



136 North Monroe Street, Waterloo, Wisconsin 53594-1198
Phone (920) 478-3025
Fax (920) 478-2021

**NOTICE OF A CITY OF WATERLOO
PLAN COMMISSION MEETING**

Pursuant to Section 19.84 Wisconsin Statutes, notice is hereby given to the public and the news media, the following meeting will be held:

MEETING: PLAN COMMISSION
DATE: TUESDAY, JANUARY 23, 2018 **TIME: 7:00 p.m.**
LOCATION: 136 N. MONROE STREET, MUNICIPAL BUILDING COUNCIL CHAMBERS

to consider the following:

PUBLIC HEARING #1

1. CALL TO ORDER -- CONDITIONAL USE PERMIT – HIEP, LLC, PROPERTY LOCATED AT 700 COMMERCIAL AVENUE
The Applicant, HIEP, LLC, Owner Of The Property Located At 700 Commercial Avenue, Is Requesting A Conditional Use Permit To Allow For Construction Of 65' building height
2. ADJOURN PUBLIC HEARING

PLAN COMMISSION REGULARLY SCHEDULED MEETING

1. CALL TO ORDER AND ROLL CALL
2. APPROVAL OF PREVIOUSLY UNAPPROVED MEETING MINUTES
3. CITIZEN INPUT
4. COMPLIANCE & ENFORCEMENT REPORT
5. NEW BUSINESS
 - a. Conditional Use Permit, HIEP, LLC, Owner Of The Property Located At 700 Commercial Avenue, Is Requesting A Conditional Use Permit To Allow For Construction Of 65' building height
6. FUTURE AGENDA ITEMS AND ANNOUNCEMENTS
 - a. Considering The Following Updates: Zoning Maps, Conditional Use Forms And Comprehensive Plan Map
7. ADJOURNMENT

Mo Hansen

Mo Hansen, Clerk/Treasurer

Posted, Distributed & Emailed: January 19, 2018

Members: Leisses, Thompson, Crosby, Butzine, Reynolds, Lannoy and Springer

PLEASE NOTE: It is possible that members of and possibly a quorum of members of other governmental bodies of the municipality may be in attendance at the above meeting(s) to gather information. No action will be taken by any governmental body other than that specifically noticed. Also, upon reasonable notice, efforts will be made to accommodate the needs of disabled individuals through appropriate aids and services. For additional information or to request such services please contact the clerk's office at the above location.



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**NOTICE OF PUBLIC HEARING FOR CONDITIONAL USE PERMIT UNDER PROVISIONS
OF CHAPTER §385-15 AND §385-21 OF THE ZONING CODE OF THE CITY OF
WATERLOO, JEFFERSON COUNTY, WISCONSIN**

Please take notice that the Plan Commission of the City of Waterloo, Jefferson County, Wisconsin, acting under provisions of Chapter §385-15 and §385-21 of the Zoning Code of the City of Waterloo, shall hold a public hearing on the matter of an application for a conditional use permit received from HIEP, LLC, owner of the property located at 700 Commercial Avenue, Waterloo.

The applicant is requesting a conditional use permit to allow the construction of a 65' building height. A conditional use permit is required for a building height exceeding 35' in a M-1 Limited Industrial District.

The property is described as follows:

Tax Parcel: #290-0813-0513-003

Legal Description: LOT 3, CSM 5683-32-066, DOC 1365338, City of Waterloo, Jefferson County, Wisconsin

Also known as 700 Commercial Avenue.

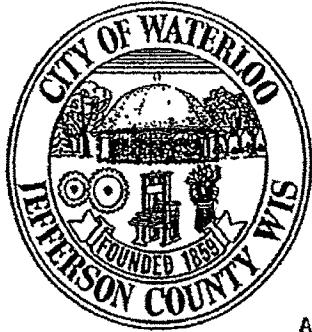
Be further notified that the Plan Commission will hear all persons interested or their agents or attorneys concerning this conditional use permit application at a public hearing. The public hearing will be held at 7:00 p.m. on Tuesday, January 23, 2018 in the Council Chamber of the Municipal Building, 136 N. Monroe Street, Waterloo.

Subsequent to the public hearing, the Plan Commission shall recommend approval, denial, or conditional approval of the conditional use permit to the Common Council. The City Council will act on the Plan Commission's recommendation at its regularly scheduled meeting on Thursday, February 1, 2018.

M. Hansen

Morton J. Hansen
City Clerk/Treasurer

Pub: The Courier: January 18, 2018



136 NORTH MONROE STREET, WATERLOO, WISCONSIN 53594-1198
Phone (920) 478-3025
Fax (920) 478-2021

APPLICATION FOR CONDITIONAL USE PERMIT

(Review and Action by City Plan Commission/Common Council)

Number: _____ Date Filed: 01/09/2018 Fee Paid: \$285.00

Location of Property: lot located at north end of Commercial Ave, Waterloo, WI, 53594

Applicant: Eric Salm / HIEP LLC

Address: 505 S. Rosa Rd Suite 123 Madison WI 53719 Telephone: 1-608-441-8373

Owner of Property: HIEP LLC

Address: 505 S. Rosa Rd Suite 123 Madison WI 53719 Telephone: 1-608-441-8373

Contractor: JP-Cullen & Sons, Inc.

Address: 330 E Delavan Dr, Janesville, WI 53545 Telephone: 608-754-6601

Architect or Professional Engineer: Dimension IV

Address: 6515 Grand Teton Plaza, Suite 120, Madison, WI 53719 Telephone: 608-829-444

Legal Description of Property: Approximately 15.02 acres identified as parcel number 290-0813-0513-003

Land Parcel Size: 15.02 acres Present Use: Vacant/used farmland Zoning District: M-1

Type of Existing Structure (if any): None

Proposed Use of the Structure or Site: MnPA: Feed Ingredient Process Number of Employees: >20

TERMS OF MUNICIPAL CODE

385-15: Building Height 35'

CONDITIONAL USE REQUESTED

Building Height 65'

Specify Reason(s) for Application: (for example, insufficient lot area, setback, etc.)

The major piece of equipment required to produce our product is roughly 60' tall. Without this piece of equipment in place, we would not be able to utilize the site as we have intended.

ATTACH THE FOLLOWING:

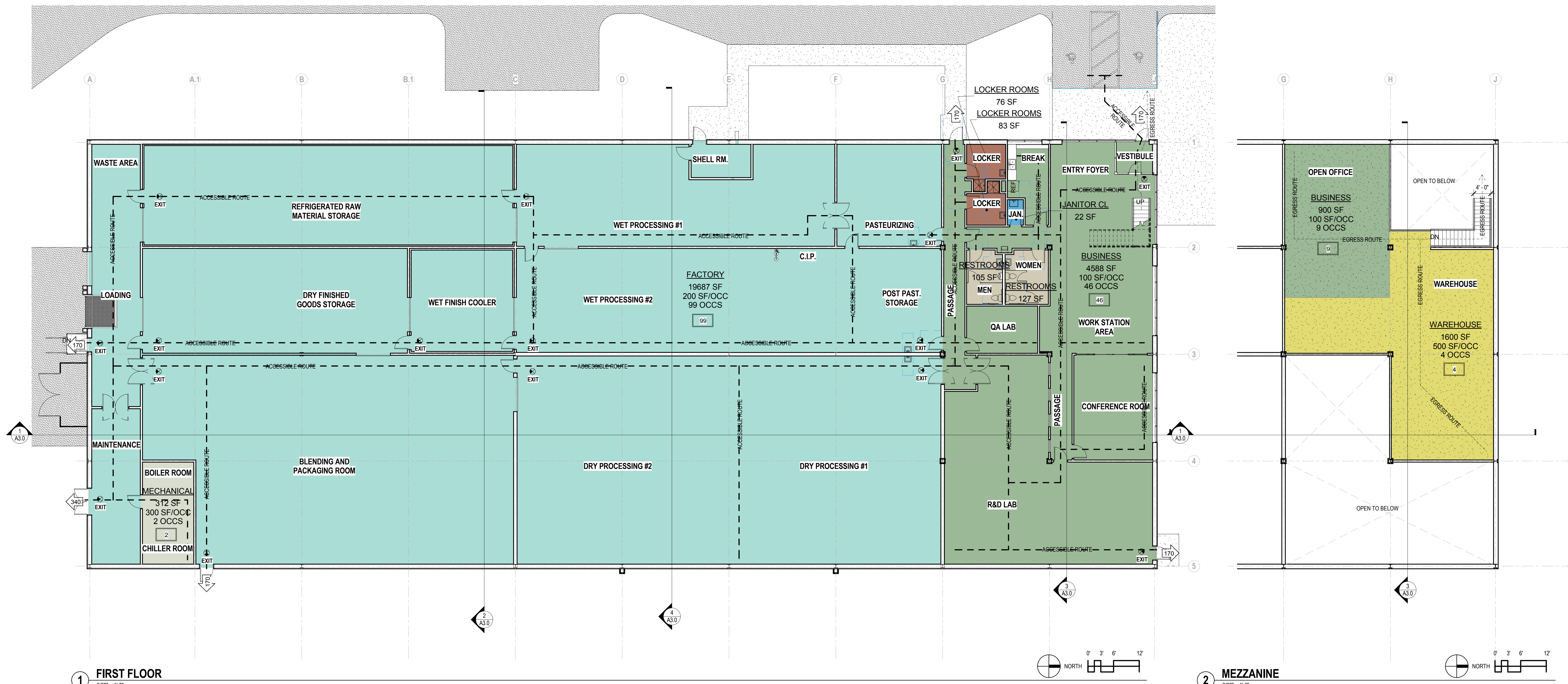
1. Adjoining owners, all names and addresses of all abutting and opposite property owners within 200 feet.
2. Site plan showing the area involved, its location, dimensions, elevations, drainage, parking, etc., and location of adjacent structures within 200 feet.

Date: 1/5/2018

[Signature]
Signature of Applicant

**AB E DISCOVERY -
NEW HIEP FACILITY**

COMMERCIAL AVE.
WATERLOO, WI



1 FIRST FLOOR
3/32" = 1'-0"

2 MEZZANINE
3/32" = 1'-0"

OCCUPANCY LEGEND

- BUSINESS
- FACTORY
- JANITOR CL
- LOCKER ROOMS
- MECHANICAL
- RESTROOMS
- WAREHOUSE

AREAS AND OCCUPANCIES			
OCCUPANCY TYPE	AREA	OCC FACTOR	OCC TOTAL
BUSINESS (B)	5487 SF	100	55
FACTORY (F-1)	19687 SF	200	99
JANITOR CLOSET	22 SF	0	0
LOCKER ROOMS	159 SF	50	4
MECHANICAL	312 SF	300	2
RESTROOMS	232 SF	0	0
WAREHOUSE	1600 SF	500	4
TOTALS	27500 SF		164

PLUMBING FIXTURE COUNT				
TOTAL OCCUPANTS: 164				
	MEN: 82		WOMEN: 82	
FIXTURE	REQ'D	PROVIDED	REQ'D	PROVIDED
LAV	2	2	2	2
WC	1	1	2	2
URINAL	1	1		
SERVICE SINK	1	1		
DRINKING FOUNTAIN	1	1		

CODE COMPLIANCE GENERAL NOTES

- A. REFER TO SHEET A7.0 FOR ACCESSIBLE MOUNTING AND CLEARANCES INFORMATION.
- B. ALL FIRE EXTINGUISHER CABINETS SHALL BE IN APPROVED LOCATIONS WITH A MAXIMUM TRAVEL DISTANCE TO EXTINGUISHER TO BE 75 FEET PER I.F.C.
- C. COMMON PATH OF EGRESS TRAVEL SHALL NOT EXCEED 100' PER 1014.3.
- D. EXIT ACCESS TRAVEL DISTANCE IS 'XXX' WITH SPRINKLERS PER TABLE 1016.1.
- E. FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS AND SMOKE PARTITIONS OR ANY OTHER WALL REQUIRED TO HAVE PROTECTED OPENINGS OR PENETRATIONS SHALL BE EFFECTIVELY AND PERMANENTLY IDENTIFIED IN THE FIELD WITH SIGNS OR STENCILING PER IBC 703.6

CODE COMPLIANCE SYMBOLS LEGEND

- FEC INDICATES FIRE EXTINGUISHER CABINET LOCATION
- XXX INDICATES OCCUPANCY CAPACITY
- INDICATES ADA ACCESSIBLE ROUTE
- INDICATES EXIT AND EXIT CAPACITY
- INDICATES EXIT SIGN
- INDICATES PATH OF EGRESS ROUTE

**FOOTING AND
FOUNDATION
SUBMITTAL**

DATE OF ISSUE: 12/20/17

PRELIMINARY
Not for
Construction

PROJECT # 17112

CODE
COMPLIANCE PLAN

G1.1

03 3000 CAST-IN-PLACE CONCRETE

- 1.1 SUMMARY
1.1.1 Section Includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement, protection, and finishes.
1.1.2 Related Requirements: Refer to sections on slabs-on-grade.
1.2 REFERENCE STANDARDS
1.2.1 American Concrete Institute (ACI):
1.2.1.1 ACI 211.1 Proportioning Concrete Mixtures
1.2.1.2 ACI 301 Specifications for Structural Concrete
1.2.1.3 ACI 303.1 Specification for Cast-in-Place Architectural Concrete
1.2.1.4 ACI 306 Hot Weather Concreting
1.2.1.5 ACI 306 Specifications for Cold Weather Concreting
1.2.1.6 ACI 308 Specifications for Curing Concrete
1.2.1.7 ACI 309 Consolidation of Concrete
1.2.1.8 ACI 318 Building Code Requirements for Structural Concrete
1.3 DEFINITIONS
1.3.1 Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.
1.3.2 W/C Ratio: The ratio by weight of water to cementitious materials.
1.4.1 Product Data: For each type of product.
1.4.2 Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
1.4.2.1 Indicate amounts of mixing water to be withheld for later addition at Project site.
1.4.3 Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and arrangement. Include bar sizes, length, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar placement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
1.4.4 Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
1.4.4.1 Location of construction joints is subject to approval of the Architect.
1.5 INFORMATIONAL SUBMITTALS
1.5.1 Welding certificates.
1.5.2 Material Certificates: For each of the following, signed by manufacturers:
1.5.2.1 Cementitious materials.
1.5.2.2 Admixtures.
1.5.2.3 Steel reinforcement and accessories.
1.5.2.4 Fiber reinforcement.
1.5.2.5 Curing compounds.
1.5.3 Material Test Reports: For the following, from a qualified testing agency:
1.5.3.2 Aggregates: Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.
1.5.4 Floor surface flatness and levelness measurements indicating compliance with specified tolerances.
1.5.5 Field quality-control reports.
1.5.6 Minutes of preinstallation conference.
1.6 QUALITY ASSURANCE
1.6.1 Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
1.6.2 Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
1.6.2.1 Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
1.6.3 Testing Agency Qualifications: An independent agency qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
1.6.3.1 Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician, Grade II.
1.6.4 Welding Qualifications: Quality procedures and personnel according to AWS D1.4/D 1.4M.
1.7 DELIVERY, STORAGE, AND HANDLING
1.7.1 Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement.
1.8 FIELD CONDITIONS
1.8.1 Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1.8.1.1 When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
1.8.1.2 Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
1.8.1.3 Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified on mixture designs.
1.8.2 Hot-Weather Placement: Comply with ACI 301 and ACI 305.1, and as follows:
1.8.2.1 Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
1.8.2.2 Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.
2.1 CONCRETE GENERAL
2.1 ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
2.1.1 ACI 301.
2.1.2 ACI 117.
2.2 FORM-FACING MATERIALS
2.2.1 Smooth-Formed Finished Concrete: Form-facing panels that provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
2.2.1.1 Plywood, metal, or other approved panel materials.
2.2.1.2 Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows: (Confirm desired finish with Architect).
a. For standard finish, use Structural 1, B-B or better; mill oiled and edge sealed.
OR
b. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.
2.2.2 Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
2.3 STEEL REINFORCEMENT
2.3.1 Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
2.4 REINFORCEMENT ACCESSORIES
2.4.1 Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
2.4.1.1 For concrete surfaces exposed to view, where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
2.5 CONCRETE MATERIALS
2.5.1 Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer. Obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
2.5.2 Cementitious Materials:
2.5.2.1 Portland Cement: ASTM C 150/C 150M, Type III.
2.5.2.2 Fly Ash: ASTM C 618, Class F or C.
2.5.2.3 Slag Cement: ASTM C 989/C 989M, Grade 100 or 120.
2.5.2.4 Blended Hydraulic Cement: ASTM C 595/C 595M, Type IS, Portland blast-furnace slag, Type IP, Portland-pozzolan, Type IL, Portland-limestone, Type IT, ternary blended cement.
2.5.2.5 Silica Fume: ASTM C 1240, amorphous silica.
2.5.3 Normal-Weight Aggregates: ASTM C 33/C 33M, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source with documented service record date of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
2.5.3.1 Maximum Coarse-Aggregate Size: 1 inch nominal.
2.5.3.2 Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
2.5.4 Air-Entraining Admixture: ASTM C 260/C 260M.
2.5.5 Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
2.5.5.1 Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2.5.5.2 Retarding Admixture: ASTM C 494/C 494M, Type B.
2.5.5.3 Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
2.5.5.4 High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
2.5.5.5 High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
2.5.5.6 Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.
2.5.6 Water: ASTM C 94/C 94M and potable.
2.6 FIBER REINFORCEMENT
2.6.1 Synthetic Macro-Fiber: Polyolefin or polypropylene macro-fibers engineered and designed for use in concrete, complying with ASTM C 1116/C 1116M, Type III, 2.14 inches long.
2.6.1.1 Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. BASF Corp. - Construction Chemicals.
b. Euclid Chemical Company (The), an RPM company.
c. FORTA Corporation.
d. GCP Applied Technologies Inc. (formerly Grace Construction Products).
e. Nycon, Inc.
f. Propex Operating Company, LLC.
2.7 VAPOR RETARDERS
2.7.1 Sheet Vapor Retarder: Polyethylene sheet, ASTM D 4397, not less than 10 mils thick.

- 2.8 CURING MATERIALS
2.8.1 Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
2.8.2 Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
2.8.3 Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
2.8.4 Water: Potable.
2.8.5 Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering, where concrete is to receive flooring.
2.9 RELATED MATERIALS
2.9.1 Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.
2.9.2 Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
2.9.2.1 Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
2.10 REPAIR MATERIALS
2.10.1 Repair Underlayment for slabs beneath floor coverings: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
2.10.1.1 Cement Binder: ASTM C 150/C 150M, Portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2.10.1.2 Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
2.10.1.3 Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
2.10.1.4 Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109/C 109M.
2.10.2 Repair Overlayment for slabs with no floor covering: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.
2.10.2.1 Cement Binder: ASTM C 150/C 150M, Portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2.10.2.2 Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
2.10.2.3 Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
2.10.2.4 Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.
2.11 CONCRETE MIXTURES, GENERAL
2.11.1 Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
2.11.1.1 Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
2.11.2 Cementitious Materials: For concrete to deicing salts, use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 35 percent. For concrete exposed to deicing salts, limit percentage, by weight, of cementitious materials other than Portland cement in concrete as follows:
1. Fly Ash: 25 percent.
2. Combined Fly Ash and Pozzolan: 25 percent.
3. Slag Cement: 50 percent.
4. Combined Fly Ash or Pozzolan and Slag Cement: 50 percent portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.
5. Silica Fume: 10 percent.
6. Combined Fly Ash, Pozzolans, and Silica Fume: 35 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
7. Combined Fly Ash or Pozzolans, Slag Cement, and Silica Fume: 50 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
2.11.3 Limit water-soluble chloride-ion content in hardened concrete to 0.06 percent by weight of cement for prestressed concrete. 0.15 percent by weight of cement for reinforced concrete exposed to chlorides. 0.30 percent by weight of cement for reinforced concrete not protected from moisture. 1.00 percent by weight of cement for reinforced concrete protected from moisture.
2.11.4 Admixtures: Use admixtures according to manufacturer's written instructions.
2.11.4.1 Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
2.11.4.2 Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
2.11.4.3 Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a w/c ratio below 0.50.
2.12 CONCRETE MIXTURES FOR BUILDING ELEMENTS
2.12.1 Footings: Normal-weight concrete.
2.12.1.1 Minimum Compressive Strength: As indicated at 28 days; 4000 psi min.
2.12.1.2 Maximum W/C Ratio: 0.45.
2.12.1.3 Slump Limit: 6 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
2.12.1.4 Air Content: 3 percent, plus or minus 1.5 percent at point of delivery for 3/4 inch to 1-inch nominal maximum aggregate size.
2.12.2 Foundation Walls: Normal-weight concrete.
2.12.1.1 Minimum Compressive Strength: As indicated at 28 days; 4000 psi min.
2.12.1.2 Maximum W/C Ratio: 0.45.
2.12.1.3 Slump Limit: 6 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
2.12.1.4 Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 3/4 inch to 1-inch nominal maximum aggregate size.
2.12.3 Interior Slabs-on-Grade: Normal-weight concrete.
2.12.3.1 Minimum Compressive Strength: As indicated at 28 days; 3000 psi min.
2.12.3.2 Maximum W/C ratio: 0.47.
2.12.3.3 Maximum Water Content: 27 gal/cu yd.
2.12.4 As an alternate to limit of 27 gal/cu yd, water content, provide documentation of the shrinkage tests the proposed concrete mix conducted in accordance with ASTM C157 for specimens cured for 7 days in water and placed in drying environment for 21 days--length change should be less than 0.04% at 28 days age.
2.12.5 Maximum 8.5 cubic feet of sand per cubic yard of concrete. Sand shall have a fineness modulus of between 2.8 and 3.1.
2.12.6 8/16 total aggregate gradation with minimum percent retained on standard sieve sizes as recommended in ACI 302-2010, section 5.4.3, add intermediate aggregate if required.
2.12.7 Slump Limit: 6 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
2.12.8 Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.
2.12.9 Synthetic Macro-Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than a rate of 4 lb/cu yd.
2.13 FABRICATING REINFORCEMENT
2.13.1 Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."
2.14 CONCRETE MIXING
2.14.1 Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116M, and furnish batch ticket information.
2.14.1.1 When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.
3.1 FORMWORK INSTALLATION
3.1.1 Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
3.1.2 Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
3.1.3 Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
3.1.3.1 Class A, 1/8 inch for smooth-formed finished surfaces.
3.1.3.2 Class B, 1/4 inch for rough-formed finished surfaces.
3.1.3.3 Construct forms tight enough to prevent loss of concrete mortar.
3.1.4 Construct forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
3.1.5.1 Install keysways, reglets, recesses, and the like, for easy removal.
3.1.5.2 Do not use rust-stained steel form-facing material.
3.1.6 Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
3.1.7 Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
3.1.8 Chamfer exterior corners and edges of permanently exposed concrete.
3.1.9 Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
3.1.10 Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
3.1.11 Righten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
3.1.12 Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.
3.2 EMBEDDED ITEM INSTALLATION
3.2.1 Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
3.2.1.1 Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.
3.3 REMOVING AND REUSING FORMS
3.3.1 General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations, and curing and protection operations need to be maintained:
3.3.1.1 Leave formwork for beam soffits, joists, slabs, and other structural elements that support weight of concrete in place until concrete has achieved at least 80 percent of its 28-day design compressive strength.
3.3.1.2 Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
3.3.2 Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material are not acceptable for exposed surfaces. Apply new form-release agent.
3.3.3 When forms are reused, clean surfaces, remove fins and lallance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.
3.4 VAPOR RETARDER INSTALLATION
3.4.1 Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.
3.4.1.1 Lap joints 6 inches and seal with manufacturer's recommended tape.
3.5 STEEL REINFORCEMENT INSTALLATION
3.5.1 General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
3.5.1.1 Do not cut or puncture vapor retarder. Repair damage and reset vapor retarder before placing concrete. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.
3.5.2 Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
3.5.3.1 Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.
3.5.4 Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
3.5.5 Install welded-wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.
3.5.6 Epoxy-Coated Reinforcement: Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963/D 3963M. Use epoxy-coated steel wire ties to fasten epoxy-coated steel reinforcement.
3.6 JOINTS
3.6.1 General: Construct joints true to line with faces perpendicular to surface plane of concrete.
3.6.2 Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
3.6.2.1 Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
3.6.2.2 Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations when possible.
3.6.2.3 Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
3.6.2.4 Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
3.6.3 Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
3.6.3.1 Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate grooving tool marks on concrete surfaces.
3.6.3.2 Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
3.6.4 Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
3.6.4.1 Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
3.6.4.2 Terminate full-width joint-filler strips not less than 12 inch or more than 12 inch below finished concrete surface where joint sealants, specified in Section 07 9200 "Joint Sealants," are indicated.
3.6.4.3 Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
3.6.5 Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.
3.7 CONCRETE PLACEMENT
3.7.1 Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.
3.7.2 Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer.
3.7.3 Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
3.7.3.1 Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
3.7.4 Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
3.7.4.1 Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid indirect construction joints.
3.7.4.2 Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3.7.4.3 Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
3.7.5 Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
3.7.5.1 Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
3.7.5.2 Maintain reinforcement in position on chairs during concrete placement.
3.7.5.3 Soreed slab surfaces with a straightedge and strike off to correct elevations.
3.7.5.4 Slope surfaces uniformly to drains where required.
3.7.5.5 Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
3.8 FINISHING FORMED SURFACES
3.8.1 Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
3.8.1.1 Apply to concrete surfaces not exposed to public view.
3.8.2 Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
3.8.2.1 Apply to concrete surfaces exposed to public view, to receive a rubbed finish, or to be covered with a coating or covering material applied directly to concrete.
3.8.3 Related Uniformed Surfaces: At tops of walls, horizontal offsets, and similar uniformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent uniformed surfaces unless otherwise indicated.
3.9 FINISHING FLOORS AND SLABS
3.9.1 General: Comply with ACI 302.1R recommendations for screeding, reststraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
3.9.2 Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbed. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.
3.9.2.1 Apply scratch finish to surfaces indicated and to receive concrete floor toppings, to receive mortar setting beds, and for bonded cementitious floor finishes.
3.9.3 Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and reststraightening until surface is left with a uniform, smooth, granular texture.
3.9.3.1 Apply float finish to surfaces indicated to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, bull-ups or membrane roofing, or sand-bed terrazzo.
3.9.4 Trowel Finish: After applying float finish, apply first trowelling and consolidate concrete by hand or power-driven trowel. Continue trowelling passes and reststraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
3.9.4.1 Apply a trowel finish to surfaces indicated, exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
3.9.4.2 Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trowelled floor surface:
a. Specified overall values of flatness, F(F) 30; and of levelness, F(L) 20; with minimum local values of flatness, F(F) 24, and of levelness, F(L) 20, for slabs.
3.9.5 Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated, and where ceramic or quarry tile is to be installed by either thickest or thinnest method. While concrete is still plastic, slightly scarify surface with a fine broom.
3.9.5.1 Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
3.9.6 Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.
3.9.6.1 Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.
3.10 MISCELLANEOUS CONCRETE ITEM INSTALLATION
3.10.1 Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

