "Relay-Based Lighting Controls" for manual or programmable control systems with low-voltage control wiring or data communication circuits.

1.2 DEFINITIONS

- A. CCT: Correlated color temperature.
- B. CRI: Color Rendering Index.
- C. Fixture: See "Luminaire."
- D. IP: International Protection or Ingress Protection Rating.
- E. LED: Light-emitting diode.
- F. Lumen: Measured output of lamp and luminaire, or both.
- G. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product, arranged by designation.
- B. Shop Drawings: For nonstandard or custom luminaires.
 1. Include plans, elevations, sections, and mounting and attachment details.
 2. Include details of luminaire assemblies. Indicate dimensions, weights, loads, and required clearances, method of field assembly, components, and location and size of each field connection.

3. Include diagrams for power, signal, and control wiring.

C. LEED Submittals:

1. Product Data for Credit IEQ 4.2: For paints and coatings, documentation including printed statement of VOC content.
2. Laboratory Test Reports for Credit IEQ 4.2: For paints and coatings, documentation indicating that products comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

D. Product Schedule: For luminaires and lamps. [**Use same designations indicated on Drawings.**]

1.4 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale and coordinated with each other, using input from installers of the items involved:
- B. Seismic Qualification Certificates: For luminaires, accessories, and components, from manufacturer.
- C. Product Certificates: For each type of luminaire.
- D. Sample warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.6 WARRANTY

- A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.
- B. Warranty Period: **Five** year(s) from date of Final Inspection and acceptance.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Luminaires shall withstand the effects of earthquake motions determined according to **ASCE/SEI 7**
- B. Seismic Performance: Luminaires and lamps shall be labeled vibration and shock resistant.
 1. The term "withstand" means "the luminaire will remain in place without separation of any parts when subjected to the seismic forces specified **and the luminaire will be fully operational during and after the seismic event.**"

2.2 LUMINAIRE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. NRTL Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by an NRTL.
- C. FM Global Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.
- D. Recessed Fixtures: Comply with NEMA LE 4.
- E. CRI of **80**. CCT of **4000 K**.
- F. Rated lamp life of **50,000** hours.
- G. Lamps dimmable from 100 percent to 0 percent of maximum light output.
- H. Internal driver.
- I. Nominal Operating Voltage: As circuited on the drawings.
 - 1. Lens Thickness: At least **0.125 inch (3.175 mm)** minimum unless otherwise indicated.

2.3 MATERIALS

- A. Metal Parts:
 - 1. Free of burrs and sharp corners and edges.
 - 2. Sheet metal components shall be steel unless otherwise indicated.
 - 3. Form and support to prevent warping and sagging
- B. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.
 - 1. Acrylic: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
 - 2. Glass: Annealed crystal glass unless otherwise indicated.
 - 3. Lens Thickness: At least **0.125 inch (3.175 mm)** minimum unless otherwise indicated.

2.4 METAL FINISHES

- A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

2.5 LUMINAIRE SUPPORT COMPONENTS

- A. Comply with requirements in Section 26 05 29 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.
- B. Single-Stem Hangers: **1/2-inch (13-mm)** steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.
- C. Wires: ASTM A 641/A 641 M, Class 3, soft temper, zinc-coated steel, [**12 gage (2.68 mm)**] <Insert size>.
- D. Rod Hangers: **3/16-inch (5-mm)** minimum diameter, cadmium-plated, threaded steel rod.
- E. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with NECA 1.
- B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.
- C. Install lamps in each luminaire.
- D. Supports: Sized and rated for luminaire weight.
- E. Flush-Mounted Luminaire Support: Secured to outlet box.
- F. Wall-Mounted Luminaire Support:
 - 1. Attached to structural members in walls.
 - 2. Do not attach luminaires directly to gypsum board.
- G. Ceiling-Mounted Luminaire Support:
 - 1. Ceiling mount with two **5/32-inch-** diameter aircraft cable supports adjustable to 120 inches in length.
 - 2. Ceiling mount with pendant mount with **5/32-inch** diameter aircraft cable supports adjustable to 120 inches.
- H. Suspended Luminaire Support:
 - 1. Pendants and Rods: Where longer than 48 inches brace to limit swinging.
 - 2. Stem-Mounted, Single-Unit Luminaires: Suspend with twin-stem hangers. Support with approved outlet box and accessories that hold stem and provide damping of luminaire oscillations. Support outlet box vertically to building structure using approved devices.
 - 3. Continuous Rows of Luminaires: Use tubing or stem for wiring at one point and tubing or rod for suspension for each unit length of luminaire chassis, including one at each end.
 - 4. Do not use ceiling grid as support for pendant luminaires. Connect support wires or rods to building structure.

- I. Ceiling-Grid-Mounted Luminaires:
 - 1. Secure to any required outlet box.
 - 2. Secure luminaire using approved fasteners in a minimum of four locations, spaced near corners of luminaire.
 - 3. Secure with a screw at each corner to a MAIN ceiling runner.
- J. Comply with requirements in Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables" for wiring connections.
- K. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."
- L. Support ceiling grid mounted luminaires to structure with minimum 2-wires attached at opposite corners of luminaire.

3.2 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 - 1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
 - 2. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.
- B. Luminaire will be considered defective if it does not pass operation tests and inspections.
- C. Prepare test and inspection reports.

END OF SECTION 26 51 19

GENERAL NOTES: DEMOLITION

A. COORDINATION: CONTRACTOR SHALL COORDINATE SITE DEMOLITION OF ALL PHASES OF WORK TO INSURE SYSTEM INTEGRITY IS MAINTAINED FOR STRUCTURAL, FIRE PROTECTION, BUILDING SECURITY AND PROTECTION FROM WEATHER ELEMENTS, PLUMBING, MECHANICAL, ELECTRICAL AND COMMUNICATION SERVICES ARE TO BE MAINTAINED TO OCCUPIED AREAS OF THE BASEBALL FACILITY THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS. INTERRUPTIONS OF THESE SERVICES WILL REQUIRE PRIOR NOTIFICATION AND COORDINATION WITH THE OWNER.

B. EXTENT OF DEMOLITION: CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO STARTING DEMOLITION. WHERE MODULAR WALL IS DESIGNATED AS "EXISTING TO BE REMOVED", (SEE LEGEND) REMOVE WALLS IN THEIR ENTIRETY UNLESS OTHERWISE NOTED. FIELD COORDINATE ALL DEMOLITION WORK WITH ALL CURRENT PLANS, TO ELIMINATE ANY UNNECESSARY DEMOLITION OR REQUIRE ADDITIONAL DEMOLITION. COORDINATE THE REMOVAL OR REROUTING OF ANY WALL MOUNTED OR WALL ENCASED DEVICES, PIPING, WIRING, ETC. WITH DRAWINGS OF ASSOCIATED TRADES.

C. ADJACENT SURFACES: WHERE MATERIALS ARE NOTED TO BE REMOVED, ADJACENT REMAINING MATERIALS ARE TO BE PROTECTED DURING THE DEMOLITION PROCESS. ADJACENT SURFACES AND ADJOINING NEW SURFACES ARE TO BE "PATCHED AND REPAIRED TO MATCH THE EXISTING ADJACENT UNDISTURBED SURFACES IN LEVEL, TEXTURE AND SHEEN UNLESS OTHERWISE NOTED OR INDICATED IN THE PLANS AND SPECIFICATIONS. REMOVAL CUTS AND DISASSEMBLY SHALL BE DONE IN AS MINIMAL AN AREA AS POSSIBLE TO ACCOMPLISH THE NEW PLANS. ALL CUTS SHALL BE MADE AS STRAIGHT AS POSSIBLE TO ALLOW FOR EVEN AND LEVEL RESTORATION.

D. CONCEALED SYSTEMS AND ITEMS: ANY CONCEALED ITEMS OR SYSTEMS ENCOUNTERED DURING DEMOLITION AND NOT SHOWN OR ANTICIPATED ON THE DRAWINGS, SHALL REQUIRE THE IMMEDIATE NOTIFICATION OF THE ARCHITECT OR ENGINEER TO DETERMINE THE REMOVAL OR REROUTING PROCEDURE NECESSARY.

E. STRUCTURAL INTEGRITY DURING THE WORK: THE CONTRACTOR SHALL USE ACCEPTED PRACTICES AND PROCEDURES DURING DEMOLITION AND CONSTRUCTION INCLUDING TEMPORARY BRACINGS AND SUPPORTS. IF DURING THE DEMOLITION OR CONSTRUCTION STRUCTURAL INTEGRITY APPEARS TO BE COMPROMISED BY PREVIOUS DAMAGE, CONTRACTOR SHALL NOTIFY THE ARCHITECT AND THE ENGINEER IMMEDIATELY AFTER STABILIZING THE AREA. CONTRACTOR SHALL NOT OVERLOAD FLOOR WITH MATERIALS DURING CONSTRUCTION AND IS RESPONSIBLE FOR ADEQUATE AND PROPERLY DESIGNED SHORING AND BRACING.

F. LOAD BEARING CONDITIONS: CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL LOAD BEARING CONDITIONS PRIOR TO DEMOLITION. CONTRACTOR SHOULD IMMEDIATELY REPORT TO THE ARCHITECT, ANY EXISTING FIELD CONDITIONS IN CONFLICT WITH THE CURRENT DRAWINGS. WHERE WALLS ARE TO BE REMOVED AROUND STRUCTURAL COLUMNS, CARE IS TO BE TAKEN TO PROTECT THE COLUMNS DURING THE DEMOLITION PROCESS.

KEY NOTES: DEMOLITION

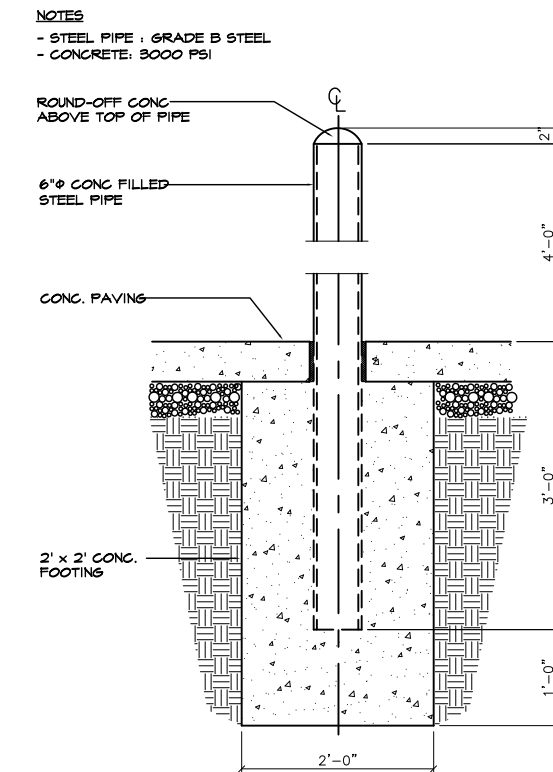
- 1 REMOVE MODULAR BLOCK WALL AND FENCING.
- 2 REMOVE HALF OF BATTING CAGE.
- 3 REMOVE CAGE (POST AND NETTING TO BE RETURNED TO OWNER).
- 4 PATCH ASPHALT AS REQUIRED TO INSTALL MODULAR BLOCK WALL AND SITE UTILITIES. ASPHALT TO MATCH EXISTING

GENERAL NOTES: NEW WORK

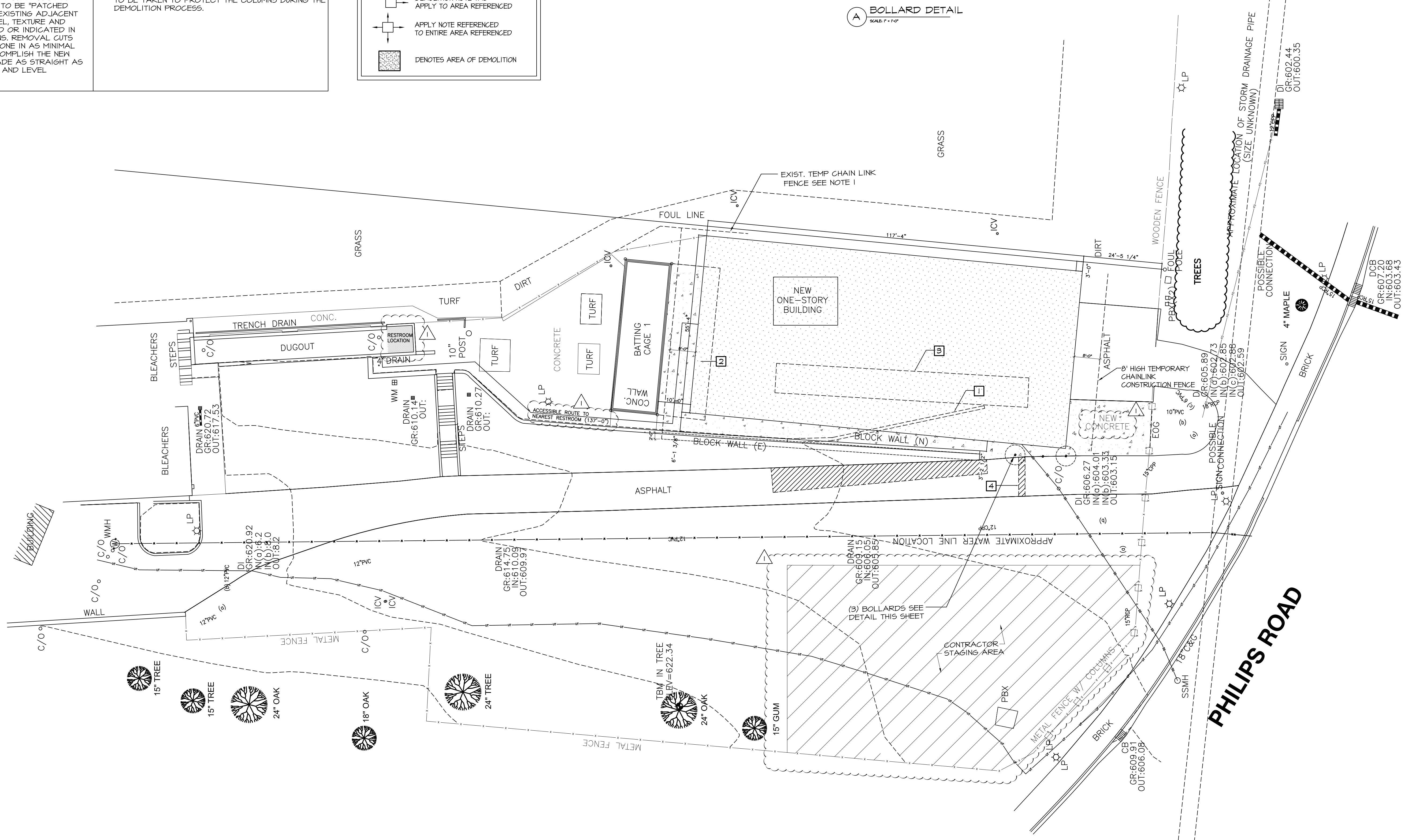
- 1 TEMPORARY FENCE SHALL REMAIN IN PLACE DURING THE ENTIRE BASEBALL SEASON. THE FENCE CAN BE REMOVED FOR COMPLETION OF MASONRY WORK UPON OWNER APPROVAL.

SYMBOLS LEGEND

- EXISTING TO REMAIN SHOWN WITH SOLID LINES
- EXISTING TO BE REMOVED SHOWN WITH DASHED LINES
- DEMOLITION NOTE TAG APPLY TO AREA REFERENCED
- APPLY NOTE REFERENCED TO ENTIRE AREA REFERENCED
- DENOTES AREA OF DEMOLITION



(A) BOLLARD DETAIL
SCALE: 1" = 1'-0"

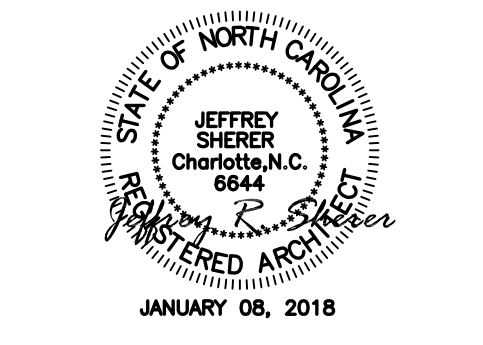
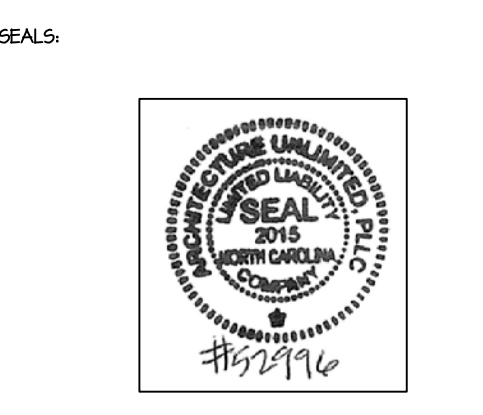


SCALE: 1/16" = 1'-0"

SITE PLAN (1)

Architecture
Unlimited,
PLLC

2700 RONDEAU COURT
MATTHEWS, NC 28105
704-451-7436



CONSTRUCTION
Documents

UNC
CHARLOTTE
BASEBALL
TRAINING
FACILITY

8711 PHILLIPS ROAD
CHARLOTTE, NC 28223

ARCHITECTURAL
SITE AND DEMO
PLAN

PROJECT MANAGER:
JEFF SHERER, NCARB

DRAWN BY:
NSD

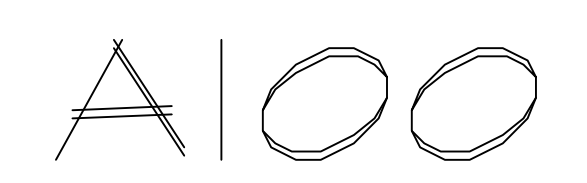
REVISIONS

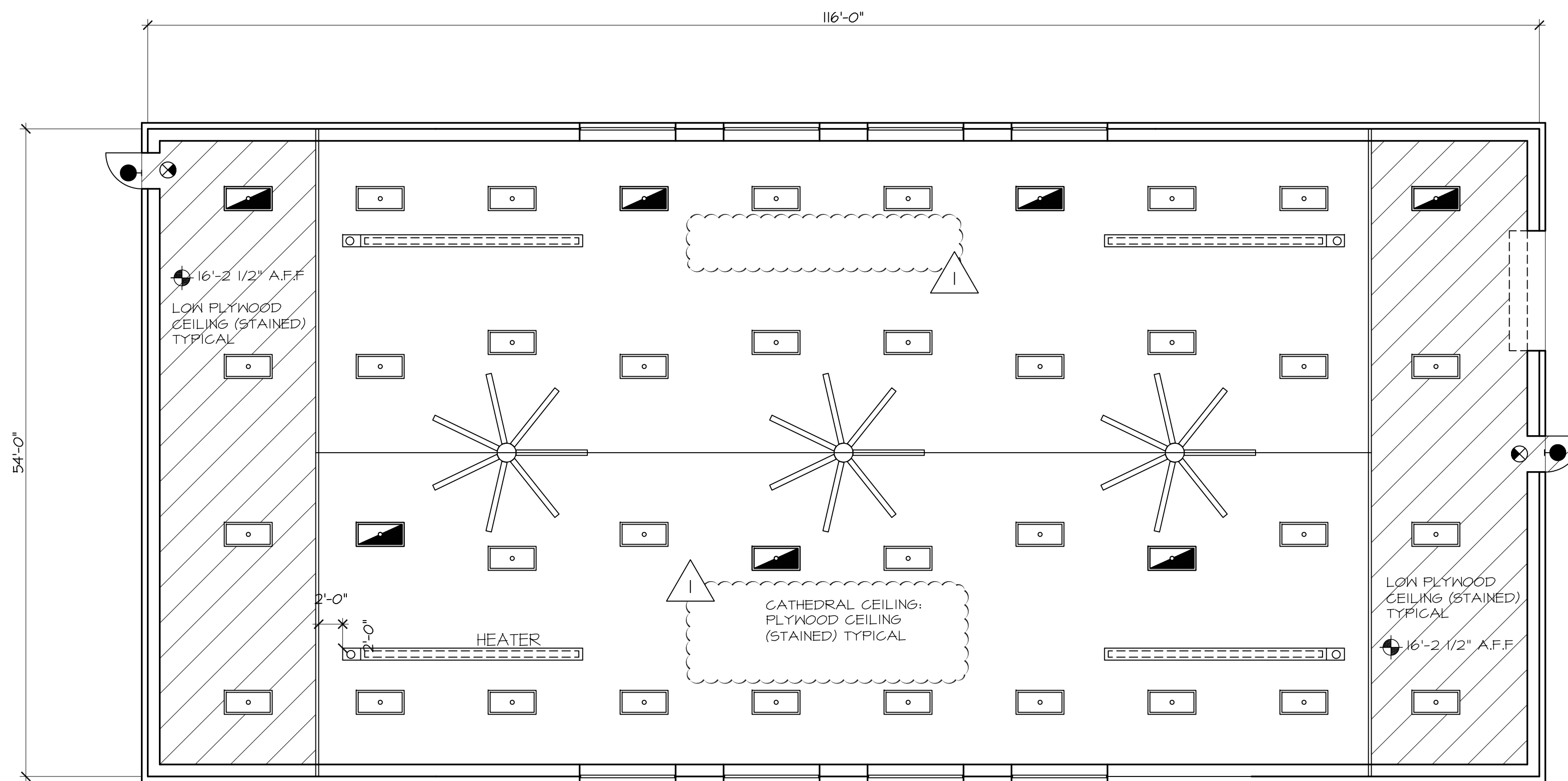
No.	Addendum #2	Date
1		2/06/2018

ISSUE DATE: 1/08/2018

Code: 41626 Item: 309

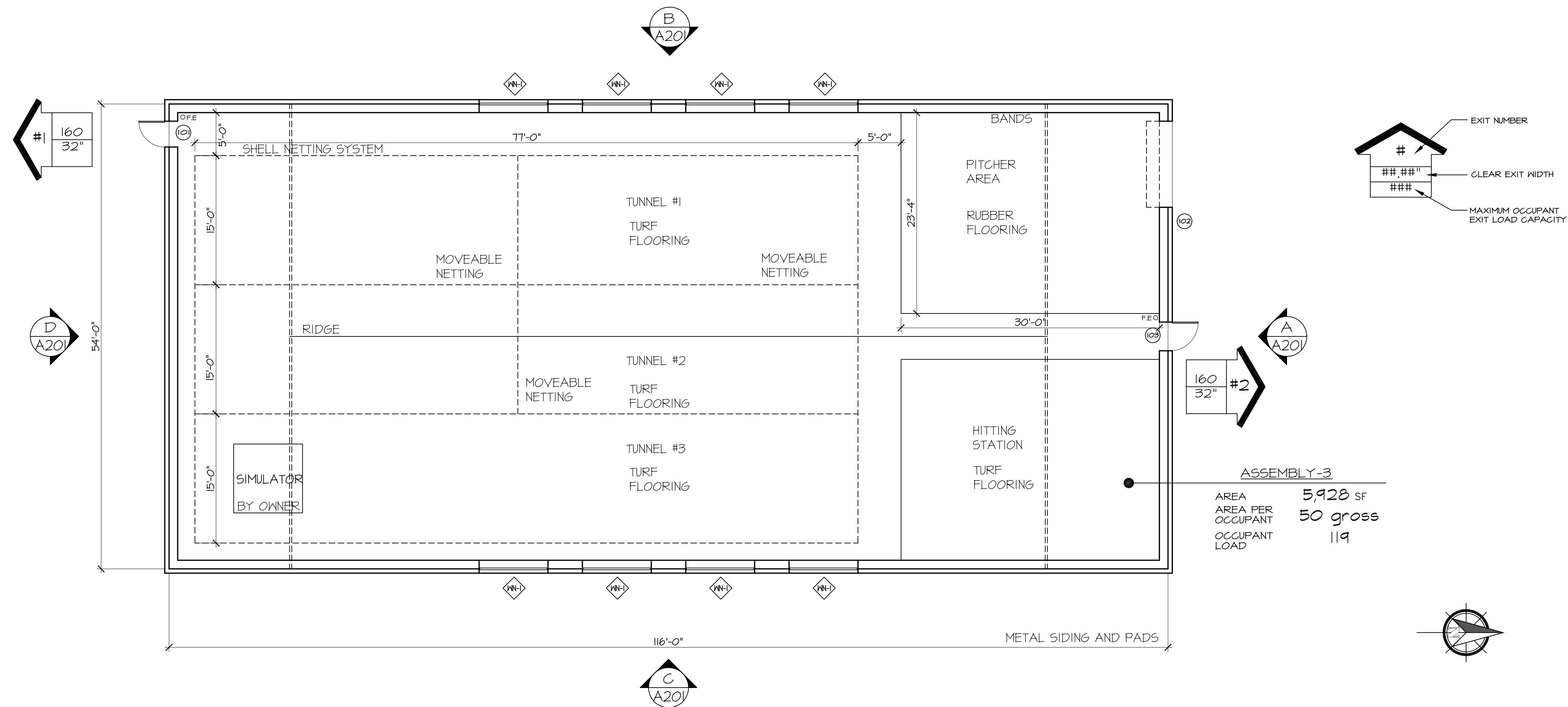
Sheet Number:





SCALE: 1/8" = 1'-0"

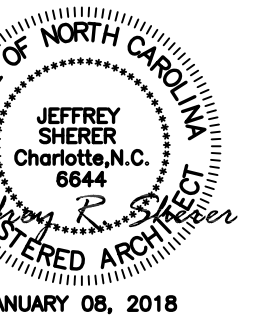
REFLECTED CEILING PLAN (2)