- 3.11 CONCRETE PROTECTING AND CURING
3.11.1 General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 305.1 for hot-weather protection during curing.
3.11.2 Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
3.11.3 Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.
3.11.4 Uniformed Surfaces: Begin curing immediately after finishing concrete. Cure uniformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
3.11.5 Cure concrete according to ACI 308.1, by one or a combination of the following methods:
3.11.5.1 Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
a. Water.
b. Continuous water-fog spray.
c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
3.11.5.2 Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies does not interfere with bonding of floor covering used on Project.
3.11.5.3 Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
a. Removal After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound does not interfere with bonding of floor covering used on Project.
3.11.5.4 Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.
3.12 JOINT FILLING
3.12.1 Prepare, clean, and install joint filler according to manufacturer's written instructions.
3.12.1.1 Defect joint filling until concrete has aged at least one month. Do not fill joints until construction traffic has permanently ceased.
3.12.2 Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.
3.13 FIELD QUALITY CONTROL
3.13.1 Testing Agency: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
3.13.2 Inspections:
1. Steel reinforcement placement.
2. Steel reinforcement welding.
3. Verification of use of required design mixture.
4. Concrete placement, including conveying and depositing.
5. Curing procedures and maintenance of curing temperature.
6. Verification of concrete strength before removal of shores and forms from beams and slabs.
3.13.3 Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172/C 172M shall be performed according to the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., or fraction thereof.
2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.
a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
4. Air Content: ASTM C 231/C 231M, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.
6. Unit Weight: ASTM C 567/C 567M, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
7. Compression Test Specimens: ASTM C 31C 31M.
a. Cast and field cure two sets of two standard cylinder specimens for each composite sample.
8. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
11. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
12. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
13. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by core cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
14. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
15. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
3.13.4 Measure floor and slab flatness and levelness according to ASTM E 1155 within 48 hours of finishing.

- 07 2100 - FOUNDATION INSULATION
1.1 Submittals:
1.1.1 Product Data: For each type of product indicated, include product test reports and research/evaluation reports.
2.1 Extruded-Polystyrene Board Insulation: ASTM C 578, Type I, 1.60 lb/cu. ft., with maximum flame-spread and smoke-developed indices of 75 and 450, respectively, per ASTM E 84.
2.2 Vapor Retarders.
2.2.1 Polyethylene Vapor Retarders: ASTM D 4397, 10 mils thick.
2.2.2 Vapor Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.
3.1 Installation:
3.1.1 Comply with insulation manufacturer's written instructions applicable to products and application indicated.
3.1.2 Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow.
3.1.3 Install insulation in areas and in thicknesses indicated or required to produce R-value indicated. Cut and fit tightly around obstructions and fill voids with insulation. Tape joints on exterior walls to assure tight joints.
3.1.4 Verify that site conditions are ready to receive insulation materials.
3.1.5 Protect insulation board from damage and UV exposure.
3.1.6 Protect below-grade insulation on vertical surfaces from damage during backfilling by applying protection course with joints butted. Set in adhesive according to insulation manufacturer's written instructions.
3.1.7 Protect top surface of horizontal insulation from damage during concrete work by applying protection course with joints butted.



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AB E DISCOVERY - NEW HIEP FACILITY
COMMERCIAL AVE. WATERLOO, WI

FOOTING AND FOUNDATION SUBMITTAL

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SPECIFICATIONS G2.0

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07 9200 – JOINT SEALANTS

- 1.1 Provide joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- 1.2 Submittals:
 - 1.2.1 Product Data: For each joint-sealant product indicated.
 - 1.2.2 Samples for initial selection: For each type of sealant provide samples of full range of manufacturers available colors.
- 2.1 Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
 - 2.1.1 Basis of Design Product: Sika "Sikalflex-1a", or approved equal.
 - 2.1.2 Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 2.1.3 Joint Locations:
 - 2.1.3.1 Construction joints in cast-in-place concrete.
 - 2.1.3.2 Other joints as indicated.
- 2.2 Midew-Resistant Silicone Joint Sealant: ASTM C 920, Single component, non-sag, class 100/50.
 - 2.2.1 Joint-Sealant Application: Midew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 2.2.2 Joint Sealant Location: Joints between plumbing fixtures (including toilets) and adjoining walls, floors, and counters; Tile control and expansion joints; and as indicated.
- 2.3 Urethane Joint Sealant: ASTM C 920, Pourable, class 50, traffic exposure.
 - 2.3.1 Joint-Sealant Application: Exterior and interior joints in horizontal traffic surfaces.
 - 2.3.2 Joint Locations: Isolation and contraction joints in cast-in-place concrete slabs, and as indicated.
- 2.4 Provide sealant backings of material and type that are non-staining, are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
 - 3.1 Clean out joints immediately before installing joint sealants.
 - 3.2 Prime joint substrates, where recommended by joint-sealant manufacturer.
 - 3.3 Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after taping without disturbing joint seal.
 - 3.4 Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 3.4.1 Place sealants so they directly contact and fully wet joint substrates.
 - 3.4.2 Completely fill recesses in each joint configuration.
 - 3.4.3 Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
 - 3.5 Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealments according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 3.6 Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

31 1000 – SITE WORK

- 1.1 Summary of Work:
 - 1.1.1 Erosion controls: The work operations shall be conducted to be in conformance of City of Madison erosion control and stormwater ordinance and DNR administrative rule NR 216 at all times.
 - 1.1.2 Site clearing including: Stripping and stockpiling topsoil; Removing designated, existing pavement and designated above- and below-grade site improvements; Removing designated trees, shrubs, and other plant life; and Protecting existing vegetation to remain.
 - 1.1.3 Excavation and backfill, including removal of excess soil materials and importing of fill materials.
- 1.2 Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations. Do not close or obstruct streets or walks without permission from Owner and authorities having jurisdiction.
- 1.3 Utility Locator Service: Notify Digger's Hotline before site clearing.
- 1.4 Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant protection measures are in place.
- 1.5 The contractor shall take all necessary steps to control dust arising from construction activities.
- 2.1 Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.
- 2.2 Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- 2.3 Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.
- 3.1 Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff to adjacent properties and walkways, according to requirements of authorities having jurisdiction. Verify that flows of water redirected from construction areas do not enter adjacent properties. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
 - 3.1.1 All erosion and sediment controls shall be designed and implemented in accordance with DNR and City of Madison requirements.
 - 3.1.2 All adjacent walks and pavements shall be kept clean and free of tracking soils and sediment during the course of the work.
- 3.2 Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off Owner's property.
- 3.3 Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
 - 3.3.1 Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
 - 3.3.2 Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.
 - 3.3.3 If unsatisfactory clay, organic or soft soil is present in excavations below footings, foundations, pavements and slabs-on-grade contact the Architect immediately.
- 3.4 Backfill: Place backfill and fill soil materials in layers not more than 4 inches in loose depth for material compacted by hand-operated tampers. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557.
 - 3.5 Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated. Provide a smooth transition between adjacent existing grades and new grades. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances. Grade site surface to prevent freestanding surface water.
 - 3.5.1 Spread and fine-grade stockpiled topsoil in areas noted for plantings and lawn.

31 2000 – EARTH MOVING

- 1.1 Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary services.
- 1.2 Submittals:
 - 1.2.1 Material Test Reports indicating and interpreting test results for compliance of the following with requirement indicated:
 - 1.2.1.1 Classification according to ASTM D 2487 of each borrow soil material proposed for fill and backfill.
 - 1.2.1.2 Laboratory compaction curve according to ASTM D 1557 for each on-site borrow soil material proposed for fill and backfill.
 - 1.2.2 Subcontractor shall arrange and pay for compaction testing in all footing locations; minimum 95 percent modified proctor density.
 - 1.2.3 Pre-excavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earthwork operations. Submit before earthwork begins.
 - 1.2.4 Submit name of imported fill materials suppliers.
 - 1.2.5 Submit data for geotextile fabric indicating fabric material and construction.
- 1.3 Warnant trenching and backfilling work under this Section against settlement for a period of one (1) year after Substantial Completion.
- 1.4 Furnish each aggregate material from single source from source approved by the State of Wisconsin Department of Transportation.
- 1.5 Furnish each subsoil and topsoil material from single source throughout Work.
- 1.6 Perform Work in accordance with State of Wisconsin Department of Transportation standards.
- 1.7 Remove existing pavement, driveways, sidewalks from site. Remove existing trees, shrubs, lawns and other plan material from site. Strip existing topsoil.
- 1.8. Remove existing paving and construction from site. Disconnect, cap laterals, and remove utilities from site; coordinate with local utility company.
- 2.1 Soil Materials:
 - 2.1.1 Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
 - 2.1.2 Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
 - 2.1.3 Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
 - 2.1.4 Backfill and Fill: Satisfactory soil materials.
 - 2.1.5 Subbase Material and Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
 - 2.1.6 Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.
 - 2.1.7 Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.
 - 2.1.8 Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

- 2.2 Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored.
- 3.1 Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- 3.2 Provide and maintain erosion control as required by municipality but not less than 3 inch clear stone tracking pad, silt fencing, runoff and sediment control, and netting or similar erosion-control devices. See Drawings.
- 3.3 Prevent surface and ground water from entering excavations, from ponding on prepared subgrades, and from flooding. Project site and surrounding area.
- 3.4 Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
- 3.5 Do not use explosives.
- 3.6 Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
- 3.7 Excavation for Structures: Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
 - 3.7.1 Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
 - 3.7.2 Excavations for Mechanical and Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.
- 3.8 Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.
- 3.9 Excavation for Utility Trenches:
 - 3.9.1 Excavate trenches to indicated gradients, lines, depths, and elevations. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.
 - 3.9.2 Excavate trenches to uniform widths to provide 12 inch clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.
 - 3.9.3 Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape sub-grade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench sub-grade.
- 3.10 Subgrade Inspection
 - 3.10.1 Notify Architect when excavations have reached required subgrade. If Architect determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill materials as directed.
 - 3.10.2 After existing fill and pavement are removed, compact subgrade to required density.
 - 3.10.3 Reconstruct subgrades damaged by rain, accumulated water, or construction activities without additional compensation.
- 3.11 Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing.
- 3.12 Place and compact backfill in excavations promptly. Place backfill on subgrades free of mud.
- 3.13 Utility Trench Backfill: Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
 - 3.13.1 Backfill trenches excavated under footings and within 18 inches of bottom of footings with satisfactory soil, fill with concrete to elevation of bottom of footings. Concrete is specified in Division 3 Section "Cast-in-Place Concrete."
 - 3.13.2 Provide 4-inch-thick, concrete-base slab support for piping or conduit less than 30 inches below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase.
 - 3.13.3 Place and compact initial backfill of satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.
 - 3.13.4 Controlled Low-Strength Material: Place initial backfill of controlled low-strength material to a height of 12 inches over the utility pipe and conduit.
 - 3.13.5 Backfill voids with satisfactory soil while installing and removing shoring and bracing. Place and compact final backfill of satisfactory soil to final subgrade elevation.
 - 3.13.6 Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.
- 3.14 Compaction of Soil Backfills and Fills
 - 3.14.1 Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
 - 3.14.2 Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
 - 3.14.3 Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
 - 3.14.3a Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
 - 3.14.3b Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 92 percent.
 - 3.14.3c Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
 - 3.14.3d For utility trenches, compact each layer of initial and final backfill soil material at 90 percent.
- 3.15 Grading: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 - 3.15.1 Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 - 3.15.1a Lawn or Unpaved Areas: Plus or minus 1 inch.
 - 3.15.1b Walks: Plus or minus 1/2 inch.
 - 3.15.1c Pavements: Plus or minus 1/2 inch.
 - 3.15.2 Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.
- 3.16 Subbase and Base Courses: On prepared subgrade, place subbase and base course under pavements and walks as follows:
 - 3.16.1 Shape subbase and base course to required crown elevations and cross-slope grades.
 - 3.16.2 Compact subbase and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.
- 3.17 Drainage Course: On prepared subgrade, place and compact drainage course under case-in-place concrete slabs-on-grade as follows:
 - 3.17.1 Place drainage course 6 inches or less in compacted thickness in a single layer.
 - 3.17.2 Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
 - 3.17.3 Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.
- 3.18 Protection: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
 - 3.18.1 Repair and reestablish grades where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction.
 - 3.18.2 Where settle occurs, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing. Restore appearance, quality, and condition of finishes surfacing to match adjacent work.
- 3.19 Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property. Leave area in clean and neat condition. Grade site surface to prevent freestanding surface water.



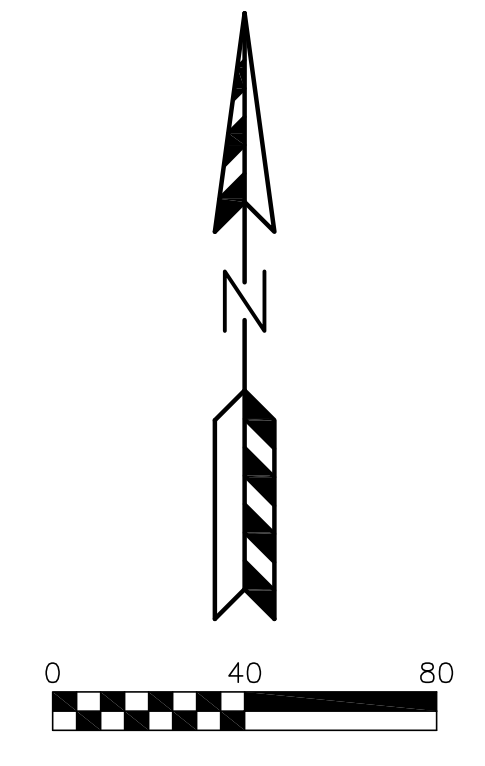
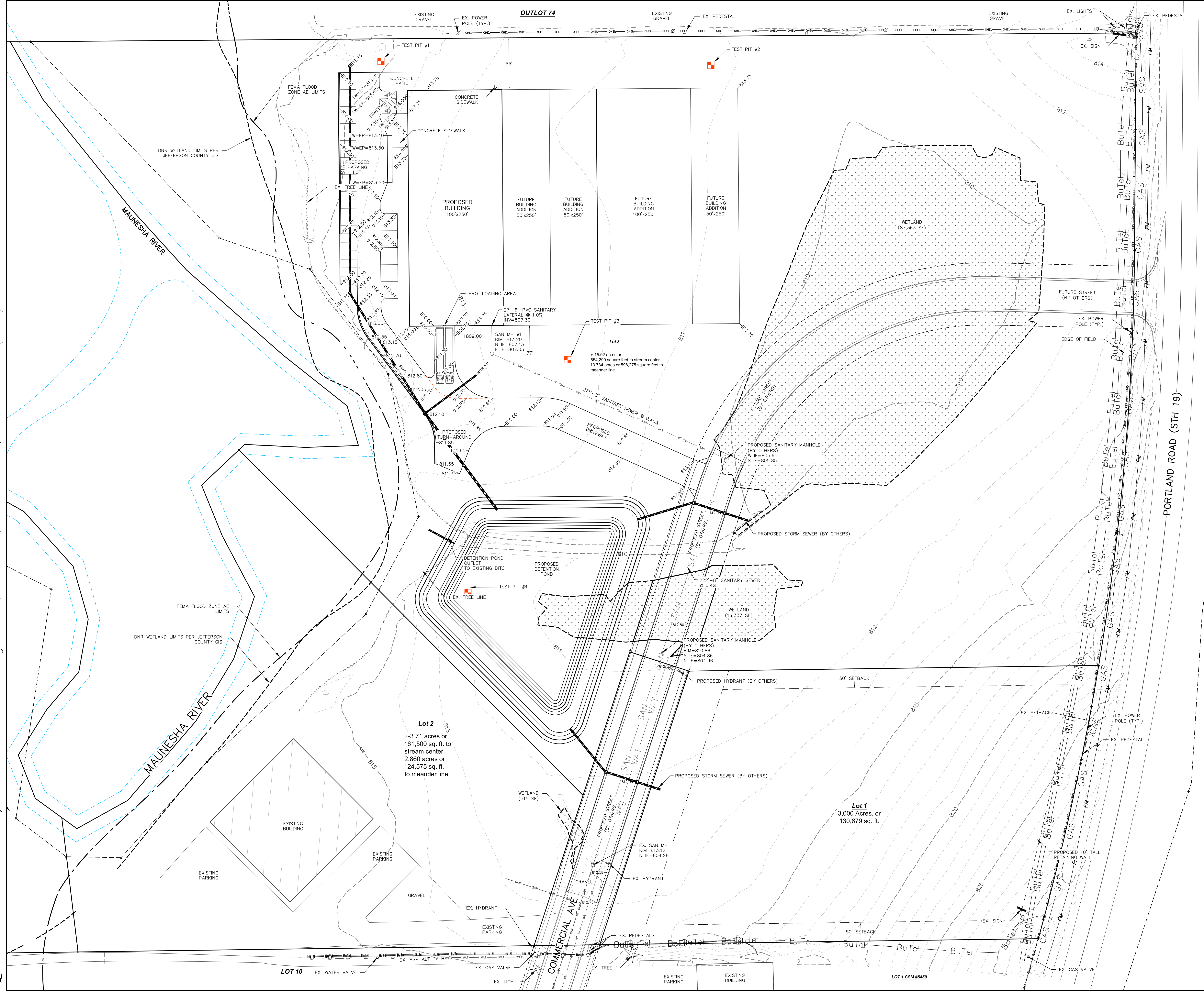
AB E DISCOVERY - NEW HIEP FACILITY
 COMMERCIAL AVE.
 WATERLOO, WI