SCALE: 1/8" = 1'-0"

FLOOR & LIFE SAFETY PLAN (1)

SEALS:



PROJECT MANAGER:
JEFF SHERER, NCARB

DRAWN BY:
NSD

REVISIONS

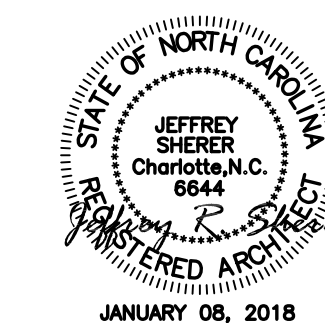
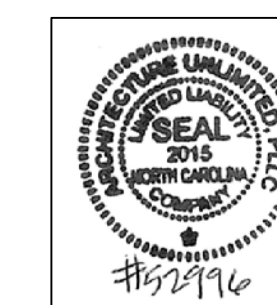
No.	Addendum #2	Date
No. 1		2/06/2018
No. 2		
No. 3		
No. 4		
No. 5		

ISSUE DATE: 1/08/2018

Code: 41626 Item: 309

Sheet Number:

SEALS:



CONSTRUCTION
Documents

UNC
CHARLOTTE
BASEBALL
TRAINING
FACILITY

8711 PHILLIPS ROAD
CHARLOTTE, NC 28223

BUILDING
SECTIONS

PROJECT MANAGER:
JEFF SHERER, NCARB

DRAWN BY:
NSD

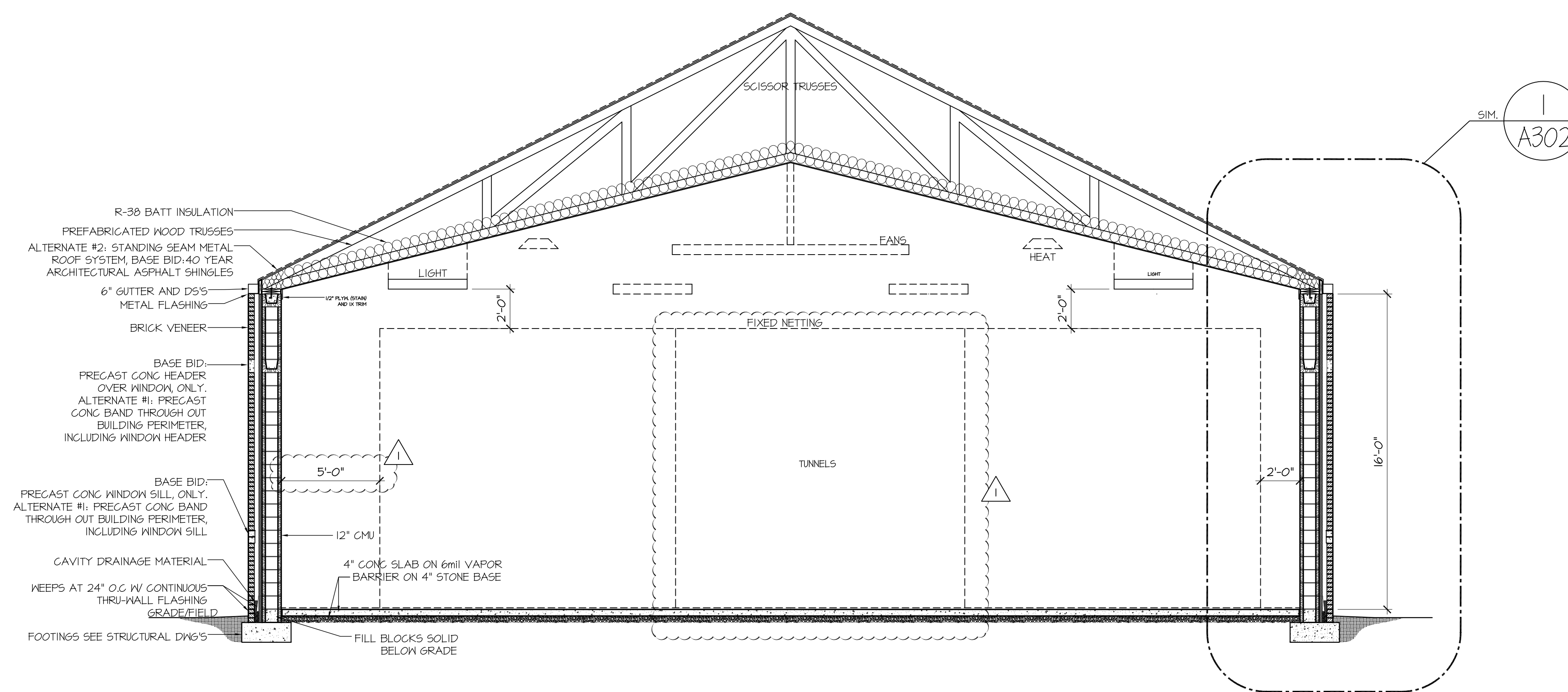
REVISIONS
No. 1 Addendum #2 Date 2/06/2018
No. _____ Date _____
No. _____ Date _____
No. _____ Date _____

ISSUE DATE: 1/08/2018

Code: 41626 Item: 309

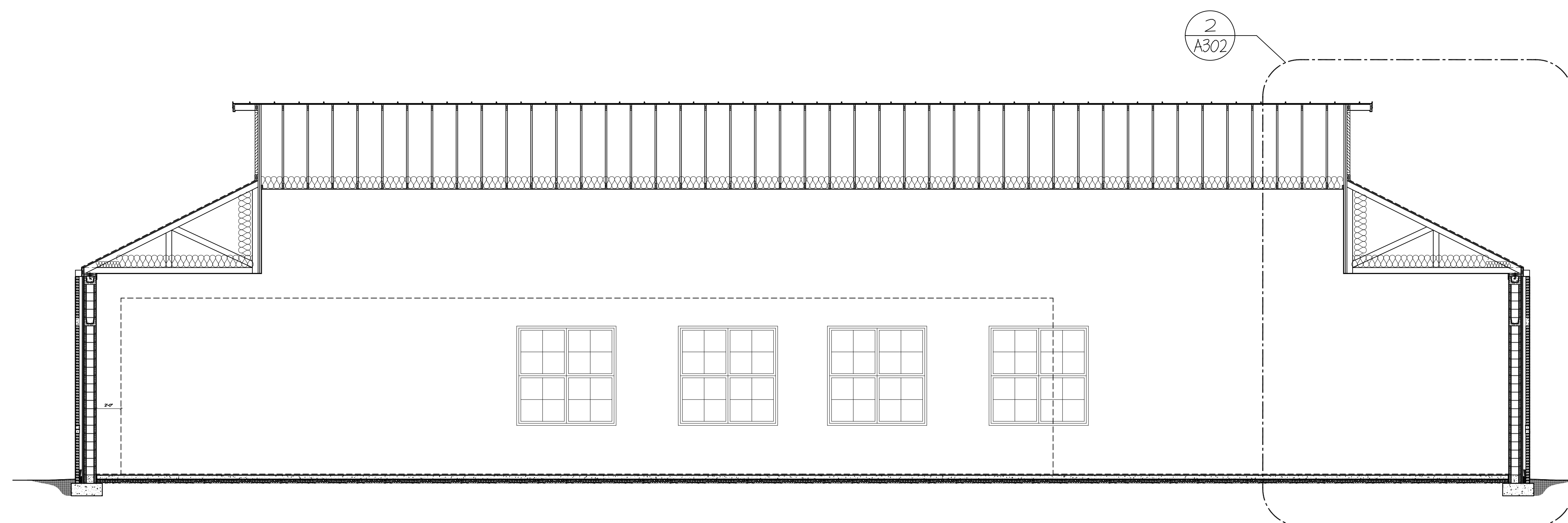
Sheet Number:

A301



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

BUILDING SECTION (2)

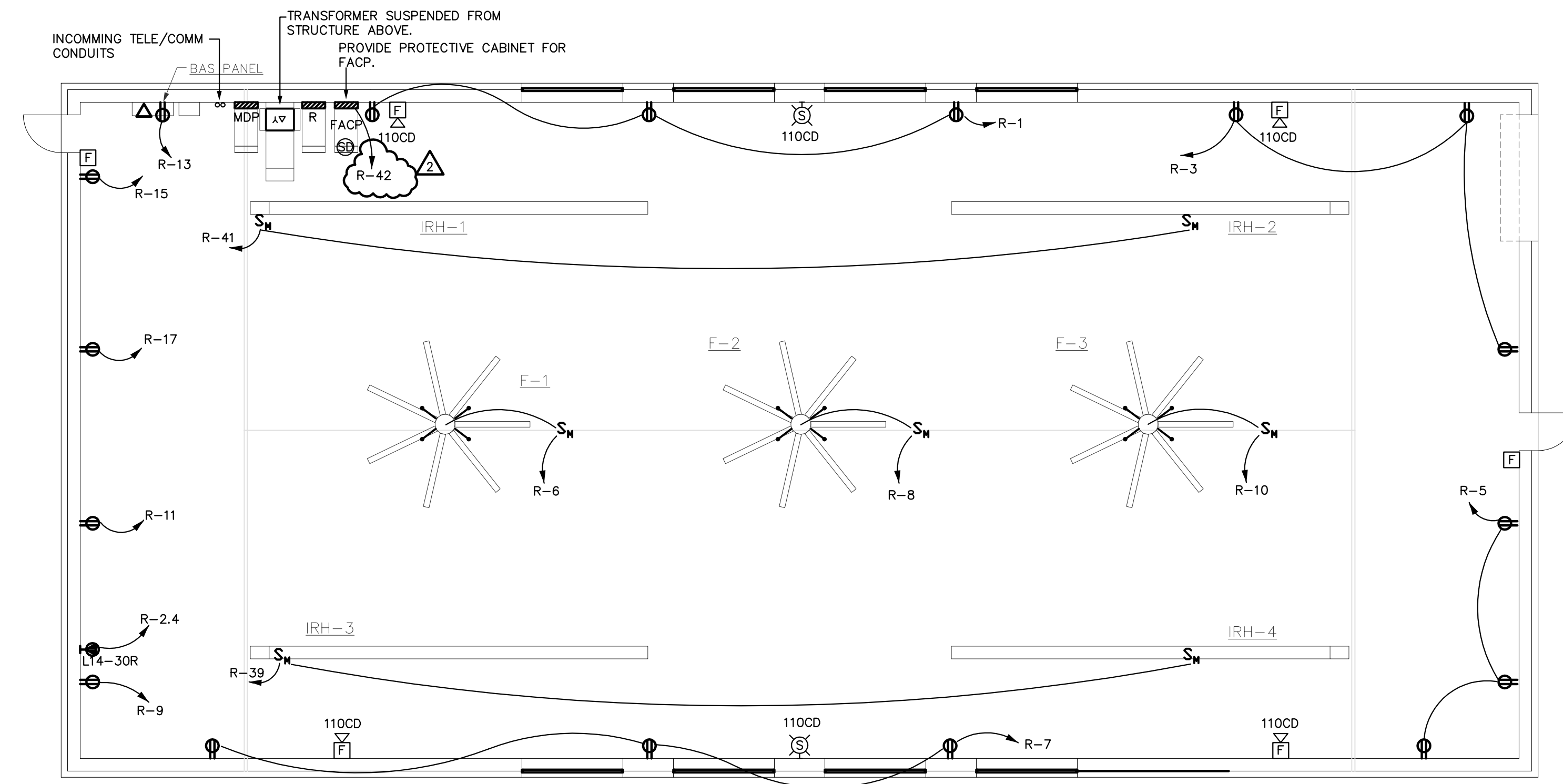


SCALE: 3/16" = 1'-0"

BUILDING SECTION (1)

FAN SCHEDULE				
SYMBOL	ELECTRICAL DATA			DISCONNECT
	VFD	H.P.	VOLTAGE	
F-1	--	1.0	120/1/60	MOTOR RATED TOGGLE SWITCH
F-2	--	1.0	120/1/60	MOTOR RATED TOGGLE SWITCH
F-3	--	1.0	120/1/60	MOTOR RATED TOGGLE SWITCH

INFRARED RADIANT HEATER SCHEDULE				
SYMBOL	ELECTRICAL DATA			DISCONNECT
	ELA	VOLTAGE		
IRH-1	2.6	120V-1		MOTOR RATED TOGGLE SWITCH
IRH-2	2.6	120V-1		MOTOR RATED TOGGLE SWITCH
IRH-3	2.6	120V-1		MOTOR RATED TOGGLE SWITCH
IRH-4	2.6	120V-1		MOTOR RATED TOGGLE SWITCH
IRH-5	2.6	120V-1		MOTOR RATED TOGGLE SWITCH
IRH-6	2.6	120V-1		MOTOR RATED TOGGLE SWITCH



GENERAL NOTES:
1. ALL FIRE ALARM DEVICES ARE TO HAVE WIRE GUARDS.
2. RECEPTACLES ARE TO HAVE METAL FLIP-UP IN-USE COVERS
COORDINATE TYPE WITH OWNER PRIOR TO ORDERING.

① FLOOR PLAN - POWER
1/8" = 1'-0"



PROJECT MANAGER:
JEFF SHERER, NCARB

DRAWN BY:
BLM

REVISIONS

No. Δ	ADDENDUM	Date	01/31/18
No. Δ	ADDENDUM	Date	02/05/18
No. _____		Date	
No. _____		Date	

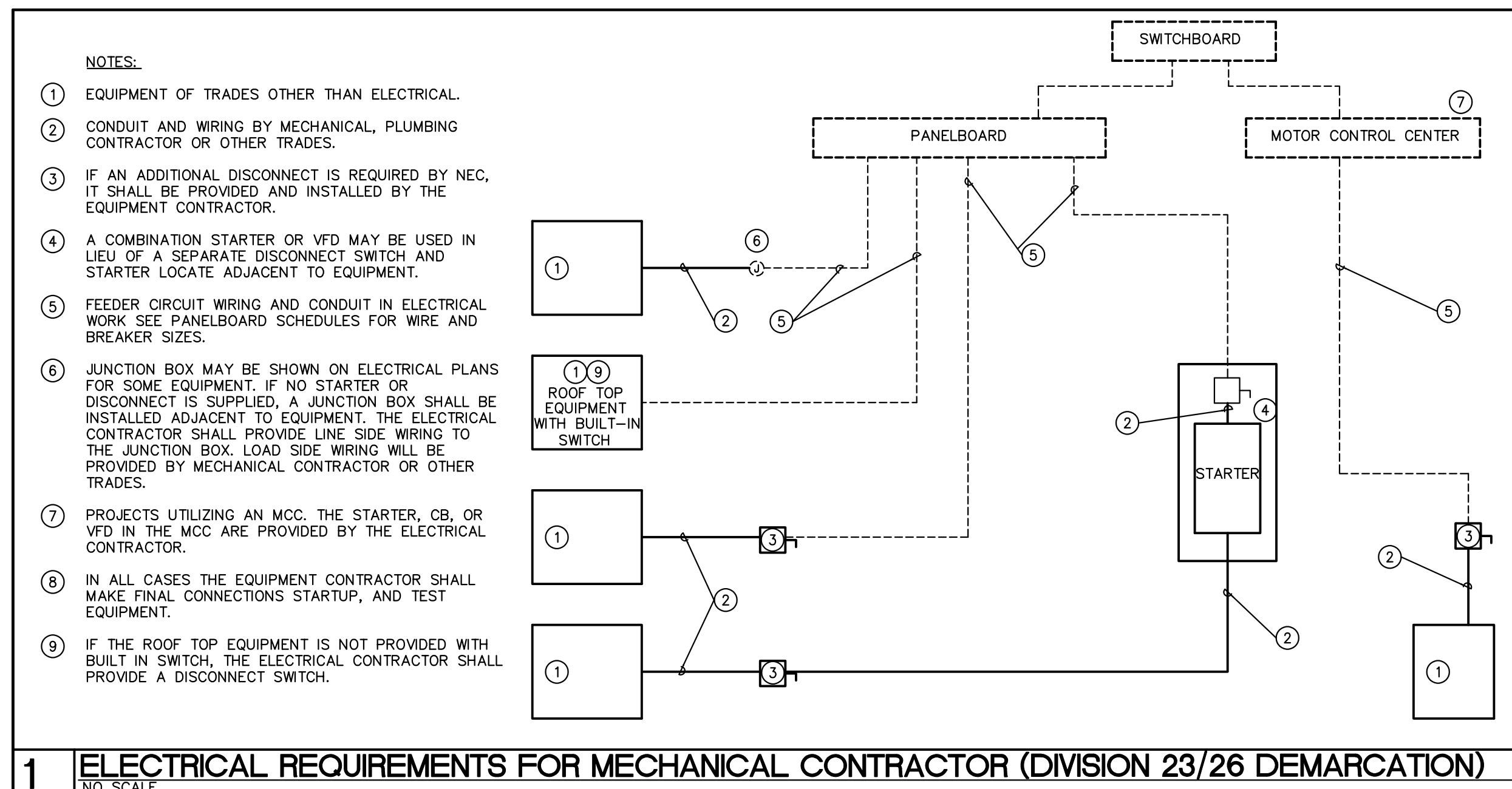
Issue Date: 01/29/2018

FLOOR PLAN -
POWER

Code: 41626 Item: 309

Sheet Number:

E3.1



FAN SCHEDULE

SYMBOL	SERVICE/LOCATION	TYPE	CFM	APPROX. S.P.	DRIVE	FAN RPM	ELECTRICAL DATA			MANUFACTURER GREENHECK	ACCESSORIES	CONTROLS
							VFD	H.P.	VOLTAGE			
F-1		VENTILATION			DIRECT	110		1.0	120/1/60	MACRO AIR-14-AVD550	A,U,V,G	4
F-2		VENTILATION			DIRECT	110		1.0	120/1/60	MACRO AIR-14-AVD550	A,U,V,G	4
F-3		VENTILATION			DIRECT	110		1.0	120/1/60	MACRO AIR-14-AVD550	A,U,V,G	4

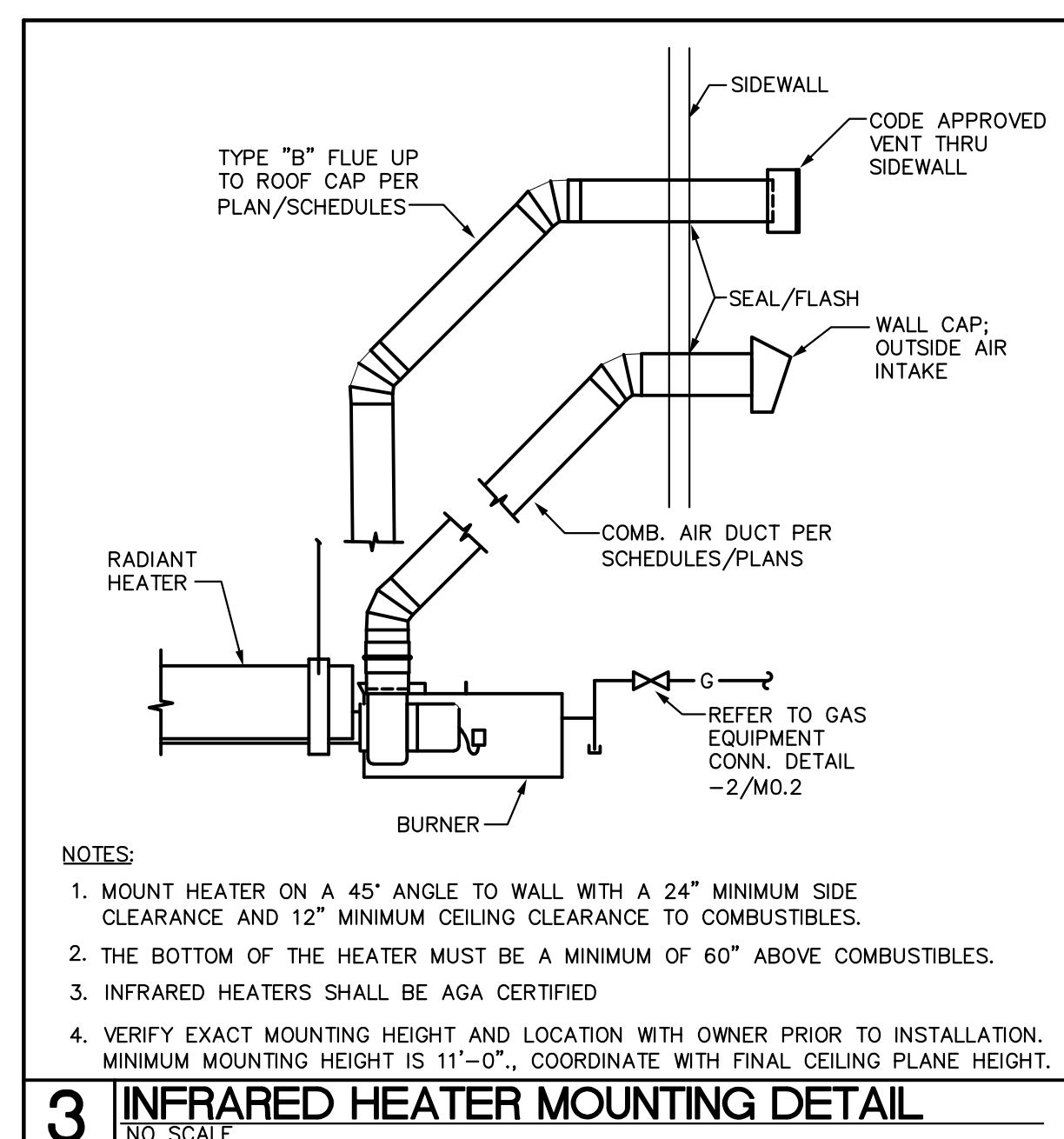
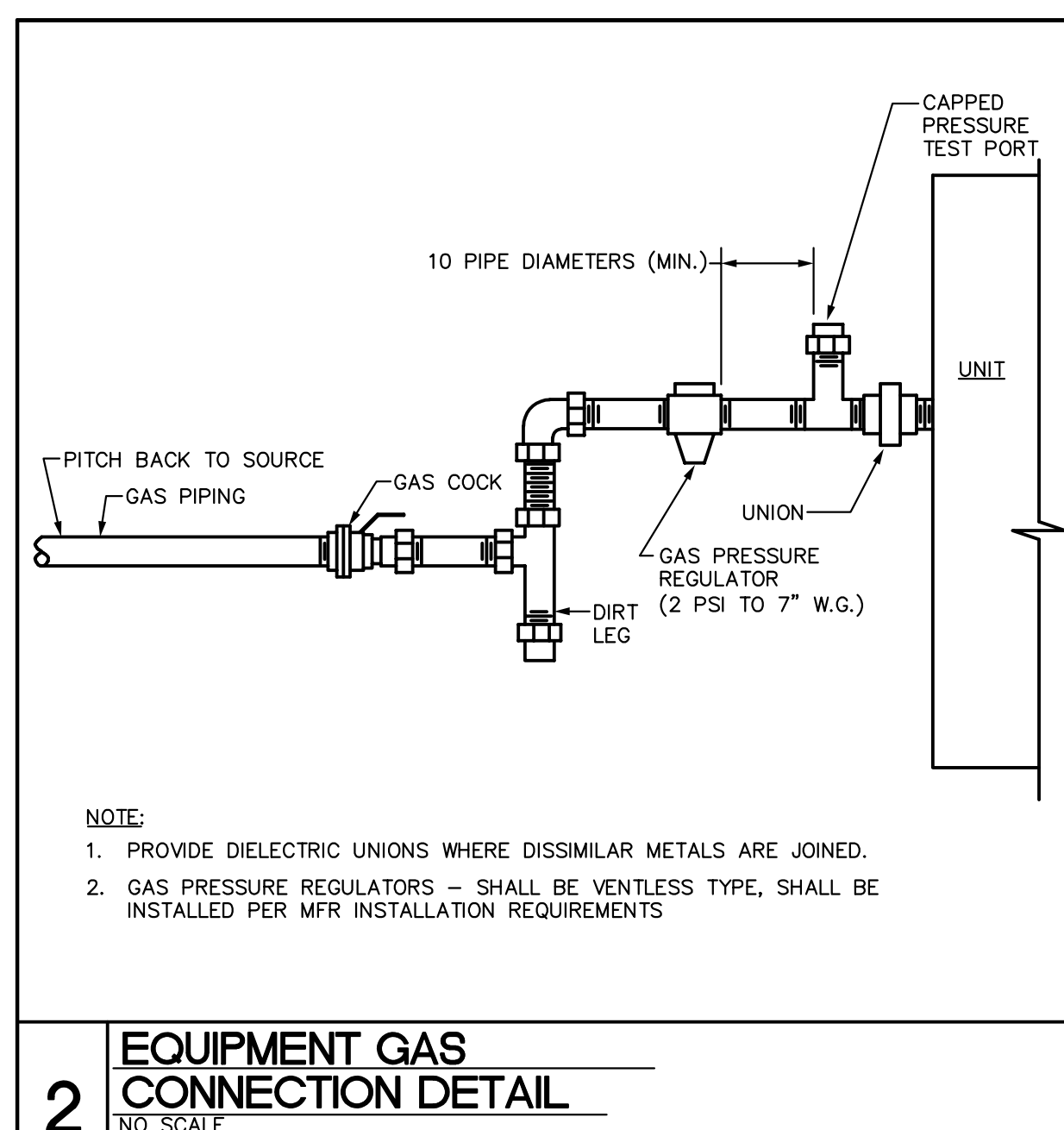
ACCESSORIES