FOOTING AND FOUNDATION SUBMITTAL

DATE OF ISSUE:	12/20/17
REVISIONS:	
PROJECT #	17112

SPECIFICATIONS

G2.1

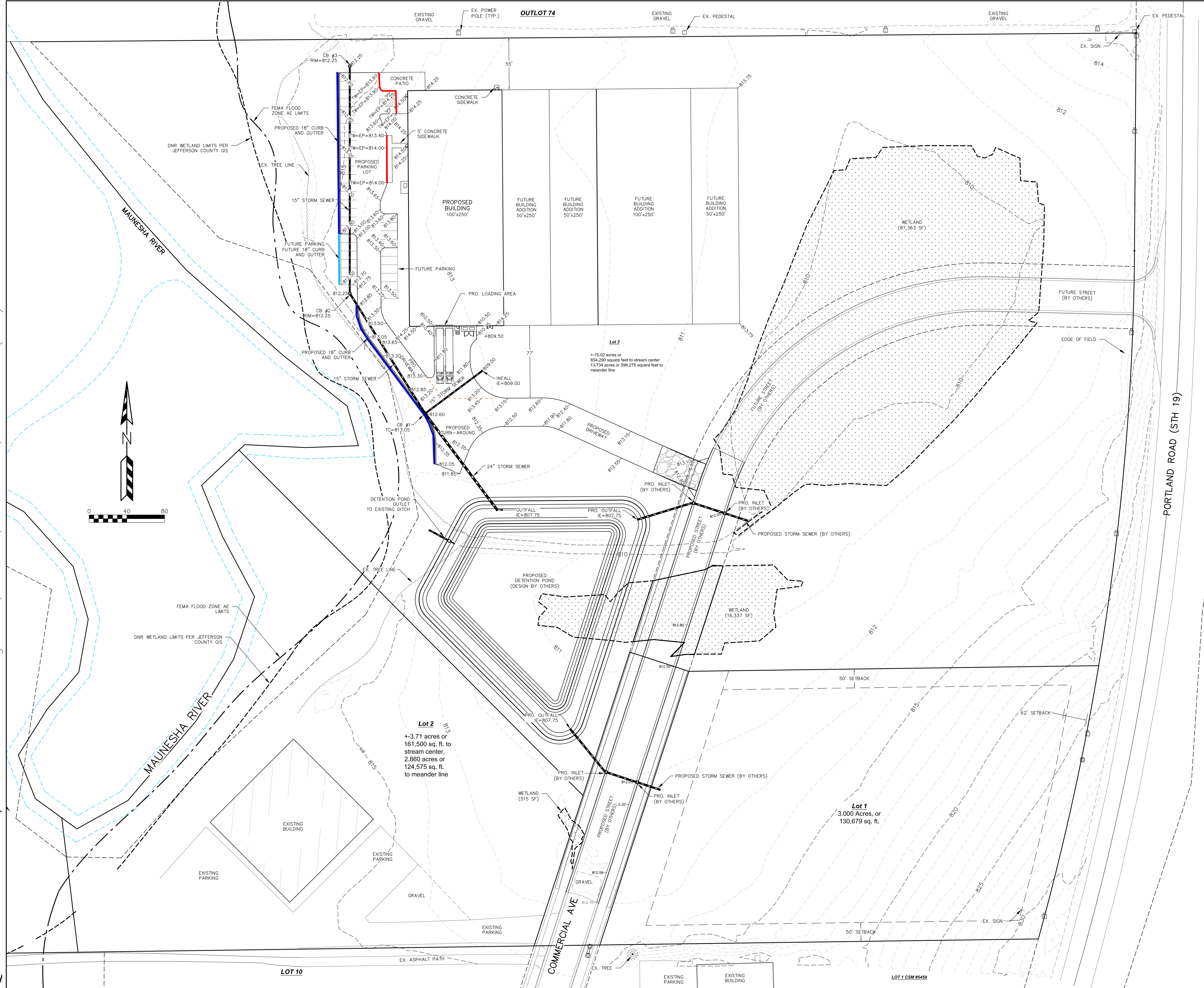


Ab E DISCOVERY, LLC - WATERLOO
 OVERALL SITE PLAN
 DATED: NOVEMBER 8, 2017

C-101

QUAM ENGINEERING, LLC
 Residential and Commercial Site Design Consultants

1519 E Washington Street, Suite A; West Bend, Wisconsin 53095
 Phone (262) 338-6641; www.quamengineering.com



EROSION NOTES:
 THE STONE TRACKING PAD SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION. THE TRACKING PAD IS TO BE MAINTAINED BY THE CONTRACTOR IN A CONDITION, WHICH WILL PREVENT THE TRACK OF MUD OR DRY SEDIMENT ONTO THE ADJACENT PUBLIC STREETS. SEDIMENT REACHING THE PUBLIC ROAD SHALL BE REMOVED BY STREET CLEANING (NOT HYDRAULIC FLUSHING) BEFORE THE END OF EACH WORKDAY.
 SOIL STOCKPILES SHALL BE LOCATED A MINIMUM OF 75 FEET FROM LAKES, STREAMS, WETLANDS, DITCHES, DRAINAGE WAYS, CURBS AND GUTTERS OR OTHER STORMWATER CONVEYANCE SYSTEM, UNLESS OTHERWISE APPROVED BY THE ENGINEER. MEASURES SHALL BE TAKEN TO MINIMIZE EROSION AND RUNOFF FROM ANY SOIL STOCKPILES THAT WILL LIKELY REMAIN FOR MORE THAN FIVE WORKING DAYS. ANY STOCKPILE THAT REMAINS FOR MORE THAN 30 DAYS SHALL BE COVERED OR TREATED WITH STABILIZATION PRACTICES SUCH AS TEMPORARY OR PERMANENT SEEDING AND MULCHING.
 EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO GRADING OPERATIONS AND SHALL BE PROPERLY MAINTAINED FOR MAXIMUM EFFECTIVENESS UNTIL VEGETATION IS ESTABLISHED. ALL EROSION CONTROL MEASURES AND STRUCTURES SERVING THE SITE MUST BE INSPECTED AT LEAST WEEKLY OR WITHIN 24 HOURS OF A 0.5 INCH RAIN EVENT. ALL MAINTENANCE WILL FOLLOW AN INSPECTION WITHIN 24 HOURS.
 CUT AND FILL SLOPES SHALL BE NO GREATER THAN 3:1.
 EROSION CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ACCEPTANCE OF THIS PROJECT. EROSION CONTROL MEASURES AS SHOWN SHALL BE THE MINIMUM PRECAUTIONS THAT WILL BE ALLOWED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECOGNIZING AND CORRECTING ALL EROSION CONTROL PROBLEMS THAT ARE A RESULT OF CONSTRUCTION ACTIVITIES. ADDITIONAL EROSION CONTROL MEASURES, AS REQUESTED IN WRITING BY THE STATE OR LOCAL INSPECTORS, OR THE DEVELOPER'S ENGINEER, SHALL BE INSTALLED WITHIN 24 HOURS.
 ALL DISTURBED SLOPES OF 4:1 OR GREATER AND DRAINAGE SWALES SHALL BE STABILIZED WITH CURLEX EROSION CONTROL FABRIC (INSTALL PER MANUFACTURER'S SPECIFICATIONS).

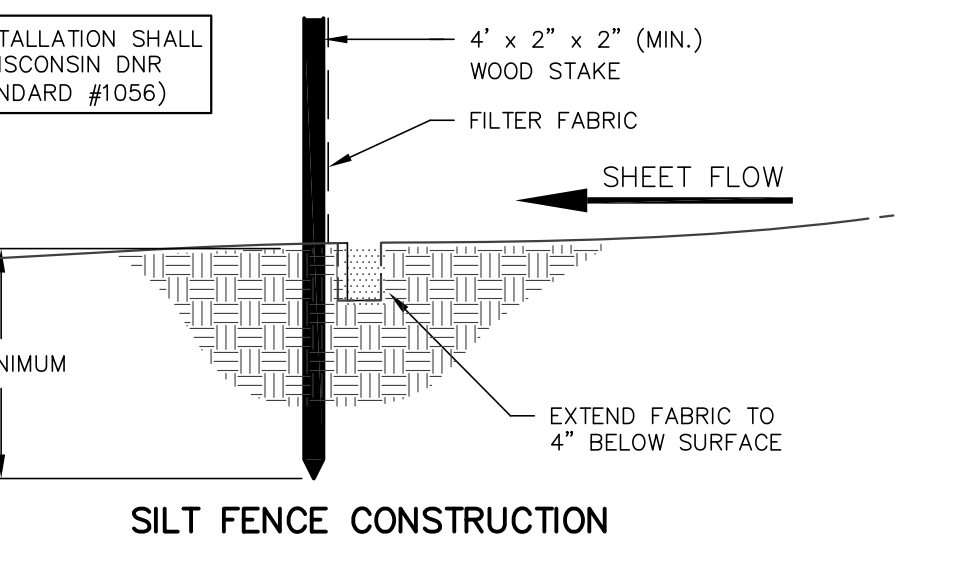
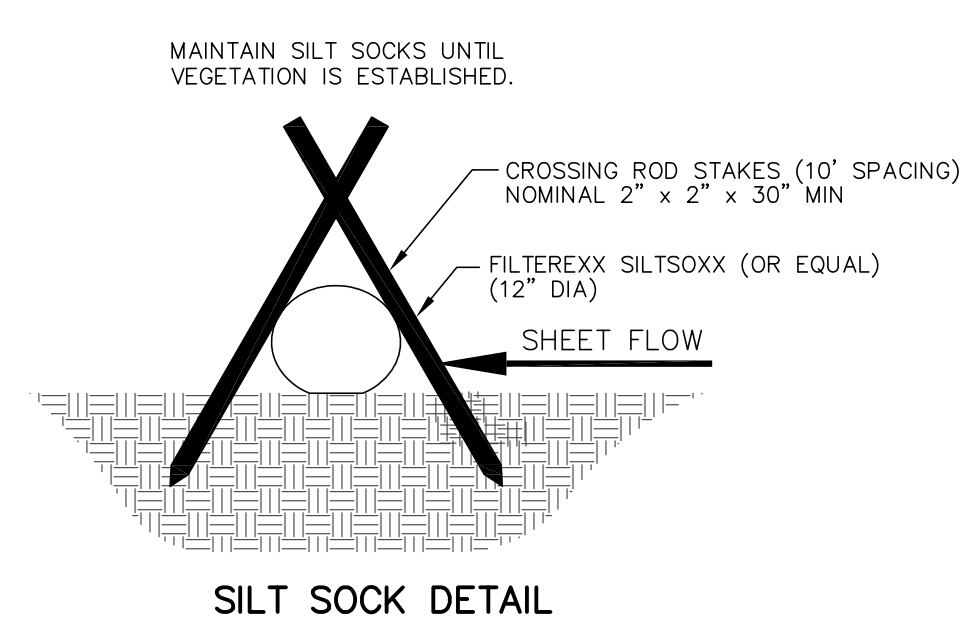
TIME SCHEDULE:
 APRIL 15, 2018 INSTALL WET DETENTION POND AND INITIAL EROSION CONTROL DEVICES
 APRIL 16 - MAY 15, 2018 CONSTRUCT PROPOSED BUILDING, PARKING LOT AND UTILITIES.
 MAY 16 - 31, 2018 COMPLETE FINAL LANDSCAPING AND RESTORE ALL PVIOUSLY DISTURBED AREAS.

RESTORATION NOTES:
 ALL DISTURBED AREAS, EXCEPT STREET PAVEMENT AND SIDEWALK AREAS, SHALL RECEIVE A MINIMUM OF FOUR (4) INCHES OF TOPSOIL, FERTILIZER, SEED AND MULCH. RESTORATION WILL OCCUR AS SOON AFTER THE DISTURBANCE AS PRACTICAL. LAWN AREAS WITH SLOPES GREATER THAN 4:1 SHALL BE SEEDED WITH OLS "NOMO" MIX OR EQUAL. ALL OTHER DISTURBED AREAS SHALL BE SEEDED WITH MADISON PARKS MIX OR EQUAL MIXTURES SHALL BE IN ACCORDANCE WITH SECTION 63.0 OF D.O.T. SPECIFICATIONS.
 AN EQUAL AMOUNT OF ANNUAL RYEGRASS SHALL BE ADDED TO THE MIX. SEED MIXTURES SHALL BE APPLIED AT THE RATE OF FOUR (4) POUNDS PER 1,000 SQUARE FEET. FERTILIZER SHALL BE APPLIED AT THE RATE OF FOUR (4) POUNDS PER 1,000 SQUARE FEET. FERTILIZER SHALL MEET THE MINIMUM REQUIREMENTS THAT FOLLOW: NITROGEN, NOT LESS THAN 16%; PHOSPHORIC ACID, NOT LESS THAN 6%; POTASH, NOT LESS THAN 6%.
 ALL FINISH GRADED AREAS SHALL BE SEEDED AND MULCHED BY SEPTEMBER 15TH. IF THE SITE DOES NOT HAVE FINISH GRADED AREAS COMPLETED BY OCTOBER 15TH, ALL DISTURBED AREAS SHALL BE RESTORED WITH TEMPORARY SEEDING (COVER CROPS). AREAS NEEDING PROTECTION DURING PERIODS WHEN PERMANENT SEEDING IS NOT APPLIED SHALL BE SEEDED WITH ANNUAL SPECIES FOR TEMPORARY PROTECTION. SEE TABLE 1 OF THE WISCONSIN DNR CONSERVATION PRACTICE STANDARD 1009, FOR SEEDING RATES OF COMMONLY USED SPECIES. THE RESIDUE FROM THIS CROP MAY EITHER BE INCORPORATED INTO THE SOIL DURING SEEDBED PREPARATION AT THE NEXT PERMANENT SEEDING PERIOD OR LEFT ON THE SOIL SURFACE AND THE PLANTING MADE AS A NO-TILL SEEDING.
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR A SATISFACTORY STAND OF GRASS ON ALL SEEDED AREAS FOR ONE YEAR AFTER THE PROJECT'S FINAL ACCEPTANCE.

OWNER:
 P2 DEVELOPMENT COMPANY, LLC
 ATTN: ROBERT BACH
 2544 CEDAR SAUK ROAD
 SAUKVILLE, WI 53080

ENGINEER:
 QUAM ENGINEERING, LLC
 ATTN: KEVIN PARRISH
 544 SOUTH MAIN STREET, SUITE B
 WEST BEND, WI 53095

TO OBTAIN LOCATION OF PARTICIPANTS' UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN
CALL DIGGERS HOTLINE
 1-800-242-8511
 TOLL FREE
 TDD(FOR THE HEARING IMPAIRED)(800)542-2289
 WS. STATUTE 182.0175 (1974)
 REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE

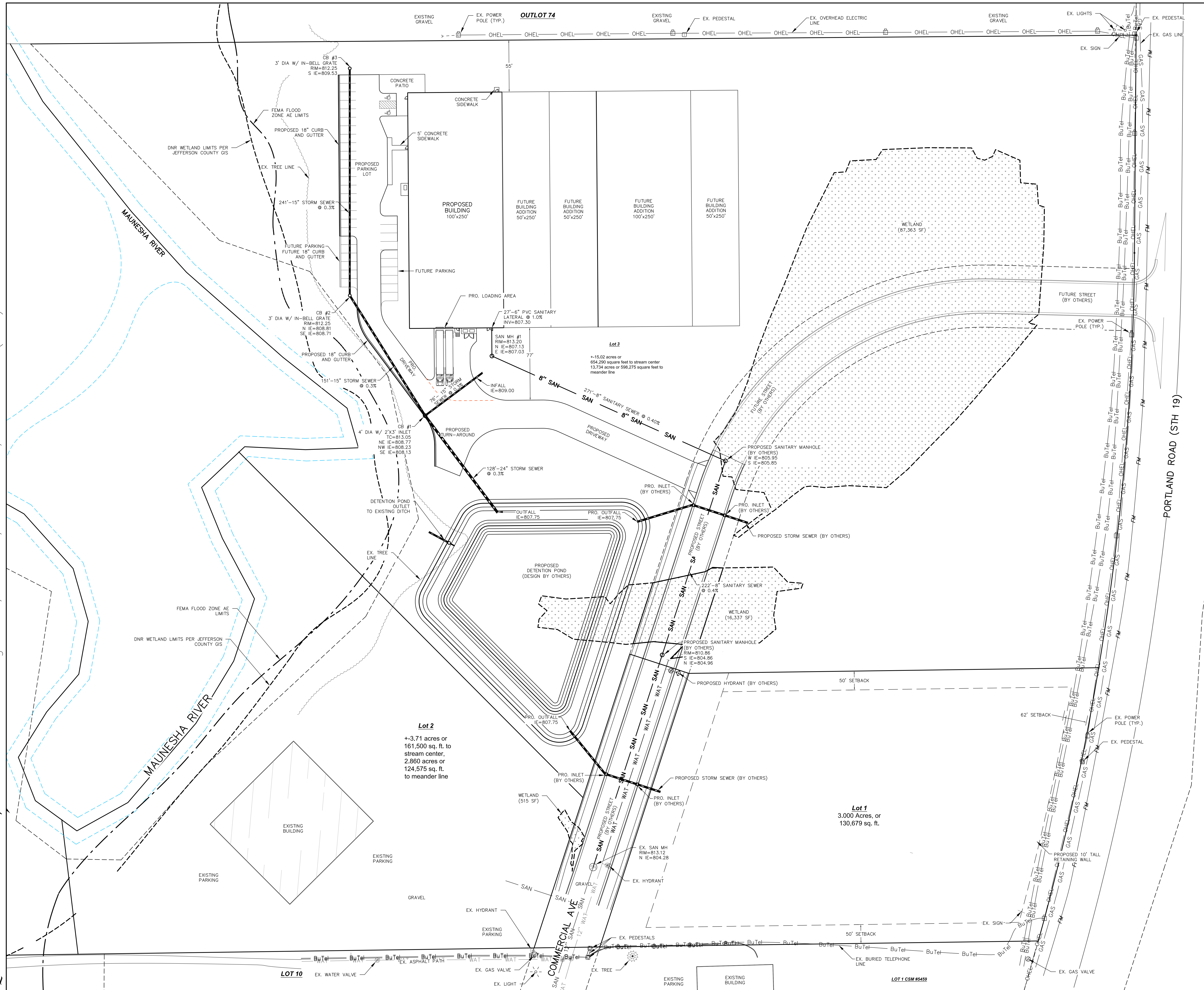


Ab E DISCOVERY, LLC - WATERLOO
 PRELIMINARY GRADING AND EROSION CONTROL PLAN
 DATED: NOVEMBER 27, 2017

C-102

QUAM ENGINEERING, LLC
 Residential and Commercial Site Design Consultants

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 Phone (262) 338-6641; www.quamengineering.com



Ab E DISCOVERY, LLC — WATERLOO
 PRELIMINARY UTILITY PLAN
 DATED: NOVEMBER 27, 2017

C-103

QUAM ENGINEERING, LLC
 Residential and Commercial Site Design Consultants

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STRUCTURAL SHEET INDEX			
SHEET NUMBER	SHEET NAME	CURRENT REVISION DATE	CURRENT REVISION DESCRIPTION
S001	STRUCTURAL GENERAL NOTES		
S002	STRUCTURAL GENERAL NOTES		
S100	FRAMING CONCEPT		
S101	FOUNDATION PLAN		
S201	MEZZANINE FRAMING PLAN		
S202	LOW ROOF FRAMING PLAN		
S203	HIGH ROOF FRAMING PLAN		
S301	FOUNDATION DETAILS		
S302	FOUNDATION DETAILS		
S401	BRACED FRAME ELEVATIONS		
S402	BRACED FRAME ELEVATIONS		
S501	STEEL FRAMING DETAILS		
S502	STEEL JOIST DETAILS		

GENERAL NOTES

- THE CONTRACTOR IS RESPONSIBLE FOR JOB SITE SAFETY REQUIREMENTS.
- THE BUILDING STRUCTURE IS DESIGNED TO FUNCTION AS A COMPLETE SYSTEM, AND HAS NOT BEEN ANALYZED OR DESIGNED FOR STABILITY DURING ERECTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DESIGN AND PROVIDE ADEQUATE TEMPORARY BRACING TO INSURE STABILITY DURING THE ERECTION PROCESS.
- THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS, AND IS RESPONSIBLE TO INSURE THAT CONSTRUCTION LOADS DO NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING ELEMENTS WHEN THOSE LOADS ARE APPLIED.
- DO NOT SCALE THE DRAWINGS.
- THE CONTRACTOR IS REQUIRED TO COORDINATE THE STRUCTURAL DRAWINGS WITH THE ARCHITECTURAL, CIVIL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS, AND TO BRING ANY DISCREPANCIES, INTERFERENCES, DIMENSIONAL INCONSISTENCIES, OR CONFLICTS ASSOCIATED WITH THIS COORDINATION TO THE ARCHITECT AND ENGINEER IMMEDIATELY.

DESIGN LOADS

APPLICABLE DESIGN CODE AND REFERENCES

THE CODES AND STANDARDS LISTED HAVE BEEN USED FOR THE DESIGN OF THIS PROJECT. ALL CONSTRUCTION, FABRICATION, AND MATERIALS SHALL CONFORM TO THESE CODES AND STANDARDS.

2009 INTERNATIONAL BUILDING CODE WITH WISCONSIN AMENDMENTS
 ASCE 7-05 MINIMUM DESIGN LOADS FOR BUILDINGS
 ACI 318-08 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
 AISC 360-05 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS

BUILDING DESIGN CRITERIA
 BUILDING OCCUPANCY CATEGORY: II (SEE ASCE 7-05 TABLE 1-1)

BUILDING DESIGN LOADS AND DATA

DEAD LOADS

ROOF	20 PSF
ROOFING & INSULATION	3.0 PSF
METAL DECK	1.7 PSF
JOISTS & JOIST GIRDERS	3.0 PSF
CEILING ASSEMBLY ALLOWANCE	3.0 PSF
MECHANICAL ALLOWANCE	4.0 PSF
FIRE SPRINKLER ALLOWANCE	4.0 PSF
MISC	1.3 PSF
FLOORS	68 PSF
FLOORING	2.0 PSF
Z' TOPPING + Z' DECK (4' TOTAL)	39.0 PSF
DEFLECTION CONCRETE	7.0 PSF
BEAMS & GIRDERS	6.0 PSF
CEILING ASSEMBLY ALLOWANCE	3.0 PSF
MECHANICAL ALLOWANCE	4.0 PSF
FIRE SPRINKLER ALLOWANCE	4.0 PSF
MISC	1.0 PSF

DEAD LOADS INDICATED ABOVE ARE PRESUMED UNIFORM LOADS BASED ON PRELIMINARY ARCHITECTURAL DRAWINGS. CEILING, MECHANICAL AND FIRE SPRINKLER LOADS MUST BE VERIFIED BY THE CONTRACTOR AT THE TIME OF DESIGN TO ENSURE ALLOWANCES ARE NOT EXCEEDED.

LIVE LOADS	
CORRIDOR & STAIRS	100 PSF
STORAGE WAREHOUSE	125 PSF

ROOF LIVE LOADS

TRIB. AREA < 200 SF	20 PSF
TRIB. AREA > 600 SF	12 PSF

ROOF LIVE LOADS FOR A MEMBER WITH TRIBUTARY AREA BETWEEN 200 SF AND 600 SF MAY BE DETERMINED USING LINEAR INTERPOLATION.