A: DISCONNECT SWITCH	D: HANGING BRACKETS WITH VIBRATION ISOLATION	G: MAGNETIC STARTER WITH AUXILIARY CONTACTS	J: GREASE TRAP	M: UL LISTED FOR GREASE
B: BACKDRAFT DAMPER	E: BELT GUARD	H: PREFAB. ROOF CURB	K: INLET GUARD	U: PROVIDE GUY WIRES PER MFR INSTALLATION REQUIREMENTS
C: ACOUSTICAL LINING	F: EXTENDED LUBE LINES	I: BIRDSCREEN		V: CEILING MOUNTING BRACKET

CONTROLS

1: CONTROLLED BY BUILDING AUTOMATION SYSTEM	4: REMOTE MOUNTED WIRED WALL ANALOG CONTROL WITH VARIABLE SPEED (NOTE: PROVIDE CONDUIT AND JUNCTION BOXES FOR FAN CONTROLS)
2: ROOM THERMOSTAT	
3: INTERLOCK WITH ASSOCIATED KITCHEN HOOD	

- NOTES:**
- ALL FANS SHALL BE U.L. LISTED AND LABELED AND SHALL BE AMCA CERTIFIED FOR SOUND AND AIR FLOW. ALL FANS INSTALLED INSIDE, ABOVE, OR ADJACENT TO OCCUPIED SPACES SHALL HAVE A MAXIMUM 9.0 INLET SONE LEVEL.
 - ALL FANS SHALL BE SUPPLIED BY ONE MANUFACTURER UNLESS NOTED OTHERWISE.
 - MECHANICAL CONTRACTOR SHALL PROVIDE MAGNETIC STARTER WITH AUXILIARY CONTACTS AS REQUIRED.
 - INSTALL INLINE FANS TIGHT TO BOTTOM OF STRUCTURE.
 - ALL FANS SHALL BE INTEGRATED INTO NEW BAS TO MONITOR FAN STATUS.
 - PROVIDE ALL DIRECT DRIVE FANS WITH SPEED CONTROLLERS.
 - F-1-3; WEIGHT 175LBS, MCA-13.9A, MOCF-15A
 - ALL ELECTRICAL COMPONENTS SERVING ALL FANS SHALL HAVE A MINIMUM SCOR RATING OF 65 KAIC.
 - PROVIDE FIRE ALARM INTERLOCK WITH F-1-3, FOR SHUTDOWN UPON ACTIVATION OF FIRE ALARM SYSTEM



INFRARED RADIANT HEATER SCHEDULE

SYMBOL	GAS INPUT (MBH)	MOUNTING ANGLE	TUBE LENGTH	FLUE SIZE	ELECTRICAL DATA		MANUFACTURER SPACE RAY MODEL	NOTES
					FLA	VOLTAGE		
IRH-1	60	45°	30'	4"	2.6	120V-1	LTS-60	
IRH-2	60	45°	30'	4"	2.6	120V-1	LTS-60	
IRH-3	60	45°	30'	4"	2.6	120V-1	LTS-60	
IRH-4	60	45°	30'	4"	2.6	120V-1	LTS-60	

- NOTES:**
- INFRARED HEATERS SHALL BE AGA CERTIFIED
 - UNITS SHALL BE SUPPLIED WITH: GLO-BAR OR OTHER NON-PILOT IGNITION, 120V CONTROLS.
 - PROVIDE THERMOSTAT FOR EACH UNIT.
 - PROVIDE 6" DUCT CONNECTION FOR COMBUSTION AIR
 - COORDINATE MOUNTING HEIGHT WITH ADJACENT UTILITIES AND LIGHTS (MIN. 11' PER MFR) - MOUNT AS HIGH AS POSSIBLE.
 - PROVIDE 2 STAGE MODULATING GAS VALVE CONTROLS
 - PROVIDE UNIT WITH FUSED DISCONNECT

ALL O.A. IS PROVIDED BY NATURAL VENTILATION:
WAREHOUSE (BASED ON 2012 NCMC 402.2):
5900 SQ. FT. X 4% = 236 SQ. FT. REQUIRED
ROLL SLIDING WINDOW (8) X 8'W X 8'H = 512 SQ. FT.
512 SQ. FT. PROVIDED

PROJECT MANAGER:
JEFF SHERER, NCARB

DRAWN BY:
CAH

REVISIONS

No. <u>Δ</u>	ADDENDUM	Date	01/31/18
No. <u>Δ</u>	ADDENDUM	Date	02/05/18
No. _____		Date	
No. _____		Date	

Issue Date: 01/29/2018

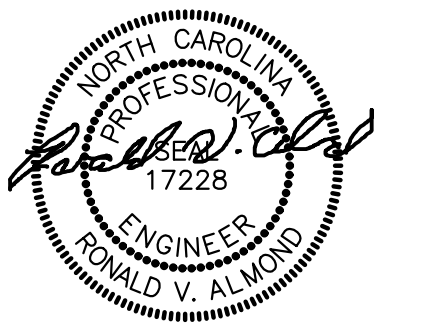
MECHANICAL
SCHEDULES AND
DETAILS

Code: 41626 Item: 309

Sheet Number:

MO.2

Seal



01/29/18

CONSTRUCTION
Documents

UNC
CHARLOTTE
BASEBALL
TRAINING
FACILITY

8711 PHILLIPS ROAD
CHARLOTTE, NC 28223

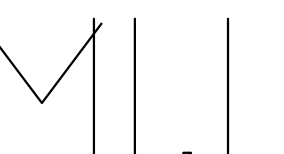
PROJECT MANAGER:	JEFF SHERER, NCARB
DRAWN BY:	CAH
REVISIONS	
No. Δ	ADDENDUM Date 01/29/18
No. Δ	ADDENDUM Date 01/31/18
No. _____	Date _____
No. _____	Date _____

Issue Date: 01/29/2018

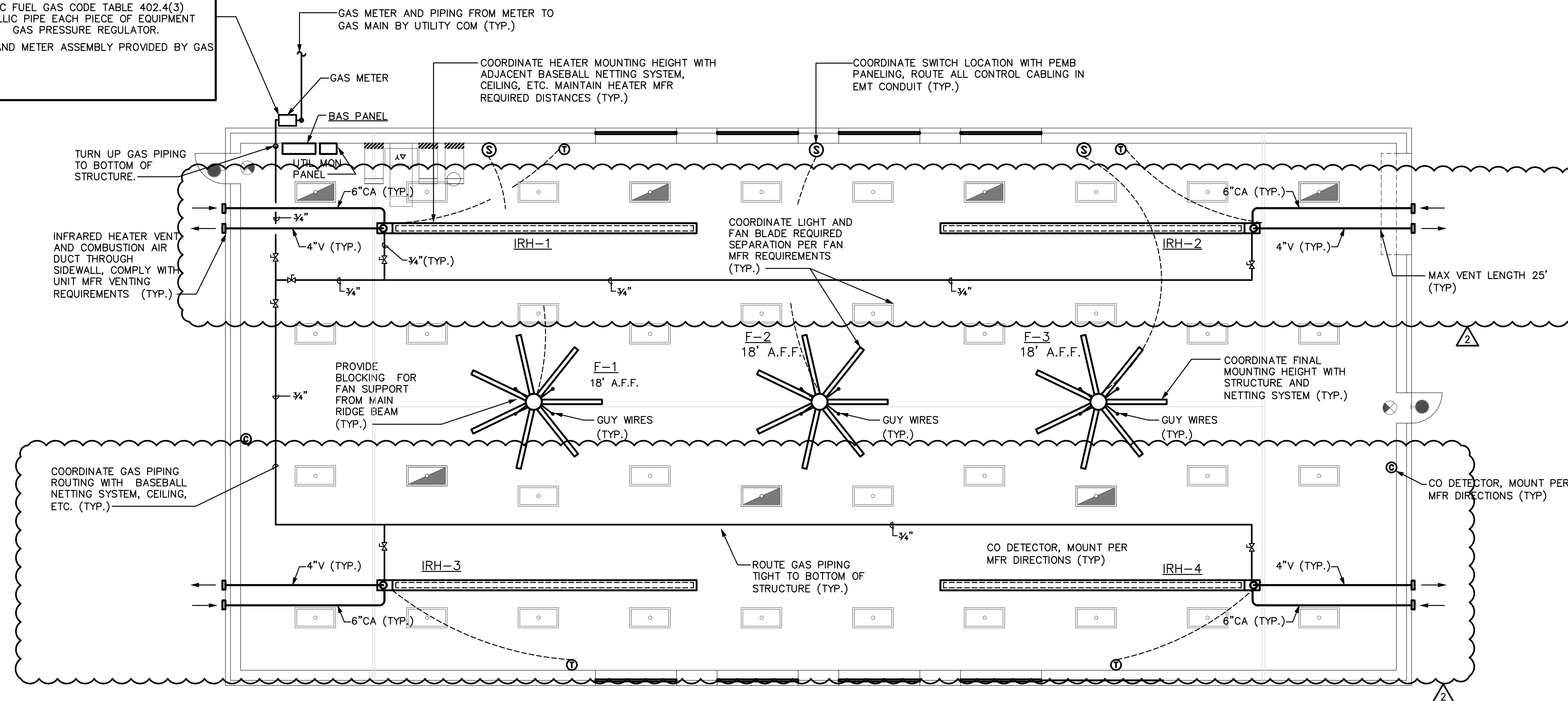
MECHANICAL FIRST
FLOOR PLAN

Code: 41626 Item: 309

Sheet Number:

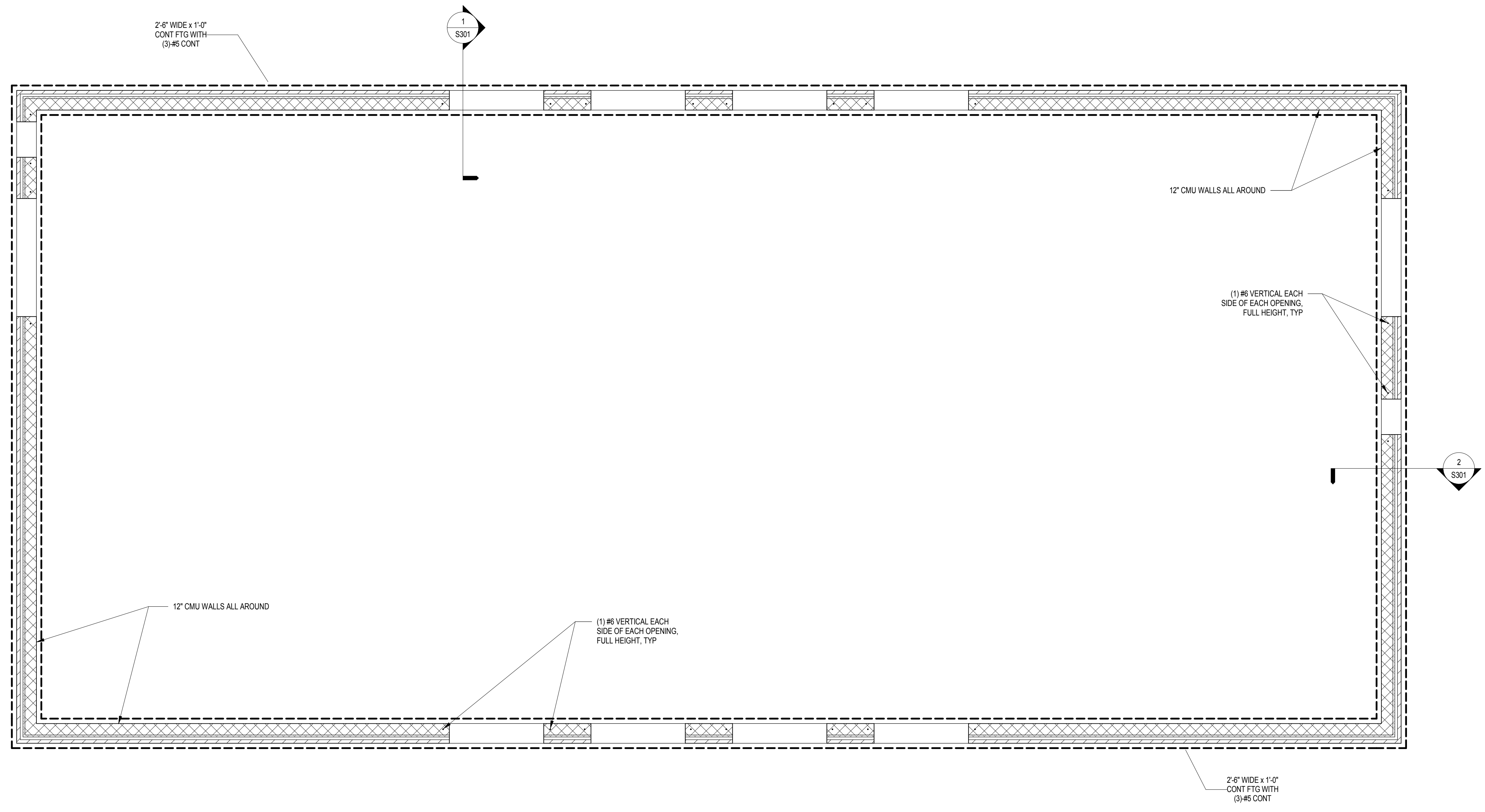


GAS PIPING DESIGN CRITERIA:
INITIAL GAS PRESSURE - 2.0 PSIG
GAS PRESSURE DROP - 1.0 PSIG
TOTAL EQUIV. LENGTH OF PIPING - 200 FT.
PIPING SIZED PER NC FUEL GAS CODE TABLE 402.4(3)
SCHEDULE 40 METALLIC PIPE EACH PIECE OF EQUIPMENT
IS PROVIDED WITH A GAS PRESSURE REGULATOR.
3/4" GAS SERVICE AND METER ASSEMBLY PROVIDED BY GAS
SUPPLIER.
TOTAL LOAD:
240 CFH @ 2 PSI.



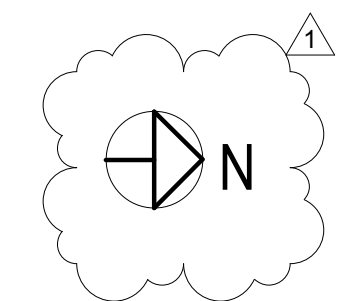
1 FLOOR PLAN - MECHANICAL
1/8" = 1'-0"





1 FOUNDATION PLAN
S101 3/16" = 1'-0"

- FOUNDATION NOTES**
1. REFERENCE TOP OF SLAB ELEVATION IS 0'-0". ALL ELEVATIONS SHOWN ARE RELATIVE TO THE REFERENCE TOP OF SLAB ELEVATION. COORDINATE ACTUAL ELEVATION WITH ARCH/CIVIL.
 2. FLOOR IS 4" SLAB ON GRADE WITH ONE LAYER OF #66 W1.4XW1.4 WWP CENTERED IN SLAB. PROVIDE 10 MIL VAPOR RETARDER ON TOP OF 4" OF PROPERLY PREPARED AGGREGATE BASE. SEE GEOTECHNICAL REPORT.
 3. SLAB ON GRADE JOINTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH 1/S201 AND SHALL BE SPACED NO GREATER THAN 12'-0" ON CENTER IN EACH DIRECTION.
 4. TOP OF FOOTING ELEVATION IS -1'-4" THROUGHOUT.
 5. FOR ADDITIONAL REQUIREMENTS, SEE GENERAL NOTES.



Architecture Unlimited, PLLC

2700 RONDEAU COURT
MATTHEWS, NC 28105 704-451-7436

Moore Lindner Engineering, Inc
250 N. Trade Street
Suite 205
Matthews, NC 28105
P: 704-321-1266
F: 704-321-1366
NC Firm #C-2410
Moore Lindner Project # 17-024

© 2017 Moore Lindner Engineering, Inc. All rights reserved. All reports, plans, specifications, computer files, field data, notes and other documents and instruments prepared by Moore Lindner (ML) as instruments of service shall remain the property of ML. ML shall retain all common law, statutory and other reserved rights, including the copyright thereto.

Seal



Project

UNCC BASEBALL FACILITY

SCO ID #17-17373-01A

8711 PHILLIPS ROAD
CHARLOTTE, NC

PROGRESS SET

REVISIONS

No.	Date	Revision Description
1	2/7/18	Addendum #2

Issue Date: DEC 5, 2017

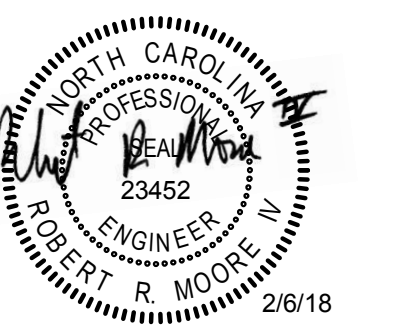
Sheet Title:

FOUNDATION PLAN

Project Number:

Sheet Number:

S101



REVISIONS

No.	Date	Revision Description
1	2/7/18	Addendum #2

Issue Date: DEC 5, 2017

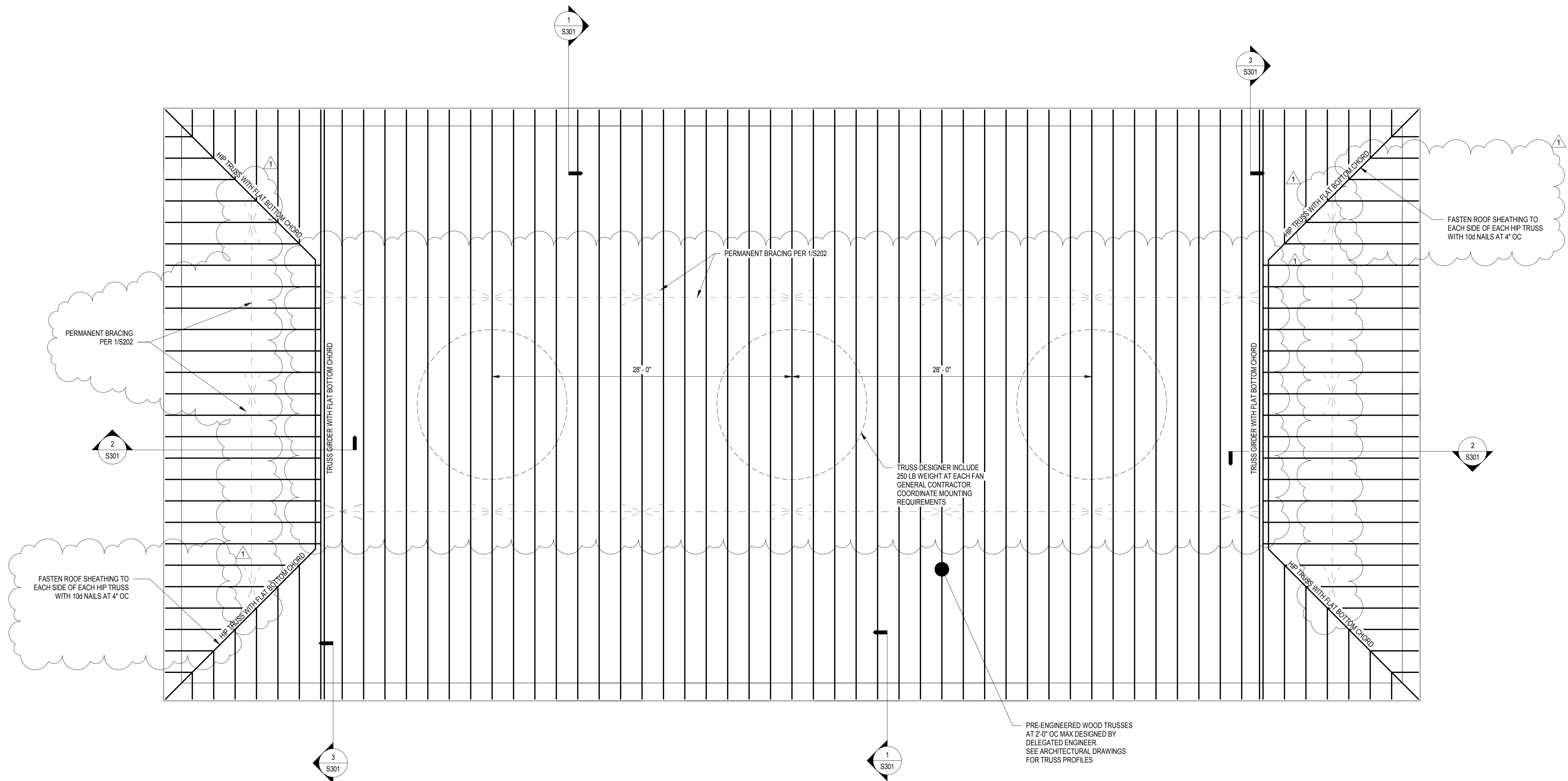
Sheet Title:

ROOF
FRAMING
PLAN

Project Number:

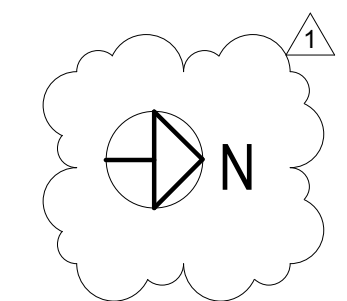
Sheet Number:

S102



1 ROOF FRAMING PLAN
3/16" = 1'-0"

- ROOF FRAMING NOTES**
- ROOF DECK IS 5/8" APA 32/16 RATED ROOF SHEATHING. FASTEN SHEATHING TO EACH TRUSS WITH 10d NAILS AT 4" OC
 - ROOF FRAMING MEMBERS ARE PRE-ENGINEERED PLATE-CONNECTED WOOD TRUSSES AT 2'-0" OC MAX SPACING. TRUSSES SHALL BE DESIGNED BY DELEGATED ENGINEER IN ACCORDANCE WITH NOTES ON SHEET S001 AND LOADS SHOWN BELOW. SEE ARCHITECTURAL FOR TRUSS PROFILES.
 - TRUSS DESIGN LOADS:
TOP CHORD LIVE LOAD = 20 psf
TOP CHORD DEAD LOAD = 10 psf
BOTTOM CHORD LIVE LOAD = 6 psf
BOTTOM CHORD DEAD LOAD = 5 psf
BOTTOM CHORD FANS = 250 LBS (THREE LOCATIONS)
TRUSS SELFWEIGHT = AS CALCULATED BY TRUSS DESIGNER
 - FOR ADDITIONAL REQUIREMENTS, SEE GENERAL NOTES.



Architecture Unlimited, PLLC

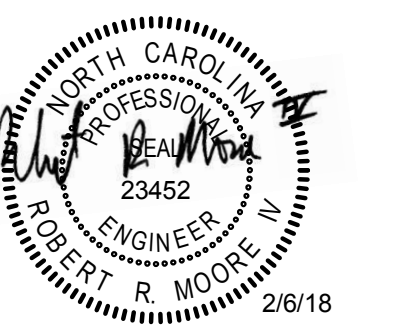
2700 RONDEAU COURT
MATTHEWS, NC 28105 704-451-7436

Moore Lindner Engineering, Inc

250 N. Trade Street P: 704-321-1266
Suite 205 F: 704-321-1366
Matthews, NC 28105
NC Firm #C-2410
Moore Lindner Project # 17-024

© 2017 Moore Lindner Engineering, Inc. All rights reserved.
All reports, plans, specifications, computer files, field data,
notes and other documents and instruments prepared by
Moore Lindner (ML) as instruments of service shall remain the
property of ML. ML shall retain all common law, statutory and
other reserved rights, including the copyright thereto.

Seal



Project

UNCC BASEBALL FACILITY

SCO ID #17-17373-01A

8711 PHILLIPS ROAD
CHARLOTTE, NC

PROGRESS SET

REVISIONS

No.	Date	Revision Description
1	2/7/18	Addendum #2

Issue Date: DEC 5, 2017

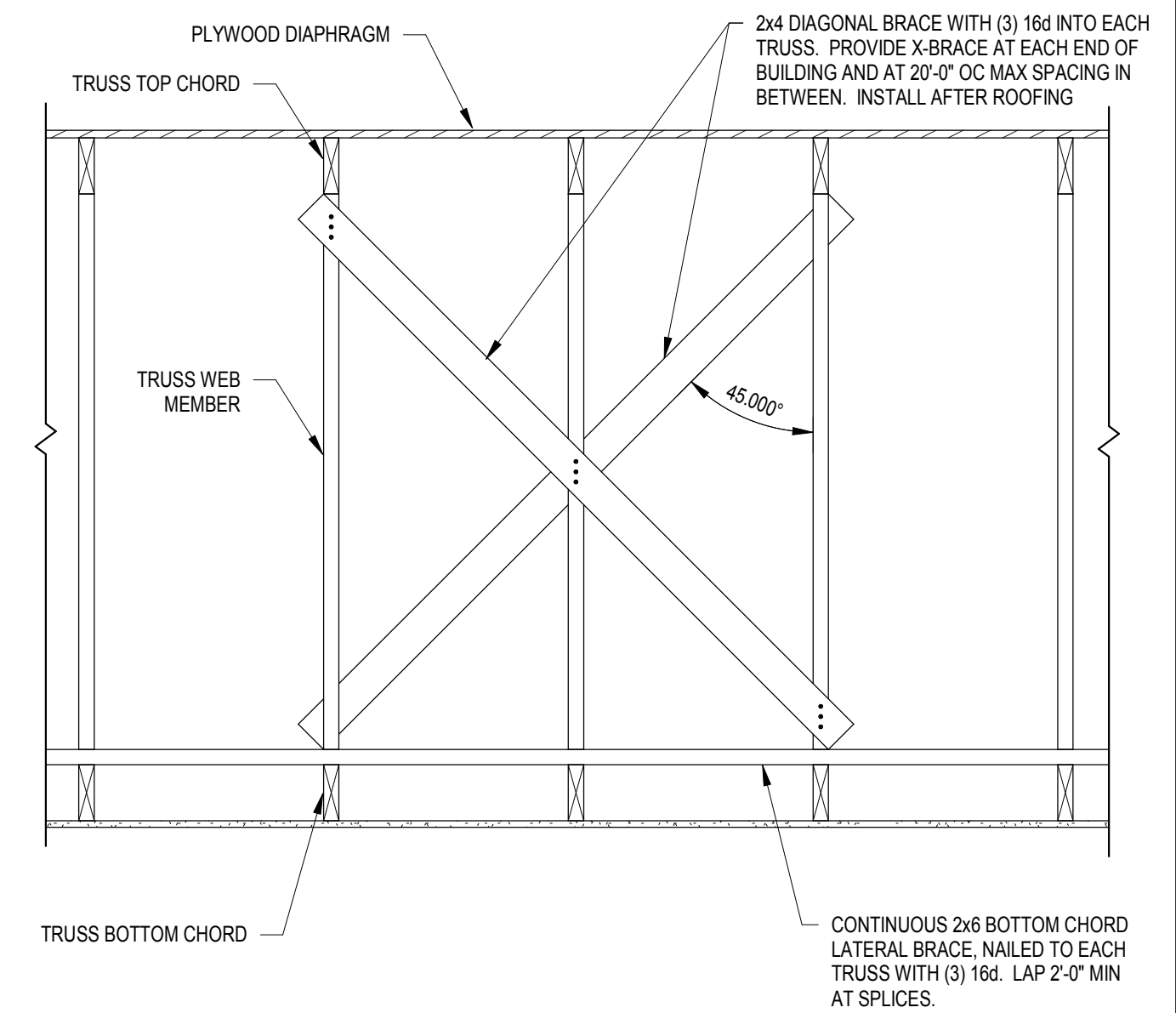
Sheet Title:

TYPICAL SECTIONS AND DETAILS

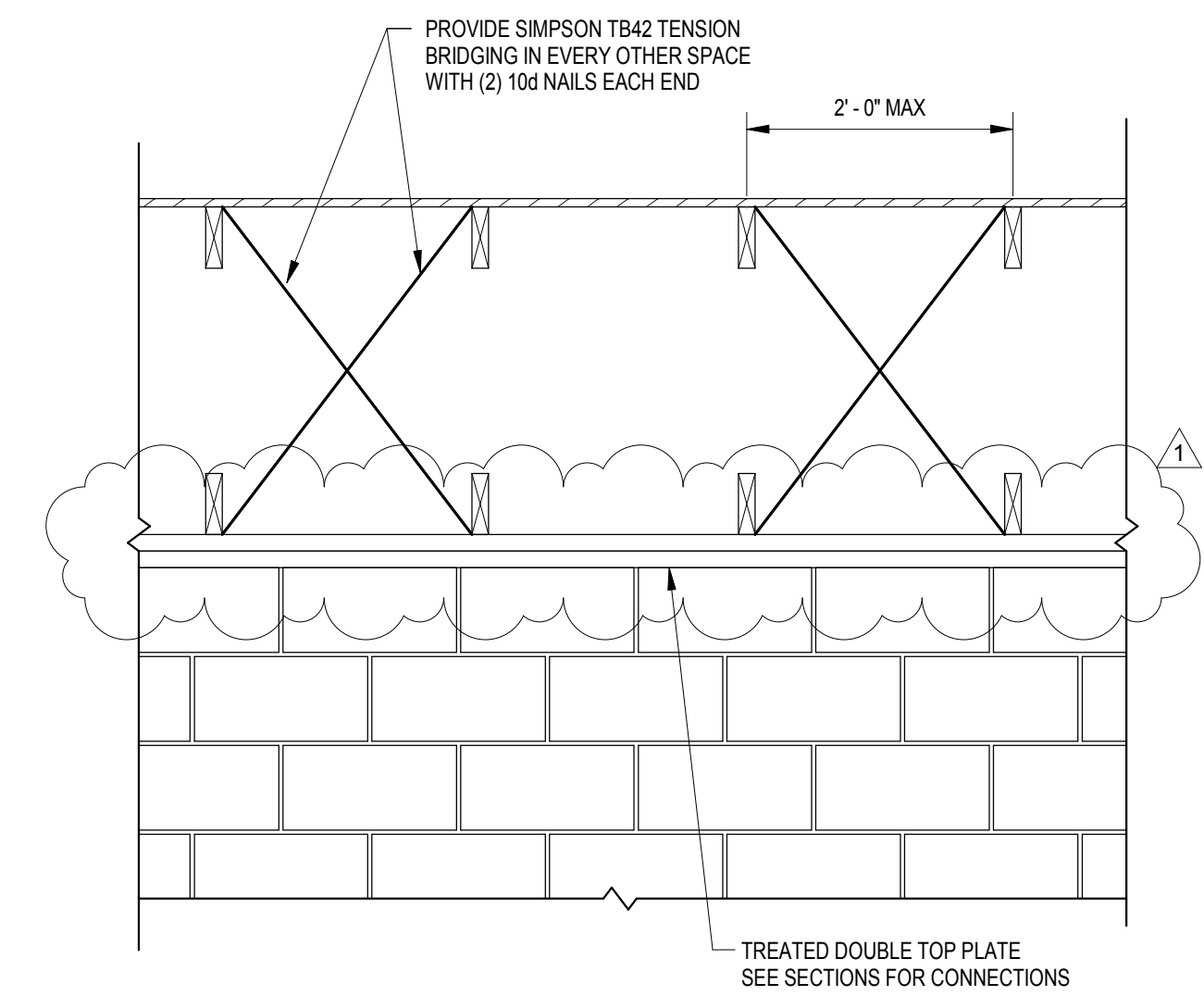
Project Number:

Sheet Number:

S202

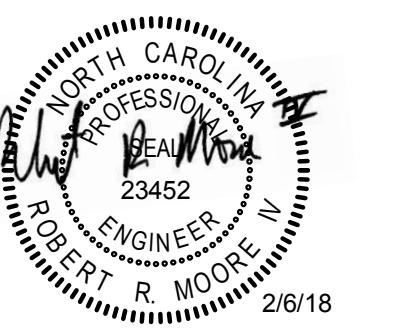


1 TRUSS PERMANENT BRACING REQUIREMENTS
S202 / NTS



2 BRIDGING AT EXTERIOR TRUSS BEARING
S202 / NTS

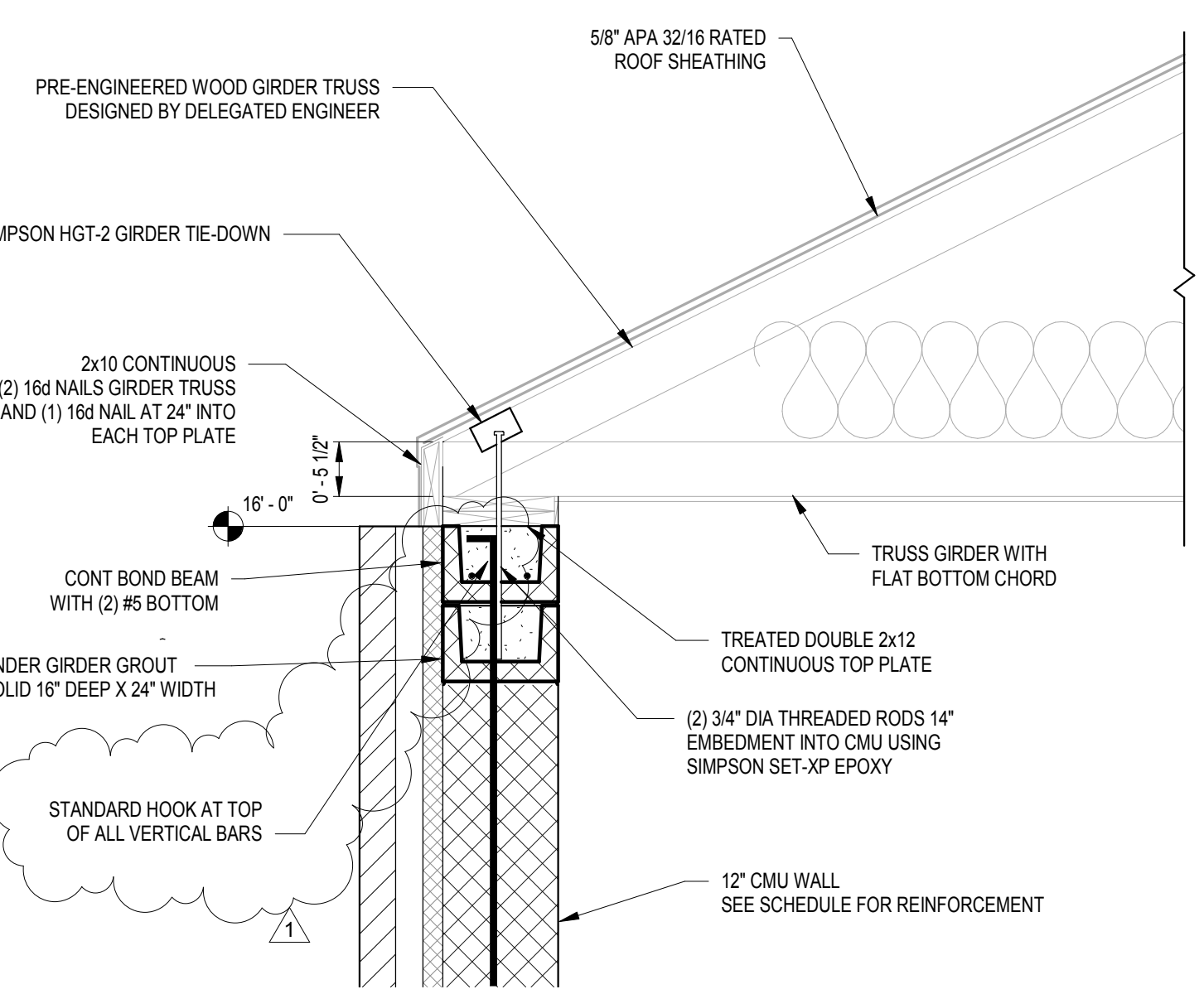
THIS BRIDGING IS REQUIRED AT TRUSS BEARING CONDITION ALL AROUND PERIMETER OF BUILDING.