SNOW

GROUNDED SNOW (Pg)	30 PSF
SNOW IMPORTANCE FACTOR, (I)	1.0
EXPOSURE FACTOR (Ce)	1.0
THERMAL FACTOR (Ct)	1.0
FLAT ROOF SNOW (P)	21 PSF

SEE SNOW DRIFT SURCHARGE PLAN FOR ADDL. SNOW LOADS REQUIRED

WIND DESIGN DATA

BASIC WIND SPEED	90 MPH
WIND IMPORTANCE FACTOR	1.0
DIRECTIONALITY FACTOR (Kd)	0.85
TOPOGRAPHY FACTOR (Kzt)	1.0
WIND EXPOSURE	C
ENCLOSURE CLASSIFICATION	ENCLOSED
INTERNAL PRESSURE COEFFICIENT	+/- 0.18

SEISMIC DESIGN DATA

SEISMIC IMPORTANCE FACTOR, I _s	1.0
MAPPED SPECTRAL RESPONSE COEFFICIENT, S _s	0.104
MAPPED SPECTRAL RESPONSE COEFFICIENT, S ₁	0.043
SITE CLASSIFICATION	D (PER GEOTECH)
SPECTRAL RESPONSE COEFFICIENT, S _{ds}	0.111
SPECTRAL RESPONSE COEFFICIENT, S _{d1}	0.069
SEISMIC DESIGN CATEGORY	B
SEISMIC BASE SHEAR	26 KIPS
RESPONSE COEFFICIENT, C _s	0.037
RESPONSE MODIFICATION FACTOR, R	3

STRUCTURAL STEEL SYSTEM NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE ANALYSIS PROCEDURE EQUIVALENT LATERAL FORCE

SOIL DESIGN DATA

ALLOWABLE NET SOIL BEARING PRESSURE (NATIVE STIFF TO VERY STIFF CLAY AND/OR NATIVE MEDIUM DENSE TO DENSE GRANULAR SOILS. UNDERCUTTING WILL LIKELY BE REQUIRED BASED ON THE PRESENCE OF SHALLOW ZONES OF SOFT CLAY AND/OR LOOSE GRANULAR SOILS)	2,800 PSF (PER GEOTECH)
COEFFICIENT OF SLIDING FRICTION, μ	0.35 (PER GEOTECH)
LATERAL EARTH PRESSURES	
ACTIVE FLUID PRESSURE	35 PSF/FT
AT REST FLUID PRESSURE	59 PSF/FT
PASSIVE PRESSURE	200 PSF/FT
SUBGRADE MODULUS (SLAB SUBGRADE CONSISTING OF 4" TO 6" SAND OR GRAVEL PER GEOTECH)	100 PCI
SUBGRADE MODULUS (SLAB SUBGRADE CONSISTING OF 6" OR THICKER DENSE GRADED BASE PER GEOTECH)	150 PCI

ALLOWABLE DEFLECTION CRITERIA

ROOF	L/360 SNOW; L/240 TOTAL
FLOOR	L/360 LIVE; L/240 TOTAL
EXTERIOR WALLS	L/240 WIND

FOUNDATION NOTES

- THE FOUNDATIONS HAVE BEEN DESIGNED TO THE REQUIREMENTS SET FORTH IN THE GEOTECHNICAL REPORT PREPARED BY CGC, INC. DATED DECEMBER 5, 2017. FURTHERMORE, IT IS ASSUMED THAT THE CONTRACTOR WILL EXECUTE THE GEOTECHNICAL RECOMMENDATIONS TO THE FULLEST EXTENT POSSIBLE.
- THE SUBSURFACE CONDITIONS DESCRIBED IN THE GEOTECHNICAL REPORT REPRESENT CONDITIONS ONLY AT THOSE SPECIFIC LOCATIONS AT THE PARTICULAR TIME THEY WERE MADE. SUBSURFACE CONDITIONS DESCRIBED ON THE DRAWINGS SHOULD BE CONSIDERED APPROXIMATE, AND CONFIRMED IN THE FIELD. THE OWNER'S GEOTECHNICAL CONSULTANT MUST REVIEW AND APPROVE ALL FINISHED EXCAVATIONS AND BEARING SUBGRADES BEFORE PLACING CONCRETE. PROVIDE ADDITIONAL EXCAVATION AS NECESSARY TO ACHIEVE THE REQUIRED BEARING CAPACITY.
- SEE SITE PLAN FOR ELEVATION DATUM EQUAL TO FIRST FLOOR TOP OF CONCRETE (ELEVATION 100'-0").
- DO NOT UNDERMINE EITHER NEW OR EXISTING CONSTRUCTION.
- BEAR ALL FOOTINGS ON UNDISTURBED SOIL OR COMPACTED FLLS HAVING A MINIMUM NET ALLOWABLE BEARING CAPACITY INDICATED IN SOIL DESIGN DATA.
- REMOVE TOPSOIL, ORGANICS, AND UNSUITABLE MATERIAL, AS DIRECTED BY THE OWNERS GEOTECHNICAL CONSULTANT, AND STOCKPILE AS REQUIRED FOR FINAL GRADING. PLACE ENGINEERED FILL AS REQUIRED IN HORIZONTAL LIFTS WITHIN +/- 2 PERCENT OF OPTIMUM MOISTURE CONTENT.
- MINIMIZE CONSTRUCTION TRAFFIC OVER EXPOSED SUBGRADES IF WET. DO NOT ALLOW WATER TO POND ON THE SUBGRADES.
- USE SIDE FORMS FOR ALL FOOTINGS AND GRADE BEAMS.
- CLEAN REINFORCEMENT IMMEDIATELY PRIOR TO PLACING CONCRETE.
- DO NOT PLACE CONCRETE IN ANY EXCAVATION CONTAINING FREE WATER, FROST, ICE OR FROZEN MATERIALS. PREVENT FROST OR ICE FROM PENETRATING ANY FOOTING OR SLAB SUBGRADE, BOTH BEFORE AND AFTER CONCRETE PLACEMENT AND UNTIL FOOTINGS OR SUBGRADES ARE FULLY PROTECTED BY THE PERMANENT BUILDING STRUCTURE.
- PLACE THE CONCRETE FOR EACH FOOTING IN ONE CONTINUOUS POUR.
- BRACE FOUNDATION WALLS AND GRADE BEAMS DURING THE OPERATION OF BACKFILLING AND COMPACTION.
- BACKFILL AGAINST FOUNDATION WALLS SHALL BE PLACED IN LIFTS SUCH THAT THE DIFFERENCE IN ELEVATION ON OPPOSITE SIDES OF THE WALL DOES NOT EXCEED 1'-6".

CAST IN PLACE CONCRETE NOTES

- SEE SPECIFICATION DIVISION 03 FOR REQUIREMENTS IN ADDITION TO THOSE LISTED BELOW.

- MATERIAL SPECIFICATIONS

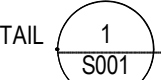
FOOTINGS	F _c = 4000 PSI @ 28 DAYS
FOUNDATION WALLS	F _c = 4000 PSI @ 28 DAYS
SLAB ON GRADE	F _c = 3000 PSI @ 28 DAYS
CONCRETE NOT OTHERWISE NOTED	F _c = 4000 PSI @ 28 DAYS
MILD REINFORCING STEEL BARS	F _y = 60 KSI; ASTM A615
FIBER REINFORCING FOR SLABS AND/OR ROOFS	ASTM C1116 SEE SCHEDULE
- SUBMIT CONCRETE MIX DESIGNS, WITH REQUIRED BACKUP DATA, INCLUDING RECENT GRADATIONS FOR EACH AGGREGATE USED, FOR EACH TYPE OF CONCRETE PROPOSED FOR USE. TO THE ARCHITECT AND ENGINEER FOR REVIEW A MINIMUM OF TWO WEEKS PRIOR TO PLACEMENT. SEE SPECIFICATIONS FOR ADDITIONAL MIX DESIGN REQUIREMENTS. CONCRETE MIXES SUBMITTED SHALL BE DESIGNED TO BE PLACIBLE FOR THE TEMPERATURE CONDITIONS AT THE JOBSITE, AND BE ABLE TO BE PLACED AND CONSOLIDATED AROUND THE REINFORCING INDICATED ON THE PLANS. DO NOT USE CALCIUM CHLORIDE IN ANY CONCRETE.
- PROVIDE AIR-ENTRAINING IN CONCRETE AS INDICATED IN THE SPECIFICATIONS.
- ALL CONCRETE SHALL BE NORMAL WEIGHT (APPROX. 145 PCF) UNO.
- SUBMIT DETAILED SHOP DRAWINGS INDICATING REINFORCEMENT SIZE, SPACING, BENDING, AND PLACEMENT TO THE ARCHITECT AND ENGINEER FOR REVIEW PRIOR TO FABRICATION. INCLUDE DETAILS AND LOCATIONS OF ALL CURBS, CONSTRUCTION JOINTS, SLAB DEPRESSIONS, SLEEVES, OPENING, ETC.
- THE MAXIMUM TOTAL AMOUNT OF WATER THAT MAY BE ADDED TO THE MIX AFTER BATCHING IS THE AMOUNT INDICATED AS BEING WITHHELD ON THE BATCH TICKET FOR THE SPECIFIC BATCH.
- SUBMIT ELECTRONIC COPIES OF ALL CONCRETE DELIVERY TICKETS WITHIN 5 DAYS OF PLACEMENT, INDICATING THE FOLLOWING INFORMATION:
 TIME AND NUMBER OF CUBIC YARDS BATCHED
 THEORETICAL TARGET AND ACTUAL BATCH WEIGHTS OF EACH INGREDIENT
 AMOUNT OF WATER WITHHELD
 AMOUNT OF WATER ADDED AT JOBSITE
 MIX DESIGN NUMBER
 STRUCTURE BEING PLACED
 LOCATION OF PLACEMENT
 NUMBER OF REVOLUTIONS AT MIXING SPEED
 TOTAL REVOLUTIONS AT COMPLETION OF DISCHARGE
 TIME AT COMPLETION OF DISCHARGE
 SLUMP AND AIR CONTENT, IF TESTED
 TEMPERATURE OF AIR AND CONCRETE
 SAMPLE NUMBERS OF CYLINDERS MADE FROM LOAD
- DETAIL, FABRICATE, SUPPORT, AND PLACE ALL CONCRETE REINFORCEMENT IN ACCORDANCE WITH ACI 318 'DETAILS AND DETAILING OF CONCRETE REINFORCEMENT' AND ACI 318 'BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE'. FIELD BENDING OF REINFORCING BARS IS NOT PERMITTED EXCEPT WHERE INDICATED ON THE STRUCTURAL DRAWINGS.
- COVERAGE FOR REINFORCEMENT SHALL NOT BE LESS THAN:

CONDITION	COVER
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
CONCRETE EXPOSED TO EARTH OR WEATHER	1-1/2"
#5 BARS AND SMALLER	2"
#6 THROUGH #18 BARS	
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	
SLABS, WALLS, & JOISTS	1-1/2"
#4 AND #18 BARS	3/4"
#11 BARS AND SMALLER	
BEAMS AND COLUMNS	1-1/2"
PRIMARY REINFORCEMENT, TIES, & SPIRALS	

- DETAIL, FABRICATE, SUPPORT, AND PLACE ALL CONCRETE REINFORCEMENT IN ACCORDANCE WITH ACI 318 'DETAILS AND DETAILING OF CONCRETE REINFORCEMENT' AND ACI 318 'BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE'. FIELD BENDING OF REINFORCING BARS IS NOT PERMITTED EXCEPT WHERE INDICATED ON THE STRUCTURAL DRAWINGS.

- COVERAGE FOR REINFORCEMENT SHALL NOT BE LESS THAN:

CONDITION	COVER
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
CONCRETE EXPOSED TO EARTH OR WEATHER	1-1/2"
#5 BARS AND SMALLER	2"
#6 THROUGH #18 BARS	
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	
SLABS, WALLS, & JOISTS	1-1/2"
#4 AND #18 BARS	3/4"
#11 BARS AND SMALLER	
BEAMS AND COLUMNS	1-1/2"
PRIMARY REINFORCEMENT, TIES, & SPIRALS	

- SEE DETAIL  FOR CLASS B TENSION CONTACT LAP SPLICE LENGTHS. STAGGER ADJACENT LAPS 3'-0" UNO.
- PROVIDE (2) # 5 BARS DIAGONAL AT CORNERS OF OPENINGS AND AT RE-ENTRANT CORNERS. PROVIDE (2) # 5 BARS AROUND THE PERIMETER OF OPENINGS WITH SIDES EXCEEDING 18 INCHES IN LENGTH.
- WELDING OF GRADE A615 REINFORCING BARS IS NOT PERMITTED.
- COORDINATE LOCATION OF ALL CONSTRUCTION JOINTS WITH ENGINEER PRIOR TO COMMENCEMENT OF CONCRETE WORK. EXTERIOR BASEMENT WALLS AND RETAINING WALLS SHALL HAVE VERTICAL CONTROL JOINTS SPACED NOT FARTHER THAN 30'-0" ON CENTER. CONSTRUCTION JOINTS SHALL BE LOCATED TO COINCIDE WITH CONTROL JOINT LOCATIONS.
- CLEAN AND MOISTEN ALL CONSTRUCTION JOINTS IMMEDIATELY PRIOR TO PLACING FRESH CONCRETE.
- UNLESS NOTED OTHERWISE, PROVIDE DOWELS TO MATCH MAIN REINFORCEMENT SIZE AND SPACING. PROVIDE TENSION LAP SPLICE UNLESS NOTED OTHERWISE.
- REFER TO THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR CURBS, PADS, DEPRESSIONS, WALL/S LAB OPENINGS, REVEALS, REGLETS, DRIPS, SPECIAL FLOOR FINISHES, AND OTHER REQUIREMENTS NOT SHOWN ON STRUCTURAL DRAWINGS.
- ALUMINUM CONDUIT SHALL NOT BE EMBEDDED IN CONCRETE.
- DO NOT CAST OPENINGS OTHER THAN INDICATED ON THE REVIEWED SHOP DRAWINGS WITHOUT WRITTEN CONSENT OF EOR. DO NOT CORE HOLES IN COLUMNS, BEAMS, JOISTS, WALLS, OR STRUCTURAL CONCRETE SLABS WITHOUT WRITTEN CONSENT OF THE EOR.
- REFER TO ACI 305 FOR REQUIREMENTS FOR PLACING CONCRETE IN HOT WEATHER AND TO ACI 308 FOR REQUIREMENTS FOR PLACING CONCRETE IN COLD WEATHER.

4,000 PSI CONCRETE					
BAR SIZE	DEVELOPMENT LENGTHS		CLASS "B" TENSION LAP SPLICE LENGTHS		STD HOOK DEVELOPMENT LENGTH, L _{dh}
	STANDARD	TOP BAR	STANDARD	TOP BAR	1
#3	12"	12"	16"	16"	6"
#4	12"	15"	16"	20"	7"
#5	15"	19"	19"	24"	9"
#6	18"	23"	23"	29"	10"
#7	29"	37"	37"	49"	12"
#8	36"	47"	47"	61"	14"
#9	44"	57"	57"	75"	15"
#10	54"	70"	70"	91"	17"
#11	65"	84"	84"	109"	19"

NOTES:

- TOP BARS ARE DEFINED AT HORIZ BARS WITH MORE THAN 12" OF CONCRETE BELOW.
- TABLE VALUES BASED ON 1 1/2" CLEAR COVER AND MINIMUM CENTER TO CENTER BAR SPACING OF 6".
- SPLICE LENGTH SHALL BE BASED ON LARGER BAR BEING SPLICED.
- HOOKED BAR EXTENSION = MIN. BEND DIAMETER * 12db
- MIN. BEND DIAMETER = 6db FOR #3 - #8 (8db FOR #9 - #11)
- HOOKED BAR DEVELOPMENT LENGTHS, L_{dh}: ASSUME
 - SIDE COVER ≥ 2 1/2" AND
 - COVER AT END OF EXTENSION ≥ 2"

REBAR LAP SPLICE LENGTHS

S001 NTS

ABBREVIATIONS

ACI	AMERICAN CONCRETE INSTITUTE	INV	INVERT
ADJ	ADJACENT	JT	JOINT
ADL	ADDITIONAL	K	KIPS
AESS	ARCHITECTURAL EXPOSED STRUCTURAL STEEL	KSF	KIPS PER SQUARE FOOT
ARFA	AMERICAN FOREST & PAPER ASSOCIATION	KSI	KIPS PER SQUARE INCH
ASTM	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	L	ANGLE
ALT	ALTERNATE	LB(S)	POUND(S)
ALUM	ALUMINUM	LL	LIVE LOAD
ATA	AMERICAN PLYWOOD ASSOCIATION	LLBB	LONG LEG BACK TO BACK
APPROX	APPROXIMATE	LLH	LONG LEG HORIZONTAL
AR	ANCHOR ROD	LLV	LONG LEG VERTICAL
ARCH	ARCHITECTURAL	LP	LOW POINT
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS	LTW	LONG WAY
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS	LTWT	LIGHT WEIGHT
AWS	AMERICAN WELDING SOCIETY	MAX	MAXIMUM
B/	BOTTOM OF	MO	MASONRY OPENING
BFR	BLENDED FIBER REINFORCING	MS	MIDDLE STRIP
BLDG	BUILDING	MATL	MATERIAL
BLKG	BLOCK (ING)	MAX	MAXIMUM
BOT	BOTTOM	MECH	MECHANICAL
B PL	BASE PLATE	MEP	MECHANICAL ELECTRICAL & PLUMBING
BM	BEAM	MIN	MINIMUM
BRG	BEARING	MISC	MISCELLANEOUS
BSMT	BASEMENT	MFG	MANUFACTURER
BTWN	BETWEEN	NTS	NOT IN CONTRACT
CFS	COLD FORMED STEEL	NTL	NOT TO SCALE
CG	CENTER OF GRAVITY	NOM	NOMINAL
CL	CENTERLINE	NO	NUMBER
CC	CAST-IN-PLACE	NS	NEAR SIDE
CJ	CONTROL, OR CONSTRUCTION JOINT	OC	ON CENTER
CJP	COMPLETE JOINT PENETRATION	OPNG	OPENING
CLR	CLEAR	OD	OUTSIDE DIAMETER
CMU	CONCRETE MASONRY UNIT	OP	OUTSIDE FACE
CONC	CONCRETE	OPP	OPPOSITE
COL	COLUMN	PL	PLATE
CONC	CONCRETE	PC	PRECAST CONCRETE
CONN	CONNECT (ION)	PCA	CONCRETE AGGREGATE ASSOCIATION
CONT	CONTINUOUS OR CONTINUE	PCA	PILE CAP
CONST	CONSTRUCTION JOINT	PCF	POUNDS PER CUBIC FOOT
CRS	CONCRETE REINFORCING STEEL INSTITUTE	PSF	POUNDS PER SQUARE INCH
CS	COLUMN STRIP	PSF	POUNDS PER SQUARE FOOT
CU YD	CUBIC YARD	PCC	PRECAST CONCRETE
DET	DETAIL	PEN	PENETRATION
DET	DETAIL	PERIM	PERIMETER
DIA	DIAMETER	PJP	PARTIAL JOINT PENETRATION
DIAG	DIAGONAL	PL	PLATE
DM	DIMENSION	PSF	POUNDS PER SQUARE FOOT
DL	DEAD LOAD	PSI	POUNDS PER SQUARE INCH
DWG	DRAWING	PT	POST TENSIONED
EA	EACH	PT	PRESSURE TREATED
EE	EACH END	PVC	POLYVINYL CHLORIDE
EF	EACH FACE	QTY	QUANTITY
ELEV	ELEVATION	R	RADIUS
ELEV	ELEVATOR	REF	REFERENCE
ELEC	ELECTRICAL	RENF	REINFORCE (D) (ING)
ES	EACH SIDE	REDD	REQUIRED
EW	EACH WAY	REV	REVISION
EQ	EQUAL	RD	ROOF DRAIN
EOD	EDGE OF DECK	RO	ROUGH OPENING
EOS	EDGED OF SLAB	SCHED	SCHEDULE
EXIST	EXISTING	SLIP-C	SLIP CRITICAL
EXT	EXTERIOR	SECT	SECTION
EXP	EXPANSION	SER	STRUCTURAL ENGINEER OF RECORD
EJ	EXPANSION JOINT	SM	SIMILAR
FD	FLOOR DRAIN	SJ	SEISMIC JOINT
FIN	FINISH	SQ	SQUARE
FLR	FLOOR	SPEC	SPECIFICATIONS
FND	FOUNDATION	SLAB	SLAB ON-GRADE
FP	FULL PENETRATION	SS	STAINLESS STEEL
FS	FAR SIDE	SSL	SHORT SLOT
FT	FOOT/FEET	STD	STANDARD
FTG	FOOTING	STIFF	STIFFENER
GAGE	GAGE	STL	STEEL
GALV	GALVANIZED	STRUC	STRUCTURAL
GC	GENERAL CONTRACTOR	SW	SHORT WAY
GB	GRADE BEAM	SYM	SYMMETRICAL
HCA	HEADED CONCRETE ANCHOR	T&B	TOP AND BOTTOM
HLDN	HOLDOWN	T&G	TONGUE AND GROOVE
HORIZ	HORIZONTAL	TJ	TOP OF
HP	HIGH POINT	THK	THICK (NESS)
HS	HIGH STRENGTH	TRANS	TRANSVERSE
HSS	HOLLOW STRUCTURAL SECTION	TYP	TYPICAL
HT	HEIGHT	UNO	UNLESS NOTED OTHERWISE
HWS	HEADED WELD STUDS	VIF	VERIFY IN FIELD
IBC	INTERNATIONAL BUILDING CODE	VERT	VERTICAL
ICC	INTERNATIONAL CODE COUNCIL	WP	WORK POINT
ID	INSIDE DIAMETER	W	WITH
IF	INSIDE FACE	W/O	WITHOUT
INCH	INCH	WD	WOOD
INFO	INFORMATION	WWF	WELDED WIRE FABRIC
INSUL	INSULATED (ION)	WF	WIDE FLANGE SECTION
INT	INTERIOR	WT	WIDE FLANGE TEE SECTION

SLAB ON GRADE NOTES

- PREPARE SUBGRADE AS INDICATED IN SOIL REPORT. AT A MINIMUM, PROOF ROLL AND REMOVE ALL SOFT AREAS AND REPLACE WITH COMPATIBLE FILL.
 - SEE SPECIFICATIONS FOR SLAB ON GRADE VAPOR BARRIER, IF REQUIRED.
 - UNDER SLAB GRANULAR FILL PER GEOTECHNICAL REPORT.
 - SAWCUT SLABS ON GRADE AT A MAXIMUM SPACING OF 24 TO 36 TIMES THE SLAB THICKNESS, WITH A PANEL WIDTH TO LENGTH RATIO NOT TO EXCEED 1.5. START SAWCUTTING WITH EARLY ENTRY SAW AS SOON AS THE CONCRETE WILL SUPPORT THE WEIGHT OF THE SAW AND OPERATOR AND NOT RAVE EDGES OR DISLODGE AGGREGATE, BUT IN NO CASE MORE THAN 6 HOURS AFTER THE SLAB IS PLACED. INSTALLATION OF JOINTS DOES NOT IMPLY ANY WARRANTY AGAINST THE OCCURRENCE OF SHRINKAGE CRACKS.
- OR**
- CONTRACTION JOINT LOCATIONS INDICATED ON SLAB ON GRADE PLAN ARE A SUGGESTED PATTERN INTENDED TO AID THE CONTRACTOR, AND DO NOT IMPLY ANY WARRANTY AGAINST THE OCCURRENCE OF SHRINKAGE CRACKS. SAW TO A DEPTH OF AT LEAST 1/2 THE SLAB THICKNESS. START SAWCUTTING WITH EARLY ENTRY SAW AS SOON AS THE CONCRETE WILL SUPPORT THE WEIGHT OF THE SAW AND OPERATOR AND NOT RAVE EDGES OR DISLODGE AGGREGATE, BUT IN NO CASE MORE THAN 6 HOURS AFTER THE SLAB IS PLACED.**
- SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS AND SIZES OF SLAB DEPRESSIONS.
 - SLAB ON GRADE REQUIRES FIBER REINFORCING. SEE SPECIFICATIONS FOR APPROVED MANUFACTURERS AND MINIMUM QUANTITIES.
 - SLAB ON GRADE THICKNESS, ELEVATION AND FLATNESS / LEVELNESS TOLERANCES:
THICKNESS: PLUS 1/8 INCHES; MINUS 0 INCHES
ELEVATION: SEE SPECIFICATIONS
FLATNESS / LEVELNESS: SEE SPECIFICATIONS
 - DO NOT HARD TROWEL FINISH THE CONCRETE SLAB UNLESS INDICATED ON THE PLANS. CONCRETE SHOULD HAVE AN OPEN PORE STRUCTURE WHEN FINISHED TO FACILITATE SLAB DRYING, AND FLOORING ADHESION.
 - WET CURE SLAB UNLESS NOTED OTHERWISE ON DRAWINGS.

INTERIOR SLAB ON METAL DECK NOTES

- SEE SPECIFICATION SECTION 03 FOR REQUIREMENTS IN ADDITION TO THOSE LISTED BELOW.
- CAMBERED STEEL BEAMS WILL DEFLECT DURING CONCRETE PLACEMENT. THE CONTRACTOR SHALL ANTICIPATE AND ADDITIONAL 10% OF CONCRETE VOLUME TO ACHIEVE A FLAT FLOOR.**
- FOR CAMBERED STEEL FRAMING, CONCRETE POURS SHOULD PROGRESS IN THE DIRECTION PERPENDICULAR TO THE DECKING FLUTES, AND DECKING LOADED AT LEAST THREE FOURTHS OF A BAY AHEAD OF SCREEDING, IN ORDER TO LOAD THE PRIMARY MEMBERS PRIOR TO SCREEDING.
- FOR CAMBERED STEEL FRAMING, CONSTRUCTION JOINTS SHOULD BE LOCATED TO RUN PERPENDICULAR TO THE METAL DECK FLUTES, AND SHALL BE APPROVED BY THE ENGINEER A MINIMUM OF TWO WEEKS PRIOR TO SLAB PLACEMENT.
- SLAB ON METAL DECK THICKNESS, ELEVATION, FLATNESS, LEVELNESS TOLERANCES:
THICKNESS: PLUS 1/8 INCHES; MINUS 0 INCHES
ELEVATION: PLUS/MINUS 1/4 INCHES
FLATNESS AND LEVELNESS:
SPECIFIED OVERALL VALUE (SOV): FF30 / FL25
MINIMUM LOCAL VALUE (MLV): FF20 / FL18
- DO NOT HARD TROWEL FINISH THE CONCRETE SLAB UNLESS INDICATED ON THE PLANS. CONCRETE SHOULD HAVE AN OPEN PORE STRUCTURE WHEN FINISHED TO FACILITATE SLAB DRYING, AND FLOORING ADHESION.
- WET CURE SLAB UNLESS NOTED OTHERWISE ON DRAWINGS.

COMPONENTS & CLADDING WIND DESIGN PRESSURES

	TRIBUTARY AREA = 10 SF	POSITIVE (PSF)	NEGATIVE (PSF)
ROOFS	ZONE 1	XX.X	XX.X
	ZONE 2	XX.X	XX.X
	ZONE 3	XX.X	XX.X
	TRIBUTARY AREA = 100 SF	POSITIVE (PSF)	NEGATIVE (PSF)
	ZONE 1	XX.X	XX.X
	ZONE 2	XX.X	XX.X
WALLS	TRIBUTARY AREA = 10 SF	POSITIVE (PSF)	NEGATIVE (PSF)
	ZONE 4	XX.X	XX.X
	ZONE 5	XX.X	XX.X
	TRIBUTARY AREA = 500 SF	POSITIVE (PSF)	NEGATIVE (PSF)
	ZONE 4	XX.X	XX.X
	ZONE 5	XX.X	XX.X
PARAPETS	TRIBUTARY AREA = 10 SF	POSITIVE (PSF)	NEGATIVE (PSF)
	INTERIOR ZONE	XX.X	XX.X
	EXTERIOR ZONE	XX.X	XX.X
	TRIBUTARY AREA = 500 SF	POSITIVE (PSF)	NEGATIVE (PSF)
	INTERIOR ZONE	XX.X	XX.X
	EXTERIOR ZONE	XX.X	XX.X

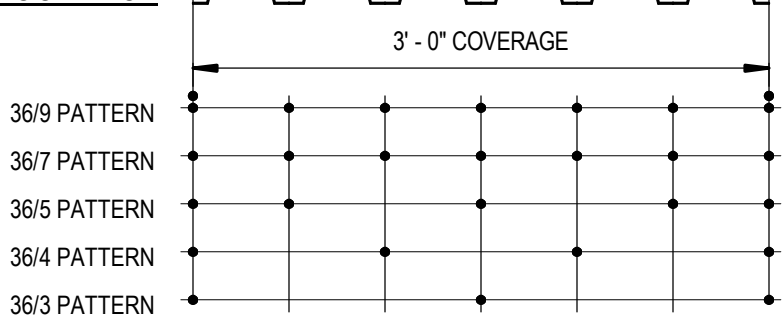
STRUCTURAL STEEL NOTES

- SEE SPECIFICATION DIVISION 05 SECTION OR REQUIREMENTS IN ADDITION TO THOSE LISTED BELOW.
- PROVIDE NEW MATERIAL CONFORMING TO THE FOLLOWING REQUIREMENTS FOR ALL STRUCTURAL STEEL:
WIDE FLANGE SHAPES (ASTM A992) Fy = 50 ksi; Fu = 65 ksi
M, S, HP, C, MC, AND L SHAPES (ASTM A36) Fy = 36 ksi; Fu = 58 ksi
RECTANGULAR HSS SHAPES (ASTM A500-B) Fy = 46 ksi; Fu = 58 ksi
ROUND HSS SHAPES (ASTM A500-B) Fy = 42 ksi; Fu = 58 ksi
CARBON STEEL PIPE (ASTM A53-B) Fy = 36 ksi; Fu = 60 ksi
PLATES AND BARS (ASTM A36) Fy = 36 ksi; Fu = 58 ksi
- DETAIL, FABRICATE AND ERECT STRUCTURAL STEEL IN CONFORMANCE WITH THE AISC SPECIFICATIONS AND CODES INDICATED.
- PERFORM ALL WELDING USING CERTIFIED WELDERS AND IN ACCORDANCE WITH THE AWS 'STRUCTURAL WELDING CODE - STEEL'.
- SUBMIT SHOP DRAWINGS TO THE ARCHITECT/ENGINEER FOR REVIEW. SHOW SHOP FABRICATION DETAILS, FIELD ASSEMBLY DETAILS, AND ERECTION DIAGRAMS FOR ALL STRUCTURAL STEEL. SCHEDULE SUBMISSIONS TO ALLOW ADEQUATE TIME FOR REVIEW PRIOR TO FABRICATION.
- DETAIL ALL BEAMS FRAMING INTO CONCRETE WALLS, BEAMS OR COLUMNS TO ALLOW FOR HORIZONTAL FIELD TOLERANCES AND THERMAL MOVEMENT. PROVIDE CONNECTION DETAILS REQUIRED BY THE SPECIFIC CONSTRUCTION SEQUENCES.
- PROVIDE SUITABLE BEARING PLATES AND ANCHOR RODS FOR BEAMS, JOISTS, OR GIRDERS WHICH BEAR ON WALLS. LOCATE ITEMS USING TEMPLATES OR SIMILAR METHODS. SET ALL PLATES IN FULL BEDS OF NON-SHRINK GROUT. COMPLETELY FILL ALL BEAM AND COLUMN POCKETS WITH CONCRETE PRIOR TO CASTING CONCRETE ABOVE.
- REFER TO THE ARCHITECTURAL DRAWINGS FOR THE REQUIRED FIRE RATINGS AND UL ASSEMBLY NUMBERS
- DO NOT FIELD CUT ANY STRUCTURAL STEEL UNLESS REVIEWED AND APPROVED IN WRITING BY THE EOR. CLEARLY INDICATE ALL STEEL MEMBER OPENINGS REQUIRED ON THE SHOP DRAWINGS. ALL COSTS FOR PROVIDING PENETRATIONS IN THE FIELD, INCLUDING MEMBER REINFORCING, IS THE RESPONSIBILITY OF THE CONTRACTOR.
- ERECTION PROCEDURES, SEQUENCES AND COORDINATION OF WORK WITH OTHER TRADES IS THE RESPONSIBILITY OF THE CONTRACTOR. PROVIDE ANY ADDITIONAL STEEL REQUIRED FOR ERECTION PURPOSES AT NO COST TO THE OWNER. REMOVE THIS ADDITIONAL STEEL UNLESS DIRECTED OTHERWISE BY THE OWNER IN WRITING.
- PROVIDE TEMPORARY BRACING AND SHORING AS REQUIRED FOR THE SAFETY, STABILITY AND ALIGNMENT OF THE STRUCTURE. LEAVE TEMPORARY BRACING IN PLACE UNTIL THE PERMANENT STRUCTURAL, LATERAL, LOAD RESISTING SYSTEM IS COMPLETE, INCLUDING FLOOR AND ROOF DIAPHRAGMS. PERFORM FINAL BRACING AND WELDING ONLY ON THOSE PORTIONS OF THE STRUCTURE THAT HAVE BEEN ALIGNED AND PLUMBED WITHIN THE SPECIFIED TOLERANCES.
- GROUT COLUMN BASE PLATES AFTER BUILDING FRAME HAS BEEN ALIGNED AND PLUMBED, AND PRIOR TO PLACEMENT OF CONCRETE FLOOR SYSTEMS (OP CONCRETE SLABS, SLABS ON STEEL DECK, PRECAST, ETC). GROUT BEAM BEARING PLATES AFTER BEAM ALIGNMENT AND PRIOR TO PLACEMENT OF FLOOR SYSTEMS. MINIMUM GROUT STRENGTH EQUALS THE HIGHER OF 8000 PSI OR THE INDICATED COMPRESSIVE STRENGTH OF THE CONCRETE THE COLUMN IS BEARING ON.
- SEE DETAIL FOR INSPECTION REQUIREMENTS
- ALL STRUCTURAL STEEL IN DIRECT CONTACT WITH FIRE RETARDANT TREATED (FRT) OR PRESERVATIVE TREATED LUMBER MUST BE WRAPPED WITH A BARRIER MEMBRANE (GRACE 1) OR DECK PROTECTOR OR EQUAL. ALL FASTENERS ATTACHING TREATED LUMBER TO STEEL MUST BE GALVANIZED.
- LONG SLOTTED HOLES ARE PERMITTED ONLY WHERE SHOWN IN THE CONSTRUCTION DOCUMENTS. IF SHOWN, 5/16" PLATE WASHERS ARE REQUIRED AT ALL LOCATIONS.

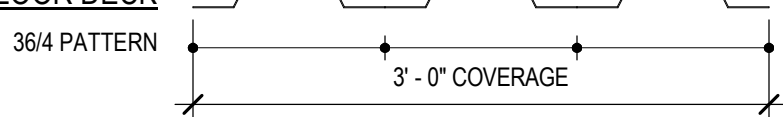
STEEL DECK NOTES

- SEE SPECIFICATION SECTION 05310 FOR ADDITIONAL INFORMATION.
- SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF POUR STOPS.
- ROOF DECK END LAPS SHALL OCCUR AT SUPPORTS WITH A 4" MINIMUM LAP LENGTH EXTENDING PAST THE CENTERLINE OF THE SUPPORTS AS SHOWN.
- DECK SHALL BE STORED OFF GROUND WITH ONE END ELEVATED TO PROVIDE DRAINAGE AND SHALL BE PROTECTED FROM THE ELEMENTS WITH A WATERPROOF COVERING, VENTILATED TO AVOID CONDENSATION.
- WELD WASHERS SHALL BE USED AT ALL INTERMEDIATE AND END OF PANEL WELDS FOR DECKING 24 GAUGE AND THINNER.
- UNLESS NOTED OTHERWISE ON DRAWINGS, FLOOR DECK SHALL BE 2" 18 GAUGE GALVANIZED COMPOSITE DECK MEETING THE FOLLOWING MINIMUM DECK SECTION PROPERTIES:
I_p = 0.559 in⁴
S_p = 0.495 in³
I_n = 0.558 in⁴
S_n = 0.504 in³
F_y = 50 KSI
- UNLESS NOTED OTHERWISE ON DRAWINGS, ROOF DECK SHALL BE 1 1/2" 22 GAUGE PAINTED ROOF DECK MEETING THE FOLLOWING MINIMUM DECK SECTION PROPERTIES:
I_p = 0.155 in⁴
S_p = 0.186 in³
I_n = 0.183 in⁴
S_n = 0.192 in³
F_y = 33 KSI
- ROOF DECK ATTACHMENT**
TYPICAL ROOF DECK FASTENING (UNLESS NOTED OTHERWISE)
DECK FASTENERS AT SUPPORTS: 5/8" PUDDLE WELDS AT 36S PATTERN
DECK FASTENING AT SIDE LAPS: #10 TEK SCREWS AT 12" OC MAX.
- FLOOR DECK ATTACHMENT**
TYPICAL FLOOR DECK FASTENING (UNLESS NOTED OTHERWISE)
DECK FASTENERS AT SUPPORTS: 5/8" PUDDLE WELDS AT 12" OC
DECK FASTENING AT SIDE LAPS: #10 TEK SCREWS AT 36" OC
- UNLESS NOTED ON THE DRAWINGS, DECK SHALL BE FASTENED AT ALL EDGE SUPPORTS, INTERMEDIATE SUPPORTS, AND PANEL LAPS. SHEAR STUDS REQUIRED ON COMPOSITE BEAMS MAY BE CONSIDERED EQUIVALENT TO ABOVE DECK WELDS ON A ONE TO ONE BASIS.

1 1/2" ROOF DECK



2" COMPOSITE FLOOR DECK



BAR JOIST NOTES

- SEE SPECIFICATION SECTION 052100 FOR ADDITIONAL INFORMATION.
- MAXIMUM WIND NET UPLIFT LOAD ON JOISTS = xx PSF (USING COMPONENTS & CLADDING WIND LOADS)
- FIELD WELD ALL K-SERIES JOISTS, INCLUDING BOLTED JOISTS, TO SUPPORTS WITH A MINIMUM OF (2) 1/8" FILLET WELDS, 1" LONG.
FIELD WELD ALL L4-SERIES JOISTS, INCLUDING BOLTED JOISTS, TO SUPPORTS WITH A MINIMUM OF (2) 1/4" FILLET WELDS, 2 1/2" LONG.
- BOLTED JOISTS SHALL USE STANDARD WASHERS UNDER BOTH HEAD AND NUT.
- DOUBLE DIAGONAL BRIDGING TO BE FIELD WELDED TO TOP AND BOTTOM CHORD OF ADJACENT JOIST. SINGLE DIAGONAL BRIDGING SHALL BE WELDED TO BOTTOM CHORD OF EXTERIOR JOIST AND TOP CHORD OF ADJACENT JOIST.
- HORIZONTAL BRIDGING SHALL BE FIELD WELDED ALONG TOP AND BOTTOM CHORD OF ADJACENT JOISTS.
- WHERE JOIST BRIDGING INTERFERES WITH DUCTWORK, OPENINGS, ETC., RELOCATE AND ADD BRIDGING EACH SIDE OF OBSTRUCTION.

COLD FORMED STEEL FRAMING

- MATERIAL SPECIFICATIONS**
COLD FORMED STUDS, JOISTS, AND TRACKS ASTM C955 & ASTM A1003
Fy=50 KSI, Fu=65 KSI (16 GAGE AND THICKER)
Fy=53 KSI, Fu=65 KSI (16 GAGE AND THINNER)
- GALVANIZED FINISHES: ALL COLD FORMED MEMBERS SHALL BE FORMED OF STEEL HAVING THE FOLLOWING GALVANIZED COATING MEETING THE REQUIREMENTS OF ASTM A653:
STUDS, JOISTS, TRACK, BRIDGING, AND ACCESSORIES: G-60 GALVANIZED FINISH UNO
ALL MEMBERS EXPOSED TO WEATHER: G90 GALVANIZED FINISH.
JOIST RITE JOISTS: G90 GALVANIZED FINISH.
- COLD FORMED STEEL STUDS (S) AND TRACKS (T) SHALL CONFORM TO THE STEEL STUD MANUFACTURERS ASSOCIATION (SSMA) STANDARDS.
- ALL COLD FORMED STEEL FASTENERS SHOWN ON DRAWINGS ARE BY MARINO. SUBSTITUTIONS FOR THESE ITEMS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD FOR APPROVAL PRIOR TO CONSTRUCTION.
- HEAVIER GAUGE MATERIAL MAY BE SUBSTITUTED BY CONTRACTOR IF DESIRED.
- WHEN PROVIDED, FACTORY PUNCH-OUTS WILL BE LOCATED ALONG THE CENTERLINE OF THE WEBS OF MEMBERS AND WILL HAVE A CENTER-TO-CENTER SPACING OF 24". PUNCH-OUTS WILL HAVE A MAXIMUM WIDTH = HALF THE MEMBER DEPTH (W/2 OR 21/2", WHICHEVER IS LESS, AND A MAXIMUM LENGTH = 4-1/2". THE MINIMUM DISTANCE BETWEEN THE END OF A MEMBER AND THE NEAREST EDGE OF THE WEB PUNCH-OUT SHALL BE 10".
- THE CONTRACTOR SHALL SUBMIT COLD FORMED STEEL SHOP DRAWINGS TO STRUCTURAL ENGINEER OF RECORD FOR APPROVAL PRIOR TO CONSTRUCTION. SHOP DRAWING SHALL INCLUDE:
A. PLANS INDICATING MEMBER SIZES AND LOCATIONS
B. SECTIONS INDICATING COLD FORMED STEEL MEMBER CONNECTIONS
- PROVIDE TOP AND BOTTOM TRACKS AT ALL WALLS. ALL TRACKS SHALL BE THE SAME GAUGE AS THE STUDS FRAMING INTO THEM UNLESS NOTED OTHERWISE.
EXCEPTION: ALL TRACKS FASTENED INTO FOUNDATION SHALL BE 600S125-68 UNO
- FIELD CUTTING OF COLD FORMED STEEL SHALL BE DONE BY SAWING OR SHEARING. TORCH CUTTING OF COLD FORMED MEMBERS IS NOT ACCEPTABLE.
- NO NOTCHING OR COPING OF COLD FORMED MEMBERS IS ALLOWED UNLESS APPROVED BY THE STRUCTURAL ENGINEER OF RECORD.
- ALL HEADERS AND BEAMS SHALL BE CONSTRUCTED WITH UNPUNCHED MATERIAL.
- SPLICING OF WALL STUDS MUST CONFORM TO THE DETAILS SHOWN IN THIS DRAWING SET.
- ALL BEARING AND SHEAR WALLS SHALL HAVE BRIDGING AT 48" OC MAX. STUD SUPPLIER TO SUBMIT BRIDGING WITH SHOP DRAWINGS FOR REVIEW.
- ANY COLD FORMED STEEL CONNECTIONS NOT SPECIFICALLY DETAILED ON THESE DRAWINGS SHALL BE DESIGNED & DETAILED BY THE COLD FORMED STEEL ENGINEER.
- MINIMUM SCREW SPACING SHALL BE 3d
MINIMUM SCREW EDGE SPACING SHALL BE 1.5d.
- CFS JOIST WEB KNOCKOUTS SHALL NOT OCCUR A DISTANCE LESS THAN THE JOIST BEARING LENGTH + 4" FROM END OF JOIST.
- THICKNESS OF WELDS TO COLD FORMED STEEL SHALL EQUAL THE THICKNESS OF THE MEMBER BEING WELDED.

DEFERRED SUBMITTALS

- IN ACCORDANCE WITH THE IBC CHAPTER 1, SPECIALTY ITEMS, PRE-ENGINEERED COMPONENTS, AND DESIGN BUILD ELEMENTS MAY BE SUBMITTED FOR APPROVAL BY THE ENGINEER OF RECORD AND THE BUILDING OFFICIAL BY DEFERRED SUBMITTAL. SUCH ITEMS ARE DEFINED AS THOSE SPECIFIED IN CONSTRUCTION DOCUMENTS BUT WHICH REQUIRE DESIGN BY THE MANUFACTURER, SUPPLIER OR INSTALLER.
- DEFERRED SUBMITTALS ARE REQUIRED FOR THE FOLLOWING:
-STEEL STAIRS
- SUBMITTALS SHALL INCLUDE:
a) CALCULATIONS, PREPARED AND SEALED BY AN APPROPRIATELY REGISTERED ENGINEER (THE 'SPECIALTY ENGINEER').
b) DIAGRAM PREPARED AND SEALED BY THE SPECIALTY ENGINEER, SHOWING LOAD MAGNITUDES AND LOCATIONS - SEPARATED INTO DEAD, LIVE, WIND AND/OR SEISMIC COMPONENTS - THAT ARE APPLIED TO THE PRIMARY STRUCTURE.
c) ERECTION OR DESIGN DRAWINGS BEARING THE SPECIALTY ENGINEER'S SEAL AND THE ARCHITECT'S STAMP INDICATING HIS REVIEW.
- SUBMIT A SEALED COPY FOR THE STRUCTURAL ENGINEER OF RECORD'S FILE, AND ADDITIONAL COPIES AS ARE NECESSARY FOR THE BUILDING DEPARTMENT. SUBMITTALS CONTAINING EXCEPTIONS, CORRECTIONS, OR OTHER REVIEW COMMENTS ARE NOT ACCEPTABLE FOR SUBMITTAL TO THE BUILDING DEPARTMENT.
- THE STRUCTURAL ENGINEER OF RECORD'S REVIEW IS STRICTLY LIMITED TO THE FOLLOWING:
a) THE DRAWINGS AND CALCULATIONS ARE PROPERLY SEALED.
b) THE LOAD CRITERIA IS CONSISTENT WITH THE CONTRACT DOCUMENTS AND UNIFORM BUILDING CODE REQUIREMENTS.
c) THE CONNECTIONS TO THE PRIMARY STRUCTURE ARE CONSISTENT WITH THE PRIMARY DESIGN.
d) THE BASE STRUCTURE IS CAPABLE OF SUPPORTING THE IMPOSED LOADS.
- IF THE LOADS IMPOSED ON THE STRUCTURE EXCEED THE LOAD ALLOWANCE PROVIDED THE STRUCTURAL ENGINEER OF RECORD WILL REJECT THE SUBMITTAL ONLY AT THE OWNER'S WRITTEN DIRECTION WILL MODIFICATIONS TO THE BASE STRUCTURE TO ACCOMMODATE THE SPECIALTY ITEMS) BE MADE BY THE ENGINEER OF RECORD. DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE ENGINEER OR RECORD AND THE BUILDING OFFICIAL HAVE APPROVED THE SUBMITTAL DOCUMENTS.