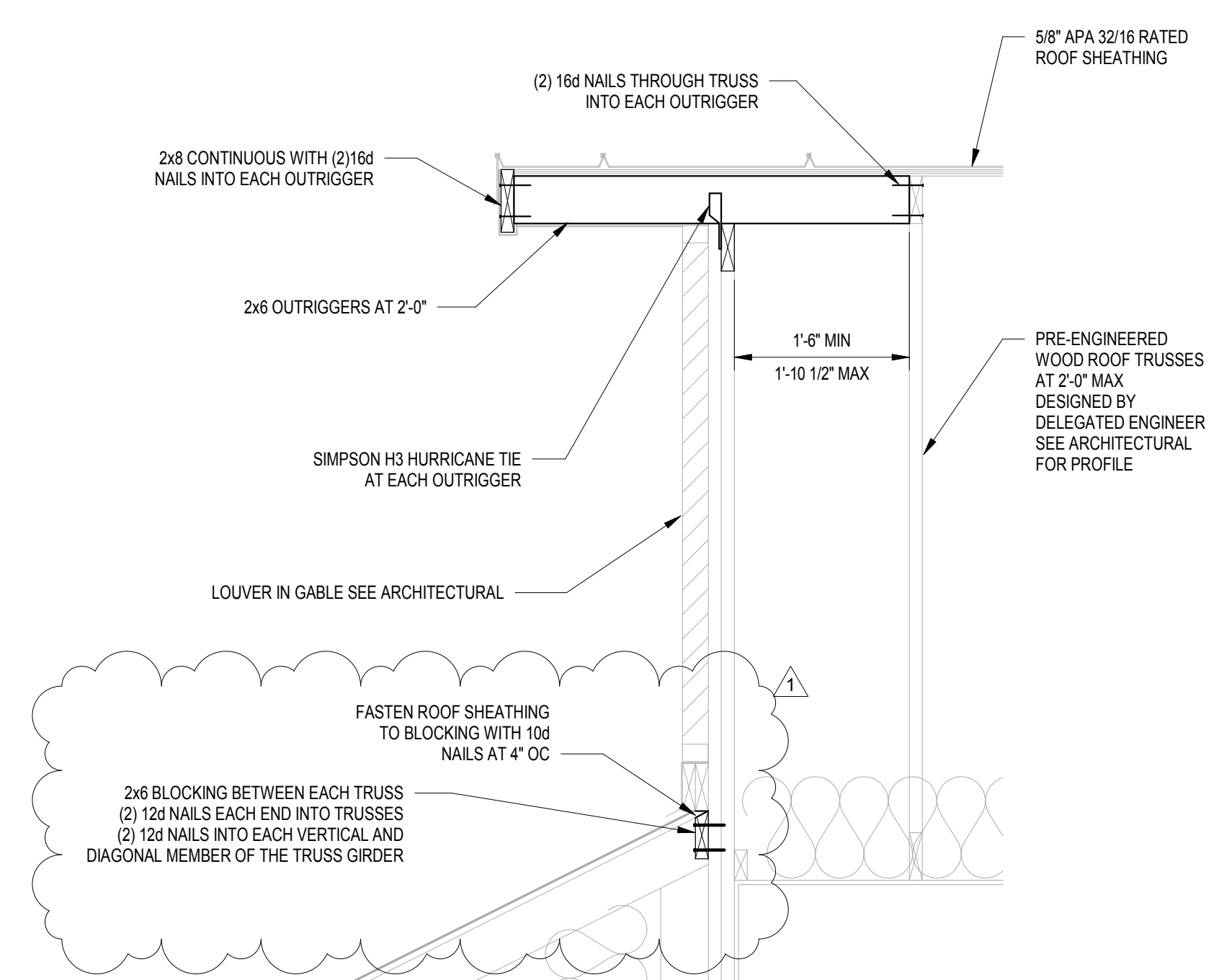
REVISIONS

No.	Date	Revision Description
1	2/7/18	Addendum #2

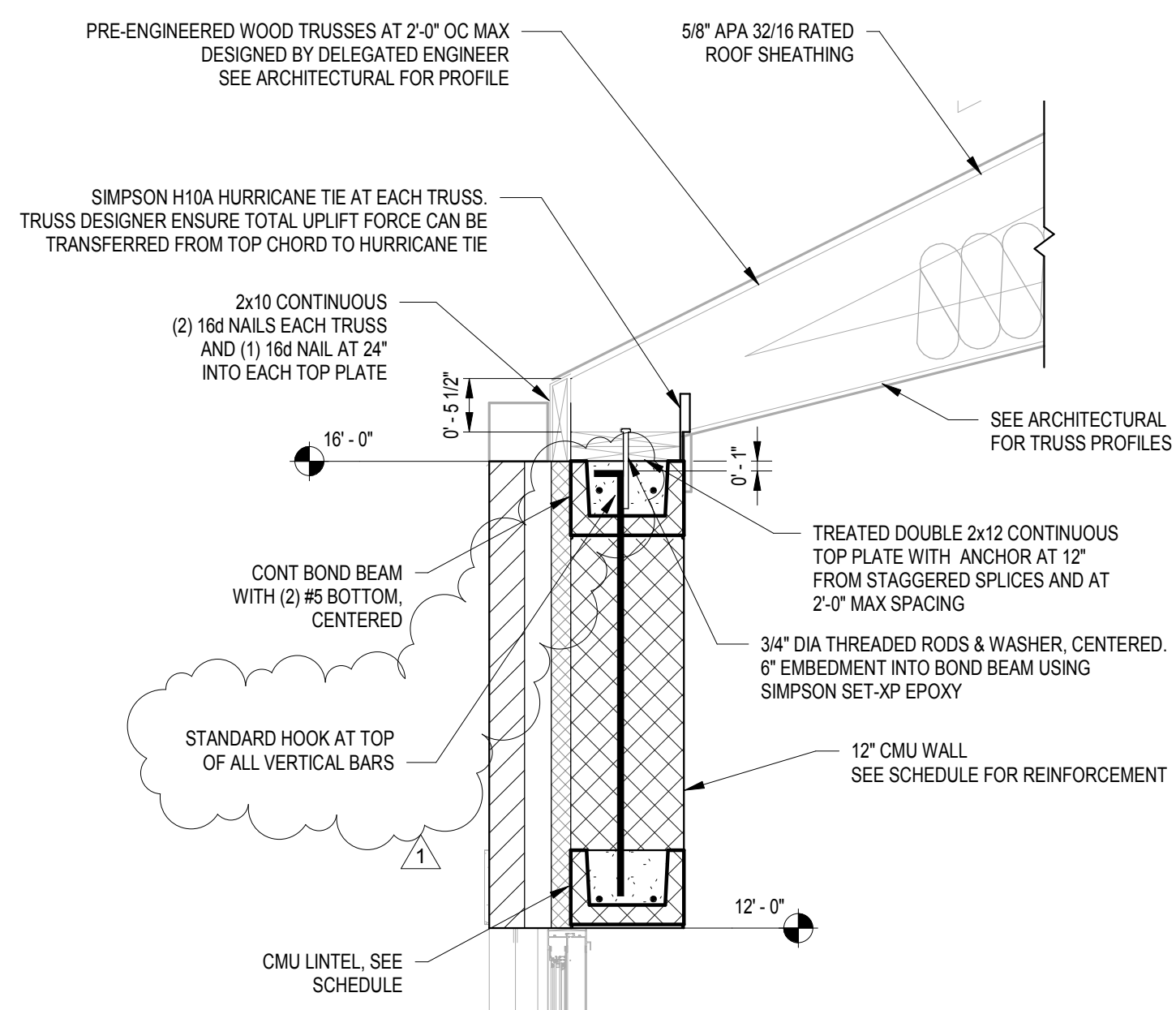
SECTIONS AND DETAILS



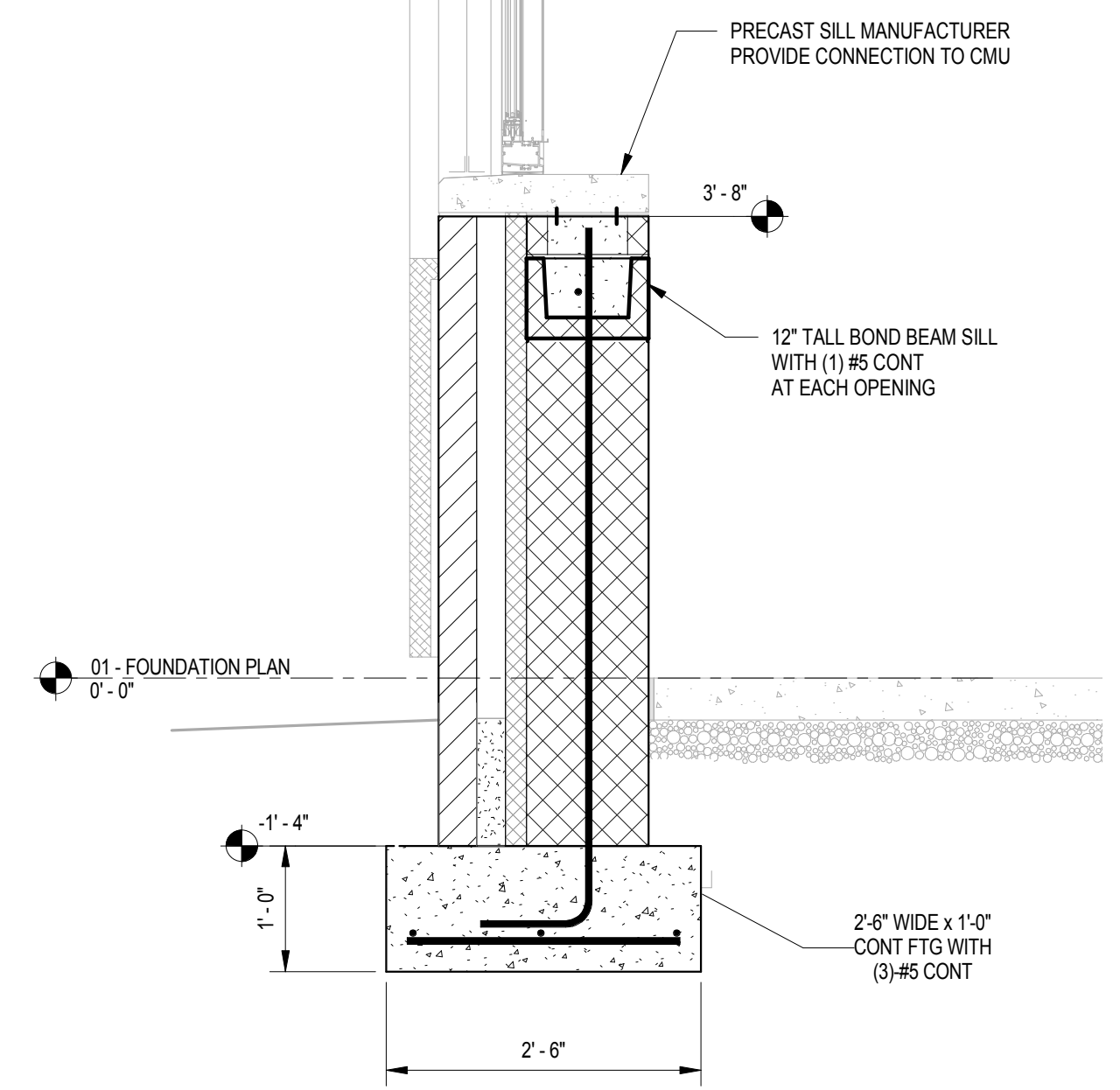
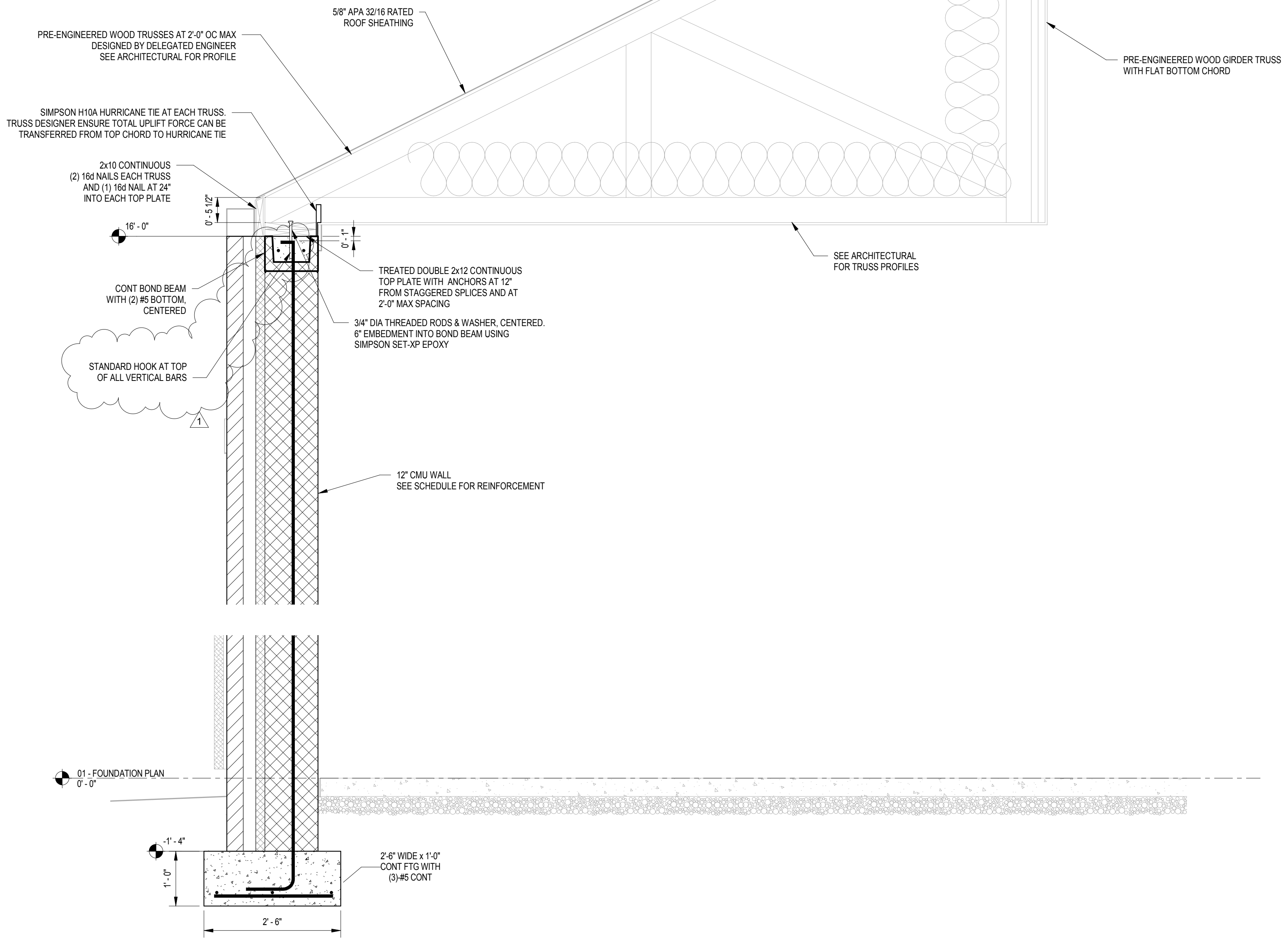
3 SECTION - SIDE WALLS1
S301 3/4" = 1'-0"



2 SECTION - END WALLS
S301 3/4" = 1'-0"



1 SECTION - SIDE WALLS
S301 3/4" = 1'-0"



01 - FOUNDATION PLAN
0'-0"