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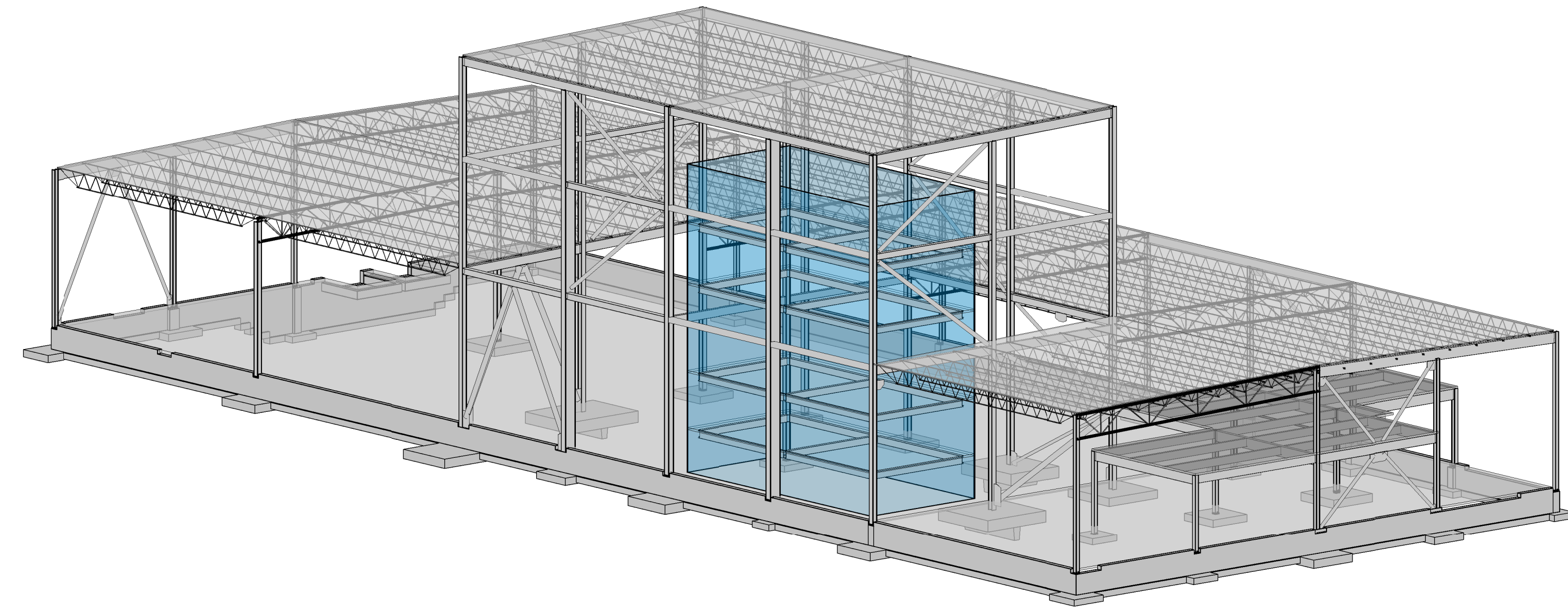
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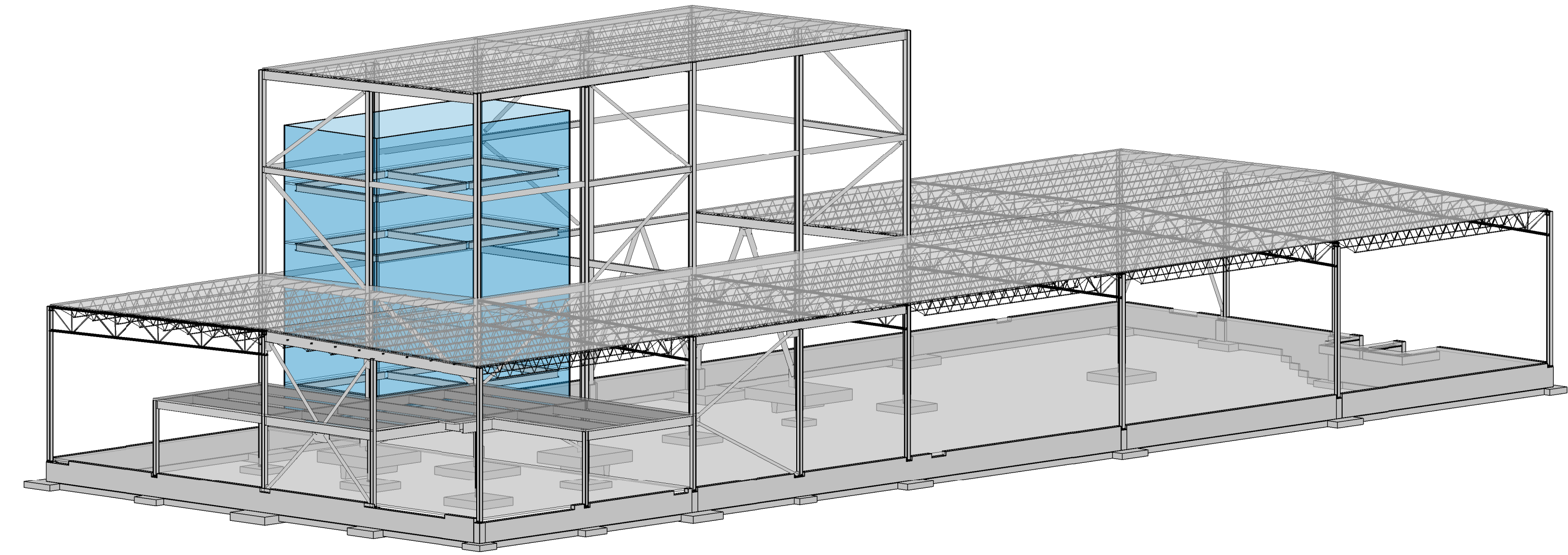
PROJECT # 17112

**STRUCTURAL
GENERAL NOTES**

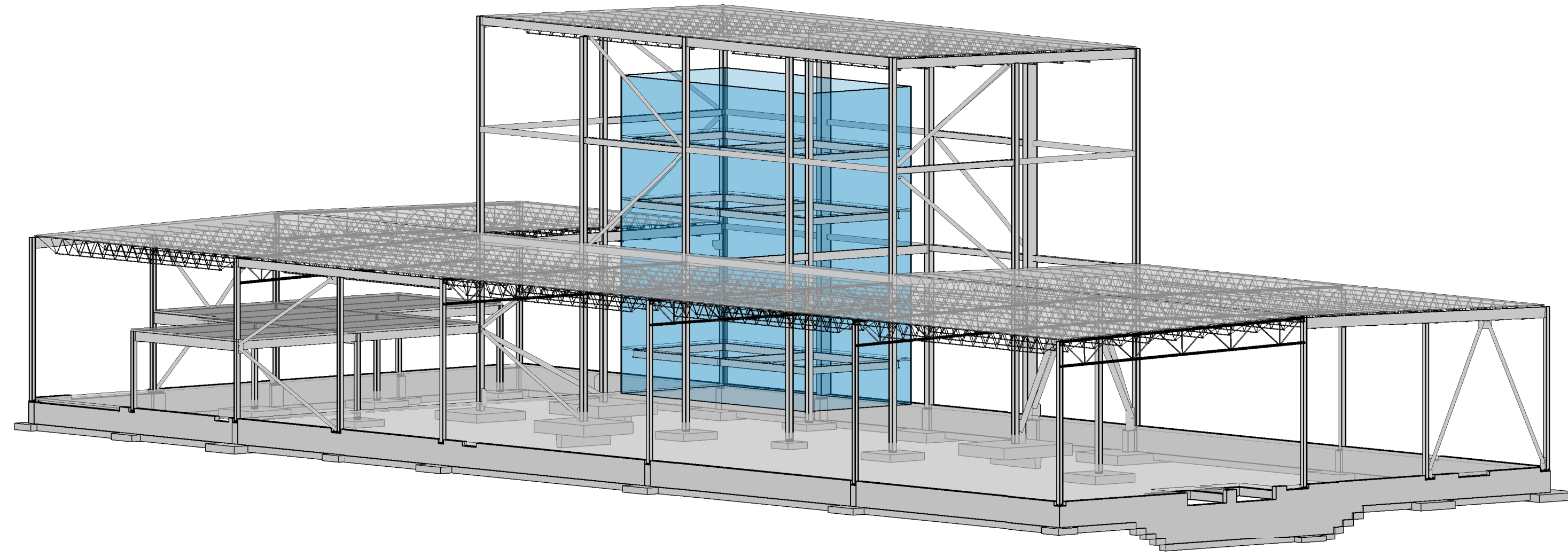
S002



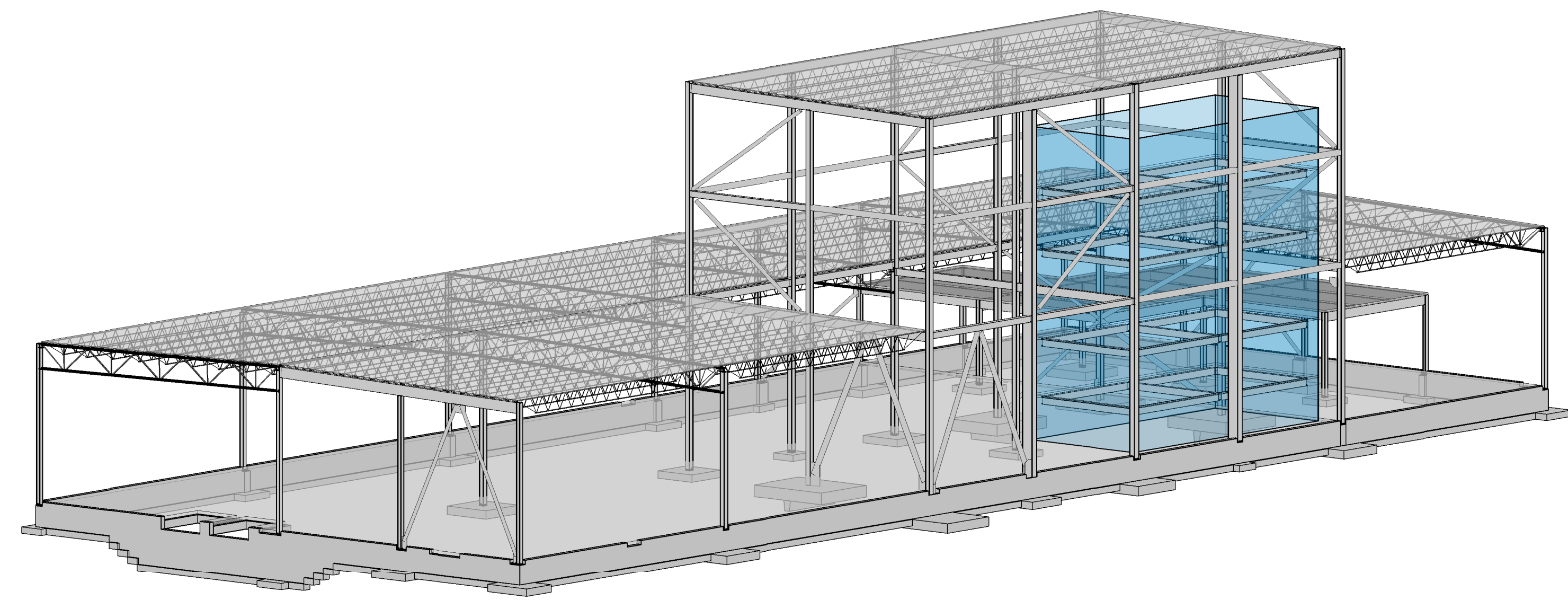
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S100 CONCEPT - LOOKING SOUTHWEST



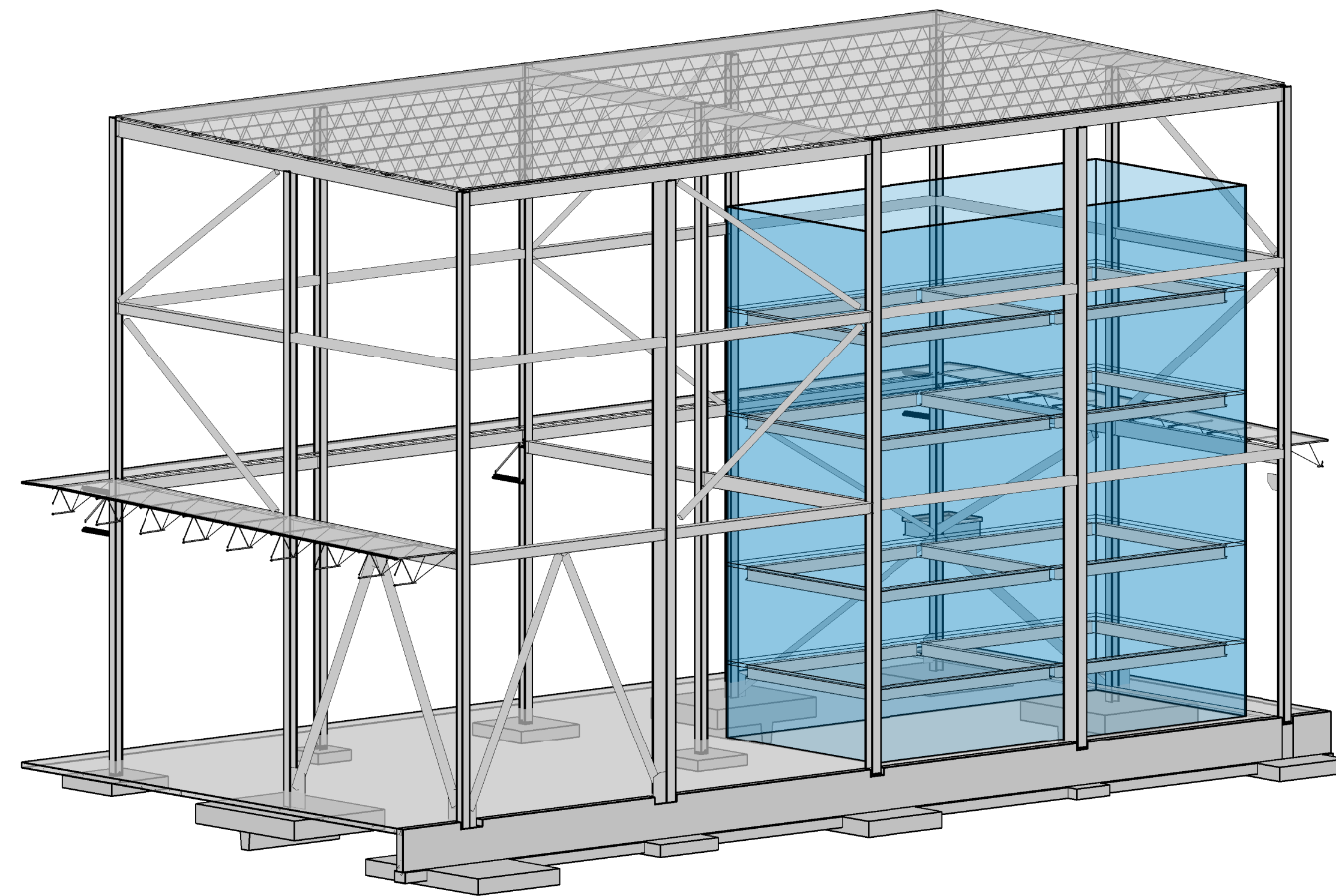
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S100 CONCEPT - LOOKING SOUTHEAST



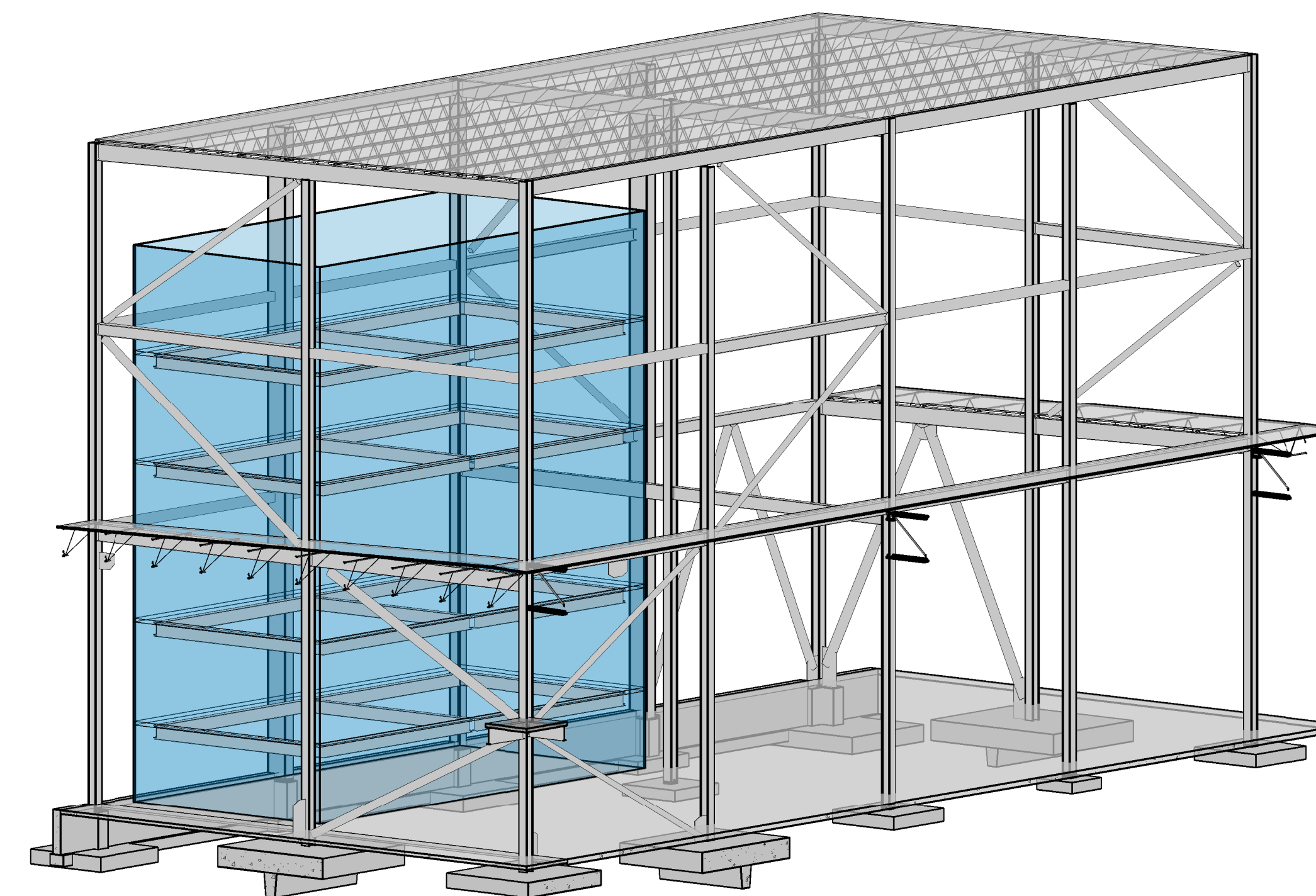
3
S100 CONCEPT - LOOKING NORTHEAST



4
S100 CONCEPT - LOOKING NORTHWEST



5
S100 CONCEPT - HIGH BAY - LOOKING NORTHWEST

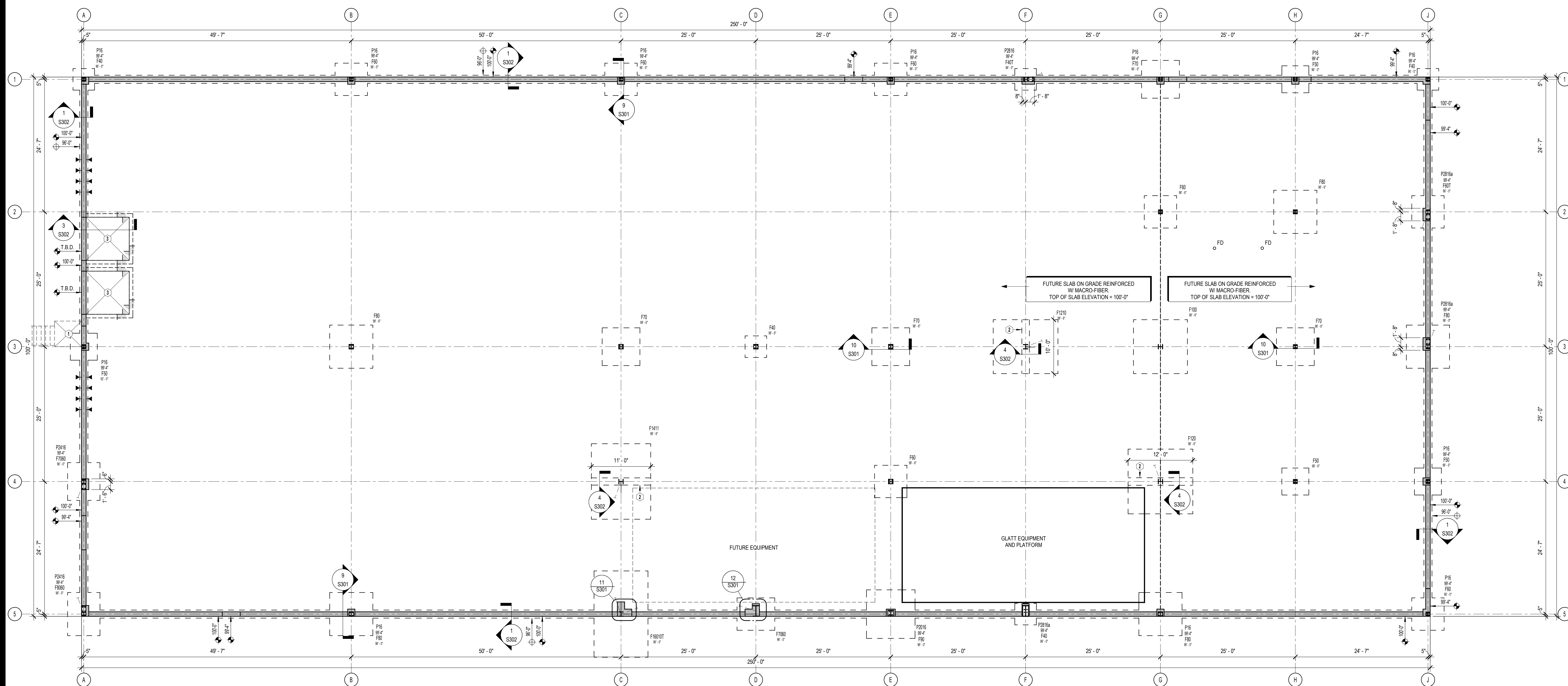


6
S100 CONCEPT - HIGH BAY - LOOKING SOUTHEAST

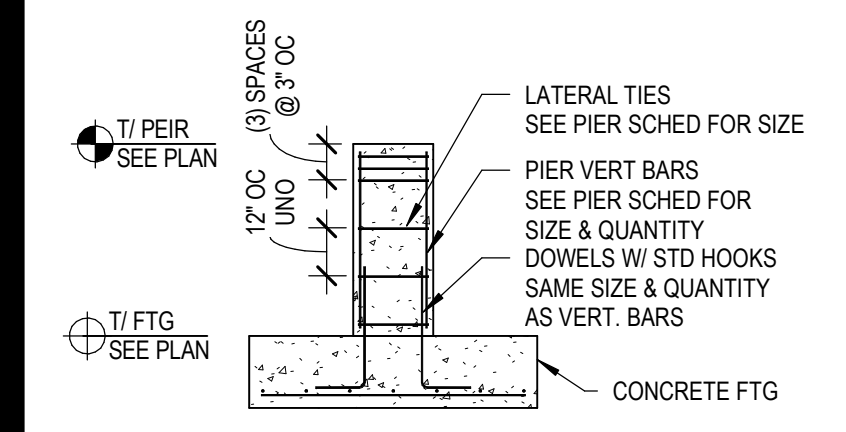


**AB E DISCOVERY -
NEW HIEP FACILITY**

COMMERCIAL AVE.
WATERLOO, WI



PIER TAKEOFF						
MARK	SIZE		REINFORCEMENT			
	PIER WIDTH	PIER LENGTH	VERTICAL BAR QUANTITY	VERTICAL BAR SIZE	HORIZONTAL TIE BAR SIZE	QUANTITY
P16	1'-4"	1'-4"	4	#6	#3	12
P32	2'-8"	1'-4"	4	#6	#3	3
P2016	1'-8"	1'-4"	4	#6	#3	1
P2416	2'-0"	1'-4"	8	#6	#3 @ 10" OC	2
P2816	2'-4"	1'-4"	8	#6	#3 @ 8" OC	1
P2816a	2'-4"	1'-4"	8	#6	#3	4
TOTAL			23			4.0 CY

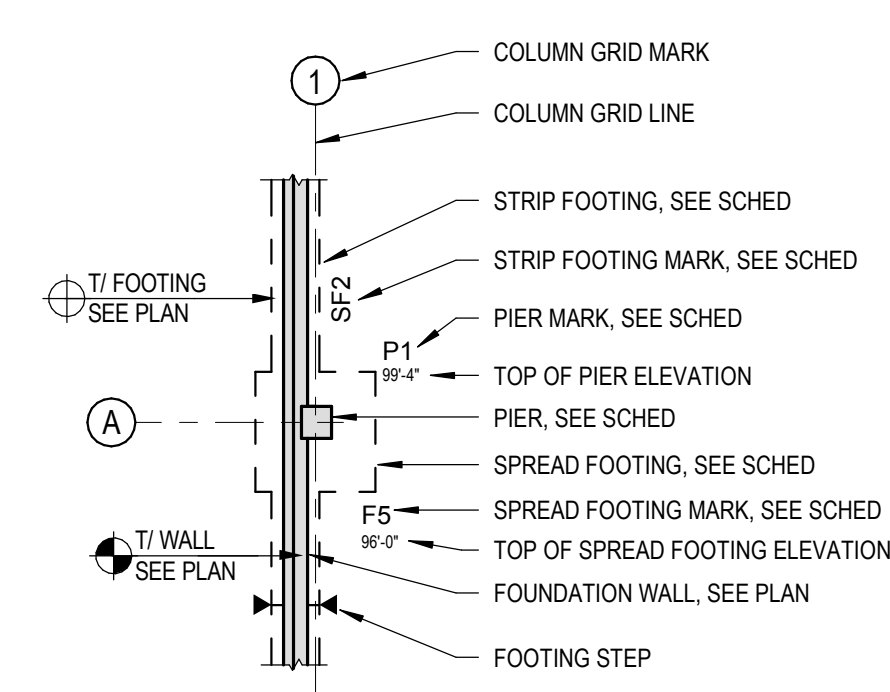
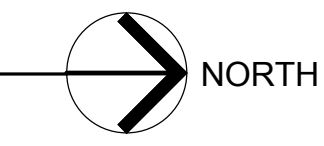


- FOUNDATION PLAN**
1/8" = 1'-0"
- FOUNDATION PLAN NOTES**
- SEE SHEET S001 FOR STRUCTURAL GENERAL NOTES.
 - VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
 - ALL CONCRETE FOUNDATION WALLS SHALL BE 10" THICK UNO
 - TOP OF FOUNDATION WALL ELEVATION = 100'-0" UNO
 - PROVIDE CORNER REINFORCEMENT AT ALL WALL INTERSECTIONS PER DETAIL
 - SEE SHEET S001 AND DETAIL (5) S301 FOR SLAB ON GRADE JOINT INFORMATION.
 - REINFORCEMENT IN SPREAD FOOTINGS SHALL CONFORM TO DETAIL
 - SEE DETAILS (1) S301, (2) S301 FOR COLUMN BASE PLATES AND ANCHOR RODS.
 - FOOTING STEPS SHALL BE PER DETAIL (7) S301

- SHEET KEYNOTES**
- GALVANIZED EXTERIOR STEEL FRAMED STAIR AND LANDING DESIGNED AND SUPPLIED BY FABRICATOR FOR 100psf IMPOSED LOAD.
 - FOOTING KEY CENTERED ON COLUMN. SEE PLAN FOR LENGTH, SEE DETAIL FOR SIZE AND REINFORCEMENT.
 - DOCK LEVELER DEPRESSION. SEE CUT SHEET FOR EXACT PLAN SIZE AND DEPRESSION DEPTH. SUBMIT TO SER FOR APPROVAL.

FOOTING TAKEOFF						
MARK	SIZE			REINFORCEMENT		VOLUME
	LENGTH	WIDTH	THICKNESS	BOTTOM REINFORCEMENT	TOP REINFORCEMENT	
F40	4'-0"	4'-0"	1'-0"	(5) #5 BARS EACH WAY	NONE	2.4 CY
F40T	4'-0"	4'-0"	1'-0"	(4) #5 BARS EACH WAY	NONE	0.6 CY
F50	5'-0"	5'-0"	1'-0"	(6) #5 BARS EACH WAY	NONE	3.7 CY
F60	6'-0"	6'-0"	1'-0"	(7) #5 BARS EACH WAY	(7) #5 BARS EACH WAY	8.0 CY
F60T	6'-0"	6'-0"	1'-2"	(6) #5 BARS EACH WAY	(6) #5 BARS EACH WAY	1.6 CY
F70	7'-0"	7'-0"	1'-2"	(8) #5 BARS EACH WAY	NONE	8.5 CY
F80	8'-0"	8'-0"	1'-4"	(10) #5 BARS EACH WAY	NONE	15.8 CY
F90	9'-0"	9'-0"	1'-6"	(10) #5 BARS EACH WAY	NONE	4.5 CY
F100	10'-0"	10'-0"	1'-4"	(11) #5 BARS EACH WAY	NONE	4.9 CY
F120	12'-0"	12'-0"	1'-10"	(13) #5 BARS EACH WAY	NONE	1.8 CY
F1210	12'-0"	10'-0"	1'-10"	(12) #5 LONG BARS (14) #5 SHORT BARS	NONE	8.1 CY
F1411	14'-0"	11'-0"	1'-10"	(13) #5 LONG BARS (16) #5 SHORT BARS	NONE	10.5 CY
F7060	7'-0"	6'-0"	1'-2"	(14) #5 LONG BARS (6) #5 SHORT BARS	(8) #5 LONG BARS (6) #5 SHORT BARS	3.6 CY
F8060	8'-0"	6'-0"	1'-2"	(9) #5 LONG BARS (7) #5 SHORT BARS	(7) #5 LONG BARS (7) #5 SHORT BARS	2.1 CY
F16010T	16'-0"	10'-0"	1'-6"	(14) #5 LONG BARS (17) #5 SHORT BARS	(9) #5 LONG BARS (17) #5 SHORT BARS	8.9 CY
TOTAL						92.9 CY

STRIP FOOTING TAKEOFF			
MARK	WIDTH	THICKNESS	REINFORCEMENT
SF1.5	1'-6"	1'-0"	(2) #5 BARS
TOTAL			690'



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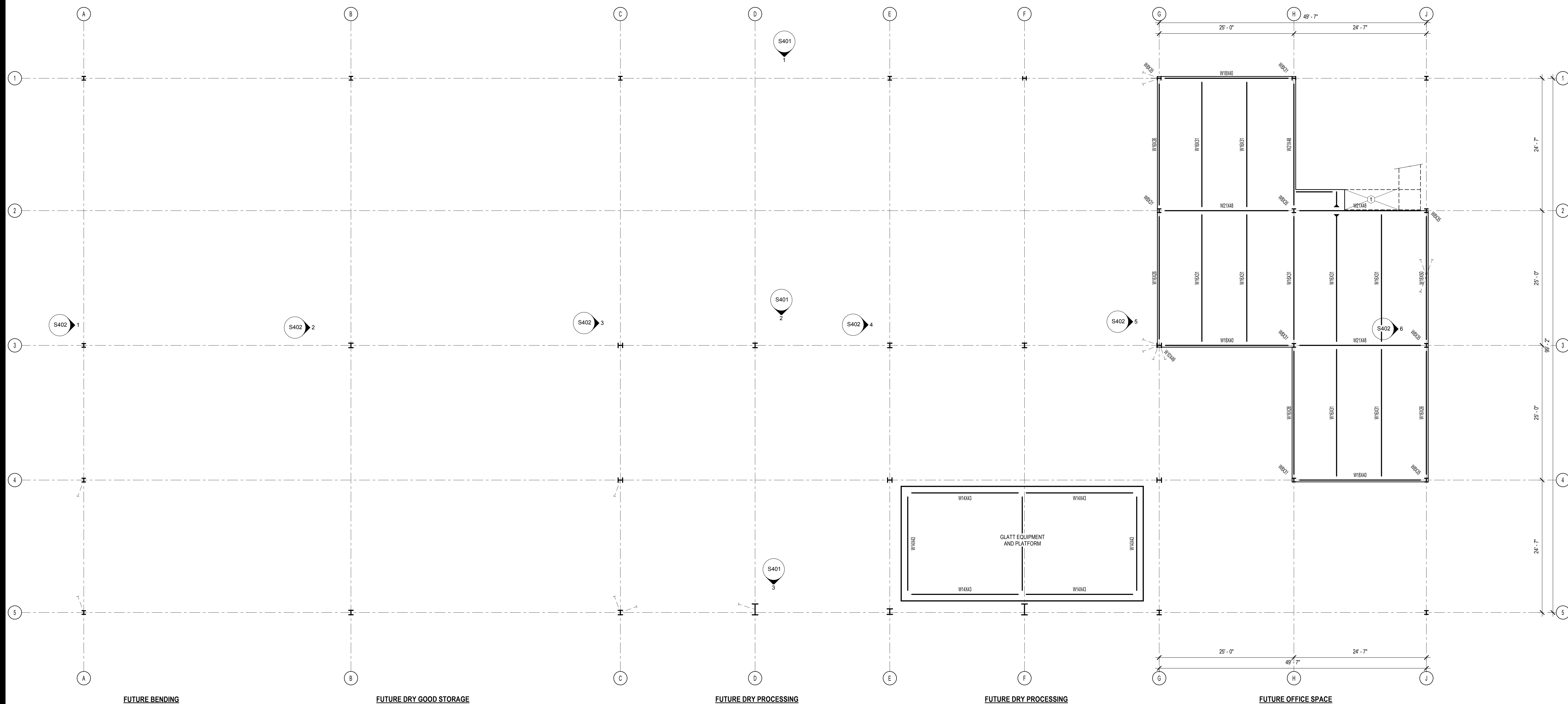
FOUNDATION PLAN

S101



**AB E DISCOVERY -
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WATERLOO, WI



FUTURE BENDING
AND PACKAGING

FUTURE DRY GOOD STORAGE

FUTURE DRY PROCESSING

FUTURE DRY PROCESSING

FUTURE OFFICE SPACE

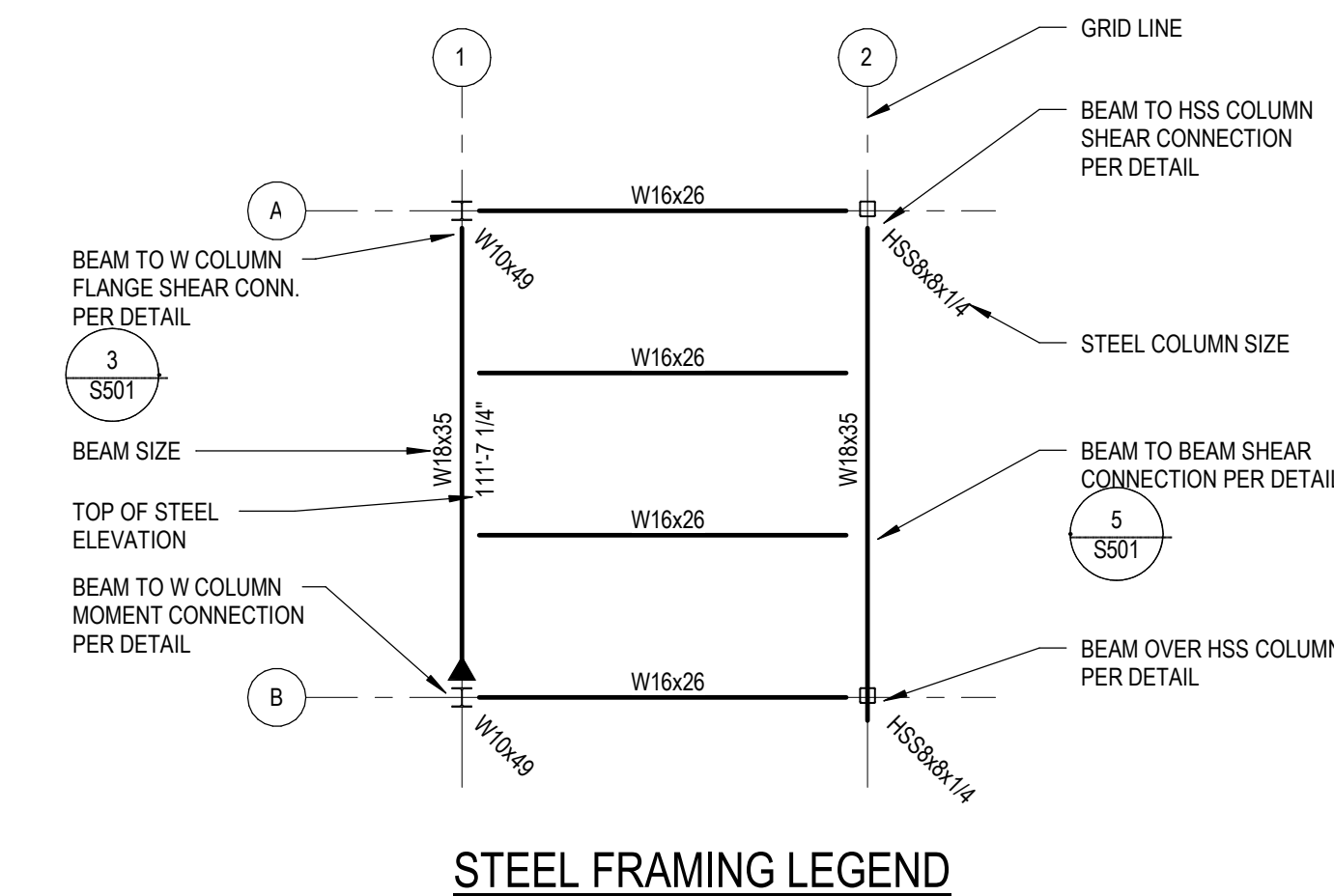
1
S201 2ND FLOOR FRAMING PLAN
1/8" = 1'-0"

FLOOR STEEL FRAMING PLAN NOTES

- SEE SHEETS S001 FOR GENERAL NOTES.
- TOP OF SLAB ELEVATION = 112'-0" UNO
TOP OF STEEL ELEVATION = 111'-8" UNO
- FLOOR CONSTRUCTION SHALL BE 2" CONCRETE TOPPING ON 2" x 20GA COMPOSITE DECK (4" TOTAL). INSTALL OVER A MINIMUM OF THREE SPANS.
A. SUPPORT FASTENERS XXX
B. SIDE LAP FASTENERS XXX
C. REINFORCE SLAB W/ FIBER MESH
- REFER TO ARCH FOR SLAB EDGE DIMENSIONS.

SHEET KEYNOTES

- STEEL FRAMED STAIR AND MID-HEIGHT LANDING DESIGNED AND SUPPLIED BY FABRICATOR FOR 100psf IMPOSED LOAD.



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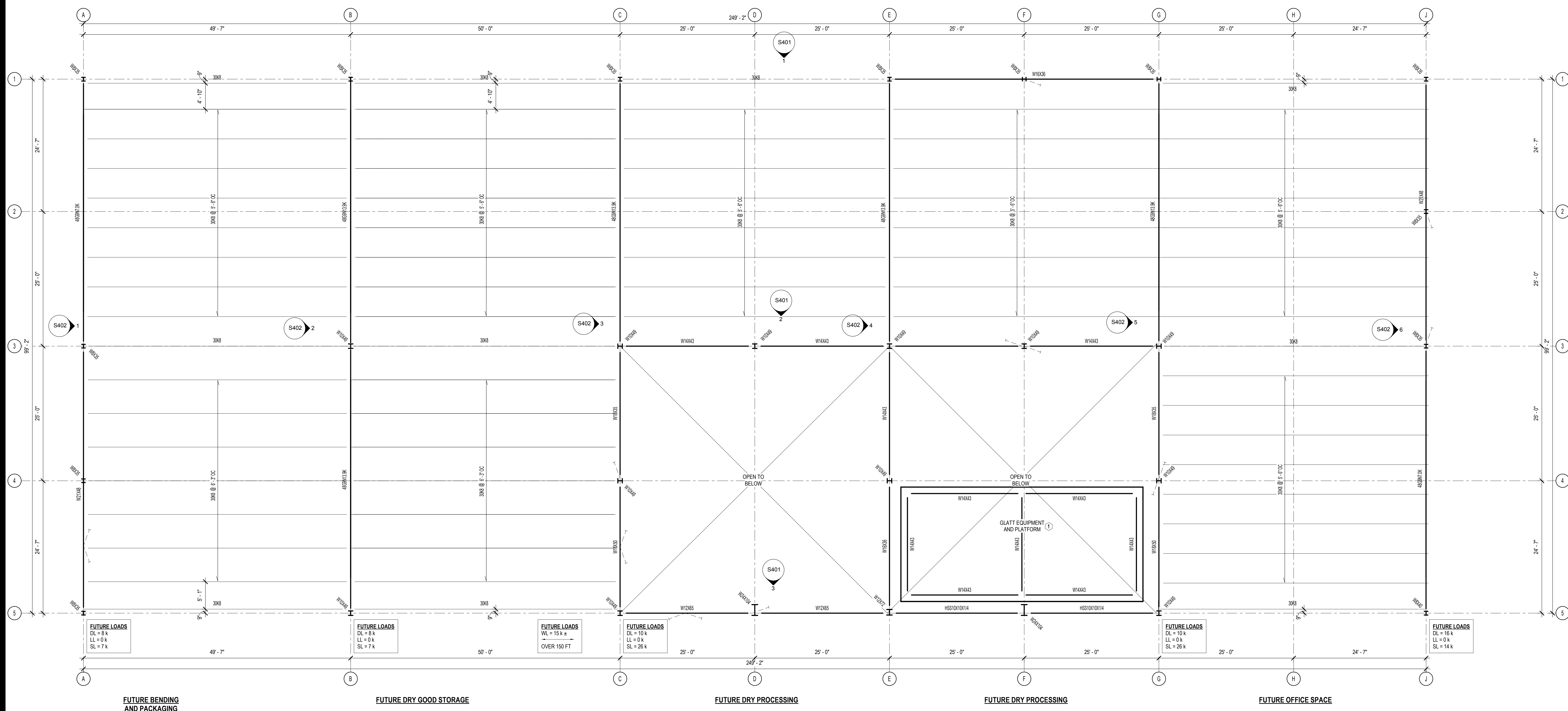
**MEZZANINE
FRAMING PLAN**

S201



**AB E DISCOVERY -
NEW HIEP FACILITY**

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WATERLOO, WI



FUTURE LOADS
DL = 8 k
LL = 0 k
SL = 7 k

FUTURE LOADS
DL = 8 k
LL = 0 k
SL = 7 k

FUTURE LOADS
WL = 15 k ±
OVER 150 FT

FUTURE LOADS
DL = 10 k
LL = 0 k
SL = 26 k

FUTURE LOADS
DL = 10 k
LL = 0 k
SL = 26 k

FUTURE LOADS
DL = 16 k
LL = 0 k
SL = 14 k

**FUTURE BENDING
AND PACKAGING**

FUTURE DRY GOOD STORAGE

FUTURE DRY PROCESSING

FUTURE DRY PROCESSING

FUTURE OFFICE SPACE

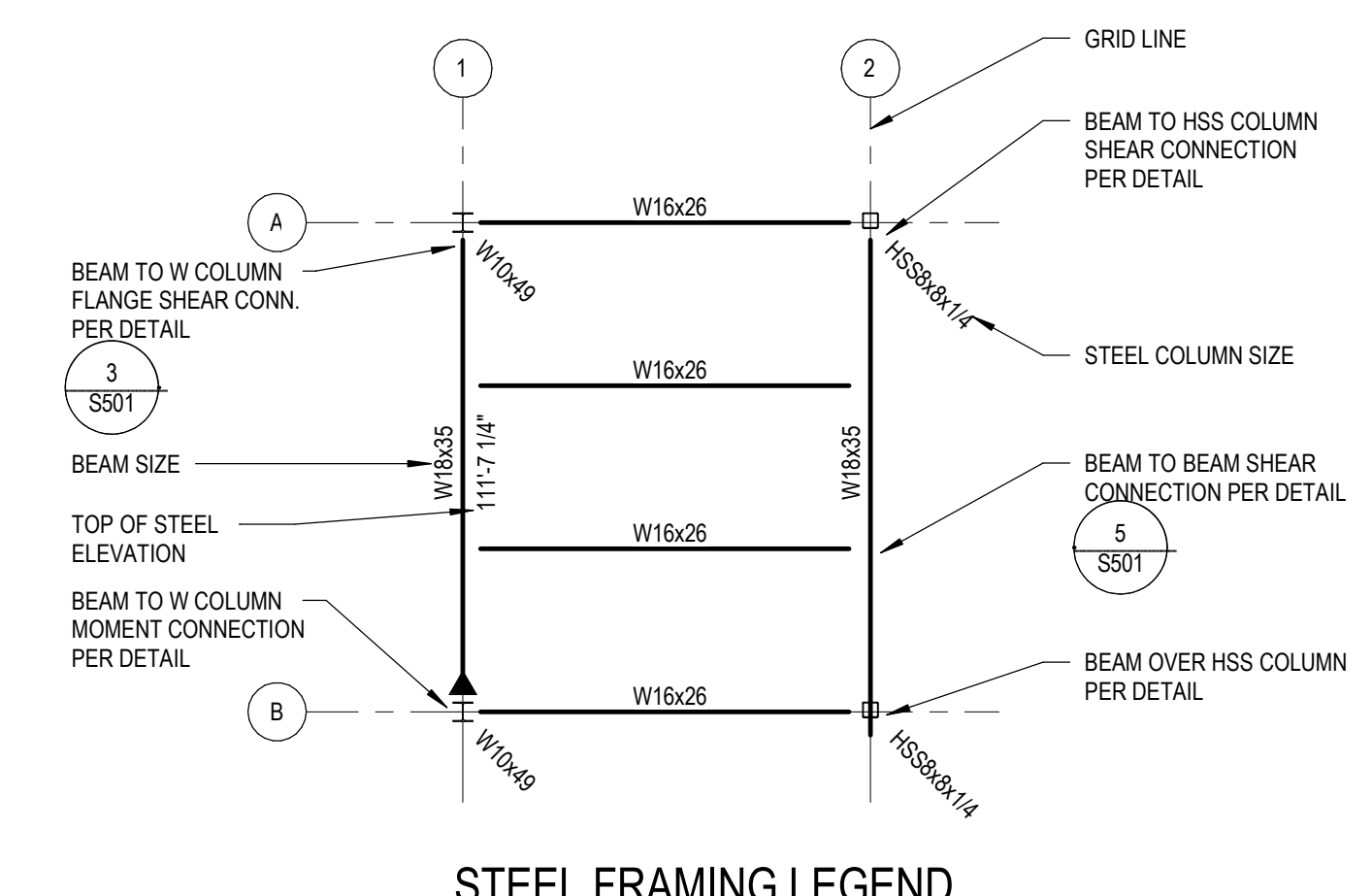
1 LOW ROOF FRAMING PLAN
1/8" = 1'-0"

ROOF STEEL FRAMING PLAN NOTES

- SEE SHEETS S001 FOR GENERAL NOTES.
- TOP OF STEEL ELEVATIONS VARY WITH ROOF SLOPES. REFER TO PLAN.
LOW ROOF HIGH POINT = 126'-0 1/2"
LOW ROOF LOW POINT = 125'-0"
HIGH ROOF HIGH POINT = 160'-0"
HIGH ROOF LOW POINT = 158'-11 1/2"
- ROOF CONSTRUCTION SHALL BE 1 1/2" x 22GA STEEL DECK
INSTALL OVER A MINIMUM OF THREE SPANS.
A. SUPPORT FASTENERS XXX
B. SIDELAP FASTENERS XXX
- REFER TO ARCH FOR ROOF DECK DIMENSIONS.

SHEET KEYNOTES

- GLATT PLATFORM FRAMING, TYPICAL AT (4) PLATFORMS. SELF SUPPORTED. 100psf TOTAL LOAD ASSUMED FOR DEAD-LIVE. STAIRS NOT SHOWN. X-BRACING NOT SHOWN.



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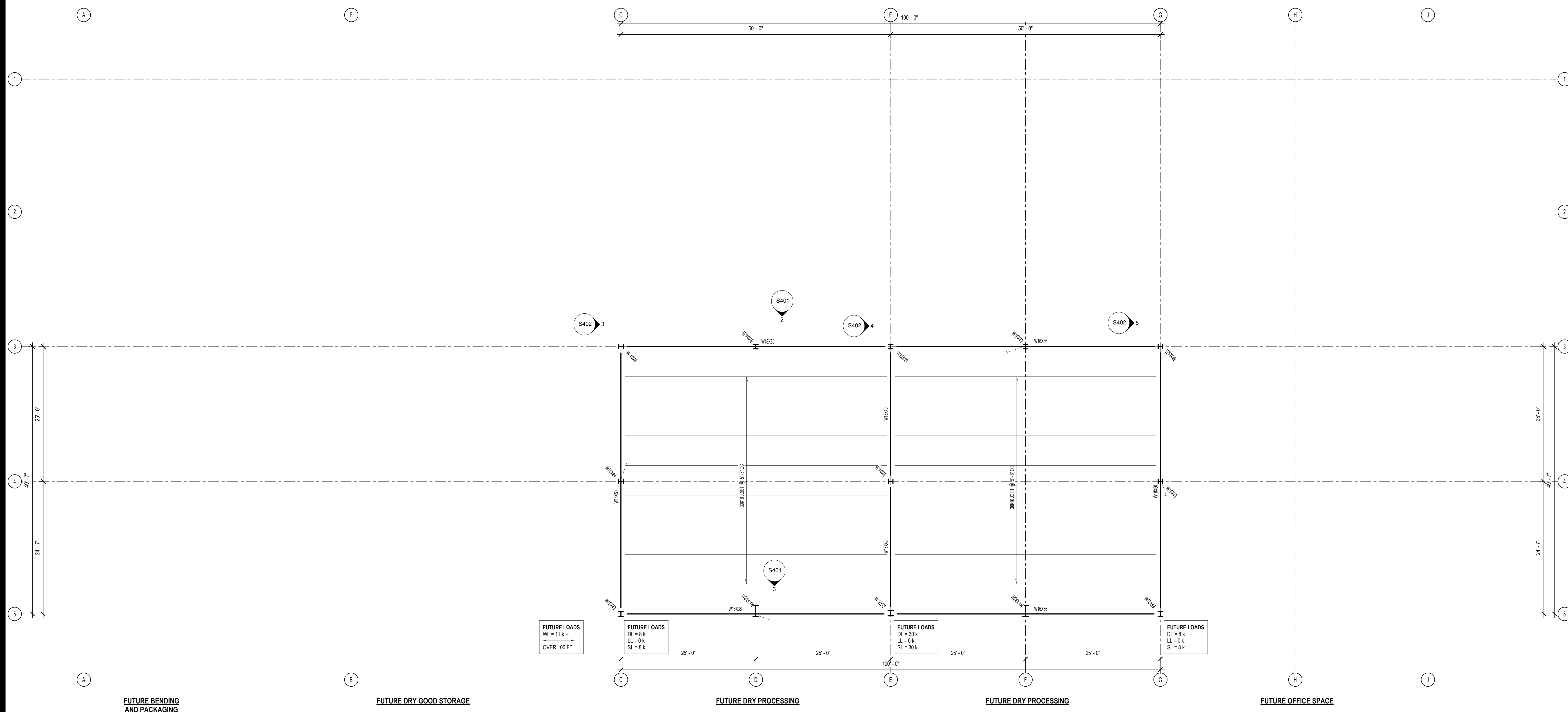
**LOW ROOF
FRAMING PLAN**

S202



**AB E DISCOVERY -
NEW HIEP FACILITY**

COMMERCIAL AVE.
WATERLOO, WI



**FUTURE BENDING
AND PACKAGING**

FUTURE DRY GOOD STORAGE

FUTURE DRY PROCESSING

FUTURE DRY PROCESSING

FUTURE OFFICE SPACE

FUTURE LOADS
DL = 11 k
OVER 100 FT

FUTURE LOADS
DL = 8 k
LL = 0 k
SL = 8 k

FUTURE LOADS
DL = 30 k
LL = 0 k
SL = 30 k

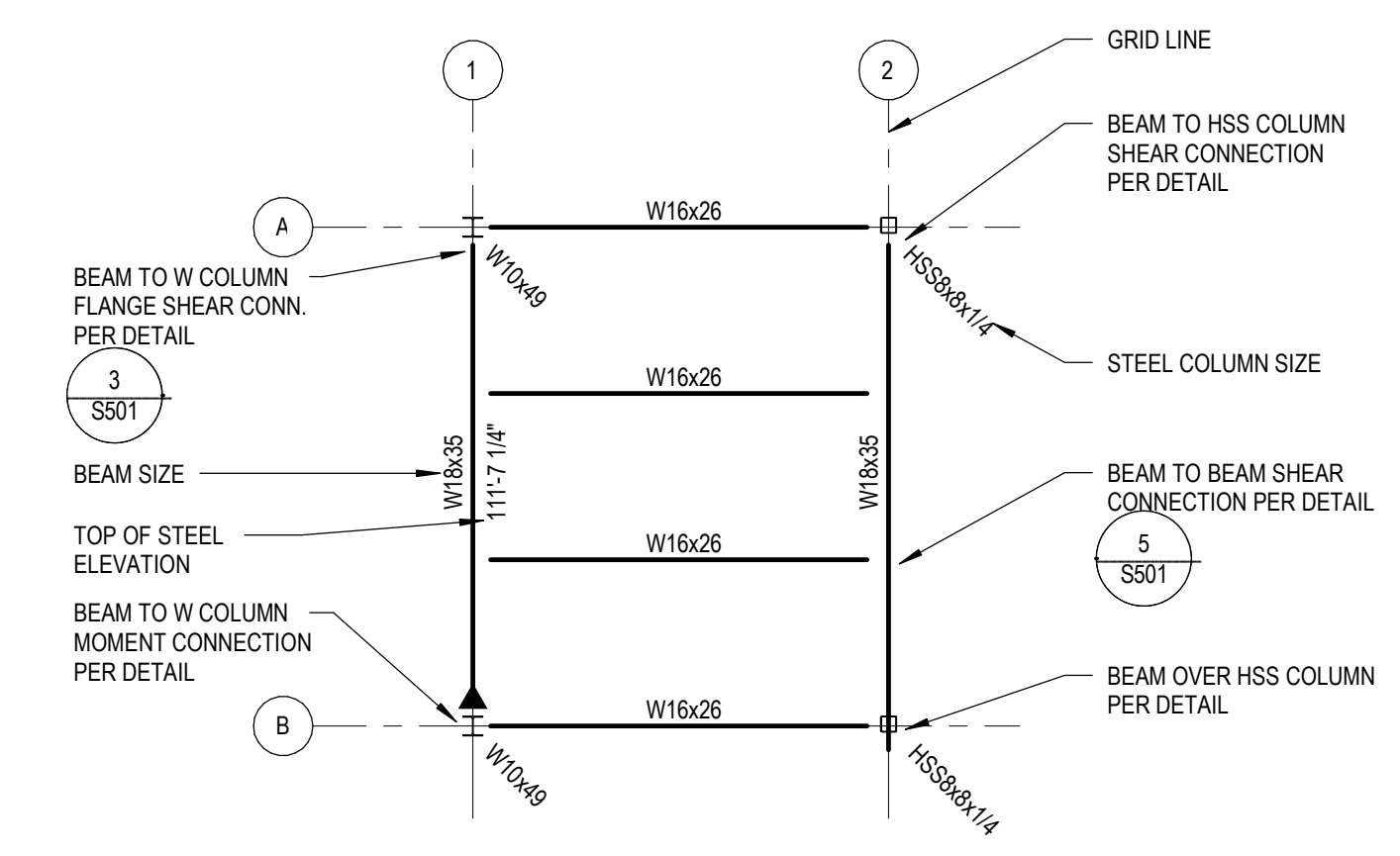
FUTURE LOADS
DL = 8 k
LL = 0 k
SL = 8 k

1 HIGH ROOF FRAMING PLAN
S203 1/8" = 1'-0"

ROOF STEEL FRAMING PLAN NOTES

- SEE SHEETS S001 FOR GENERAL NOTES.
- TOP OF STEEL ELEVATIONS VARY WITH ROOF SLOPES. REFER TO PLAN.
LOW ROOF HIGH POINT = 126'-0 1/2"
LOW ROOF LOW POINT = 125'-0"
HIGH ROOF HIGH POINT = 160'-0"
HIGH ROOF LOW POINT = 158'-11 1/2"
- ROOF CONSTRUCTION SHALL BE 1 1/2" x 22GA STEEL DECK
INSTALL OVER A MINIMUM OF THREE SPANS.
A. SUPPORT FASTENERS XXX
B. SIDELAP FASTENERS XXX
- REFER TO ARCH FOR ROOF DECK DIMENSIONS.

SHEET KEYNOTES



STEEL FRAMING LEGEND

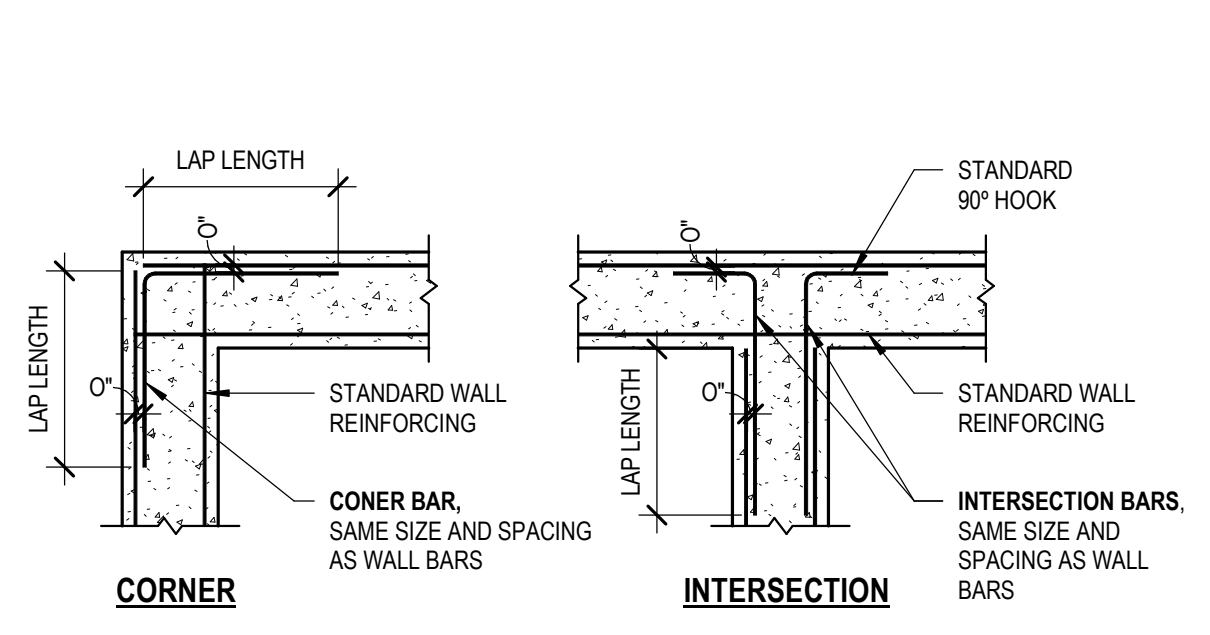
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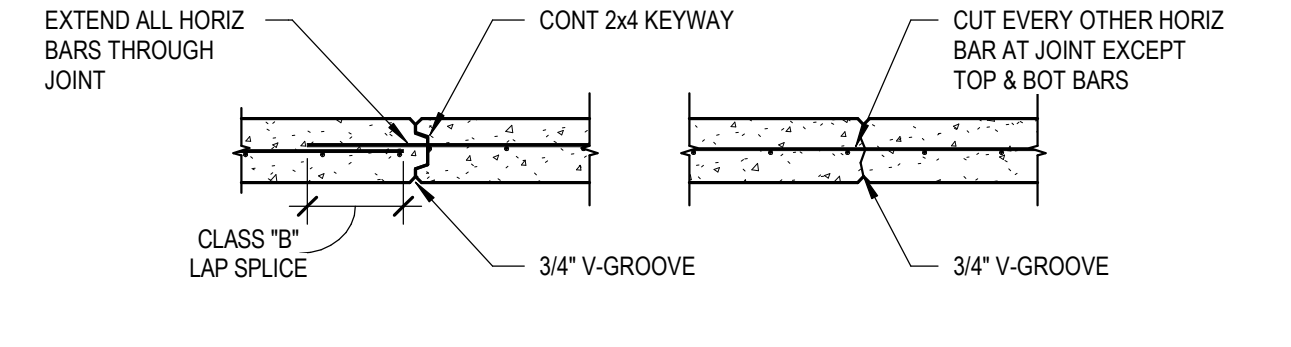
PROJECT # 17112

**HIGH ROOF
FRAMING PLAN**

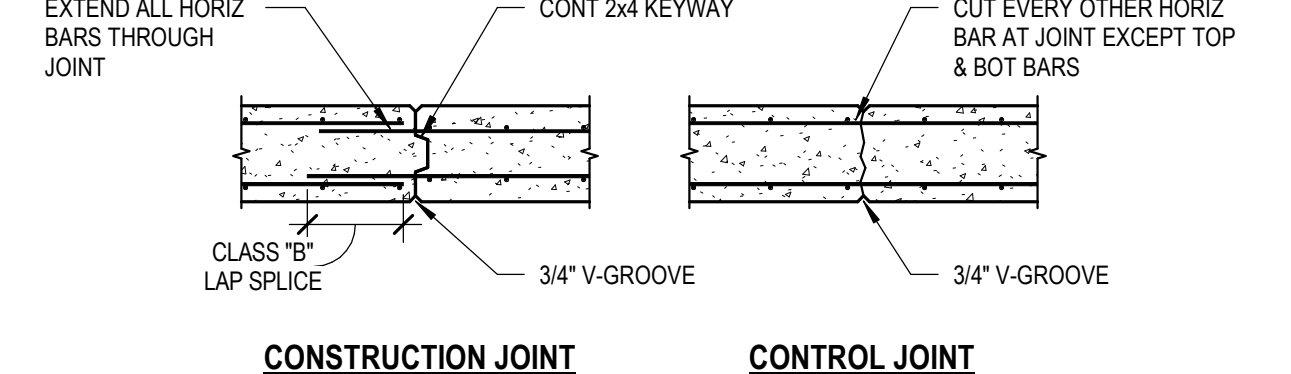
S203



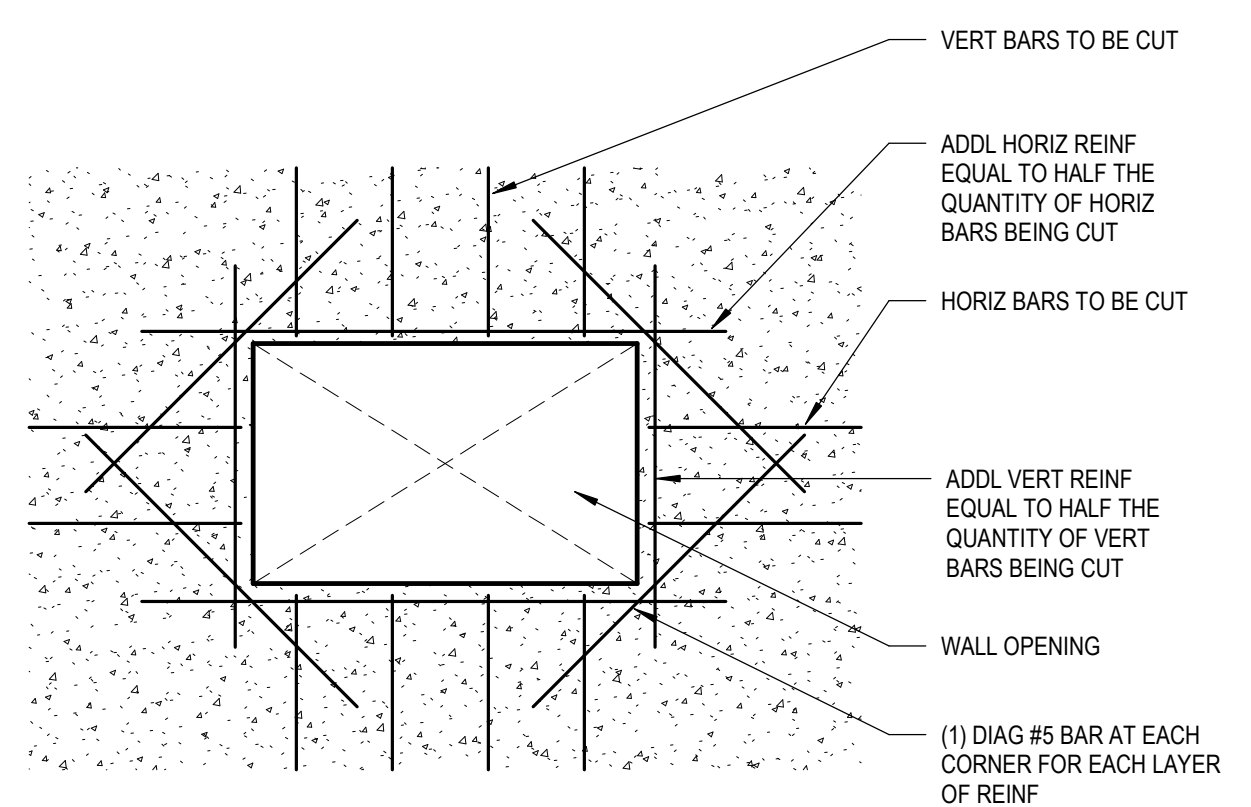
SEE DETAIL S301 FOR LAP LENGTHS



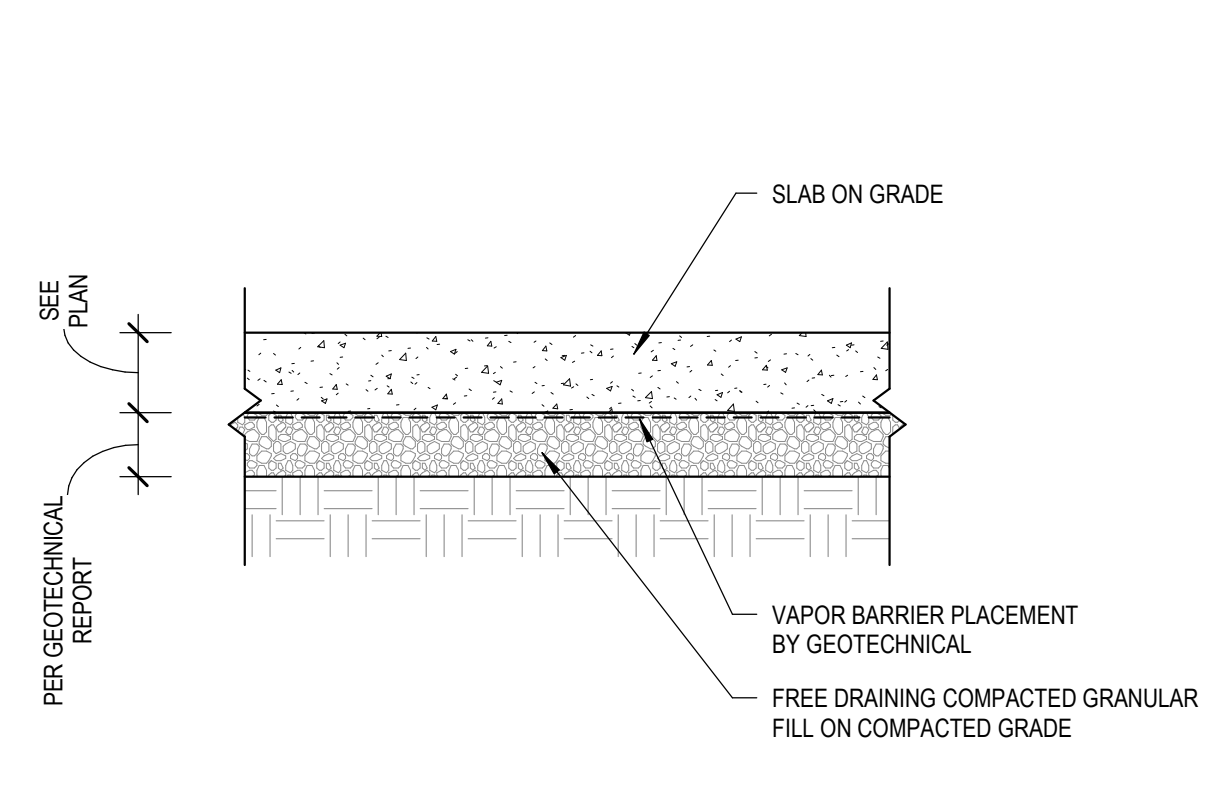
CONSTRUCTION JOINT CONTROL JOINT



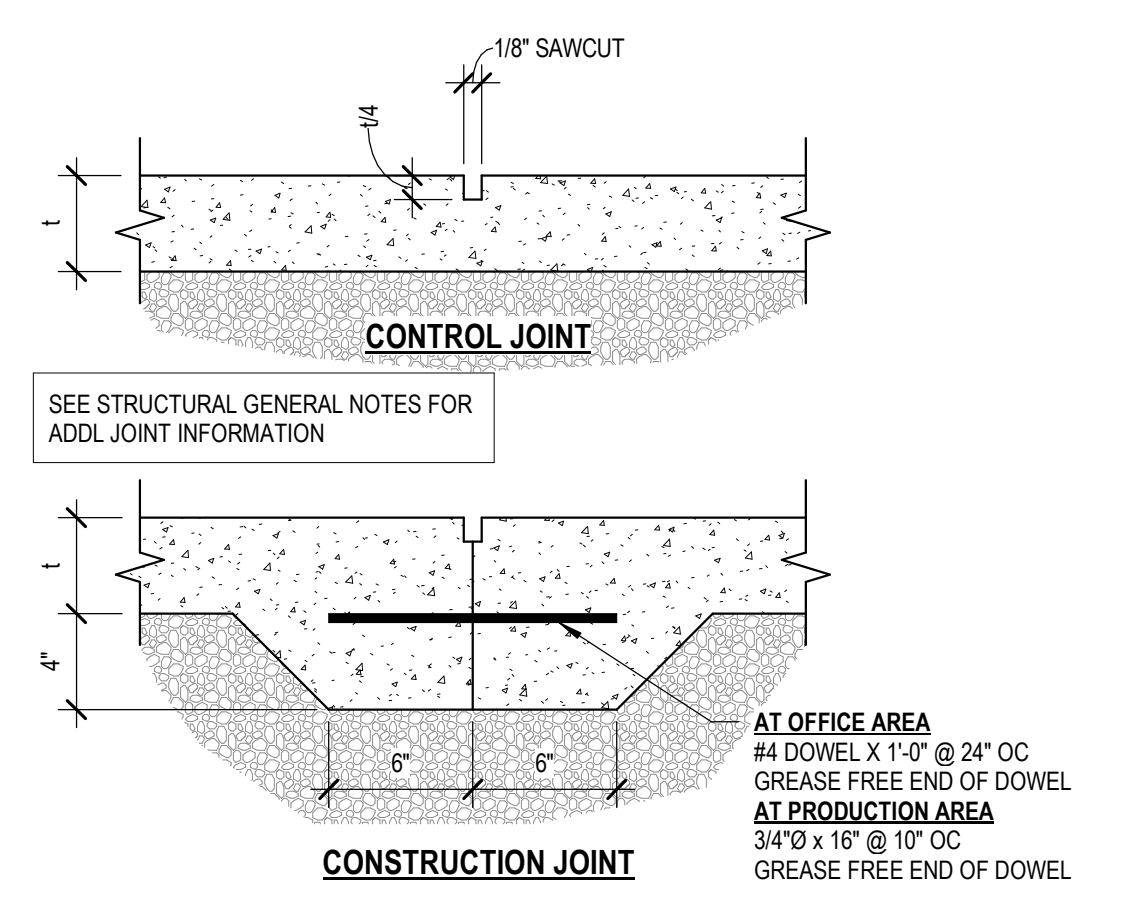
CONSTRUCTION JOINT CONTROL JOINT



NOTES
1. TYPICAL FOR ALL WALL AND SLAB OPENINGS UNLESS SPECIFICALLY DETAILED ON PLANS.



NOTES
1. TYPICAL FOR ALL WALL AND SLAB OPENINGS UNLESS SPECIFICALLY DETAILED ON PLANS.



AT OFFICE AREA #4 DOWEL X 1'-0" @ 24" OC GREASE FREE END OF DOWEL AT PRODUCTION AREA 3/4" X 16" @ 10" OC GREASE FREE END OF DOWEL

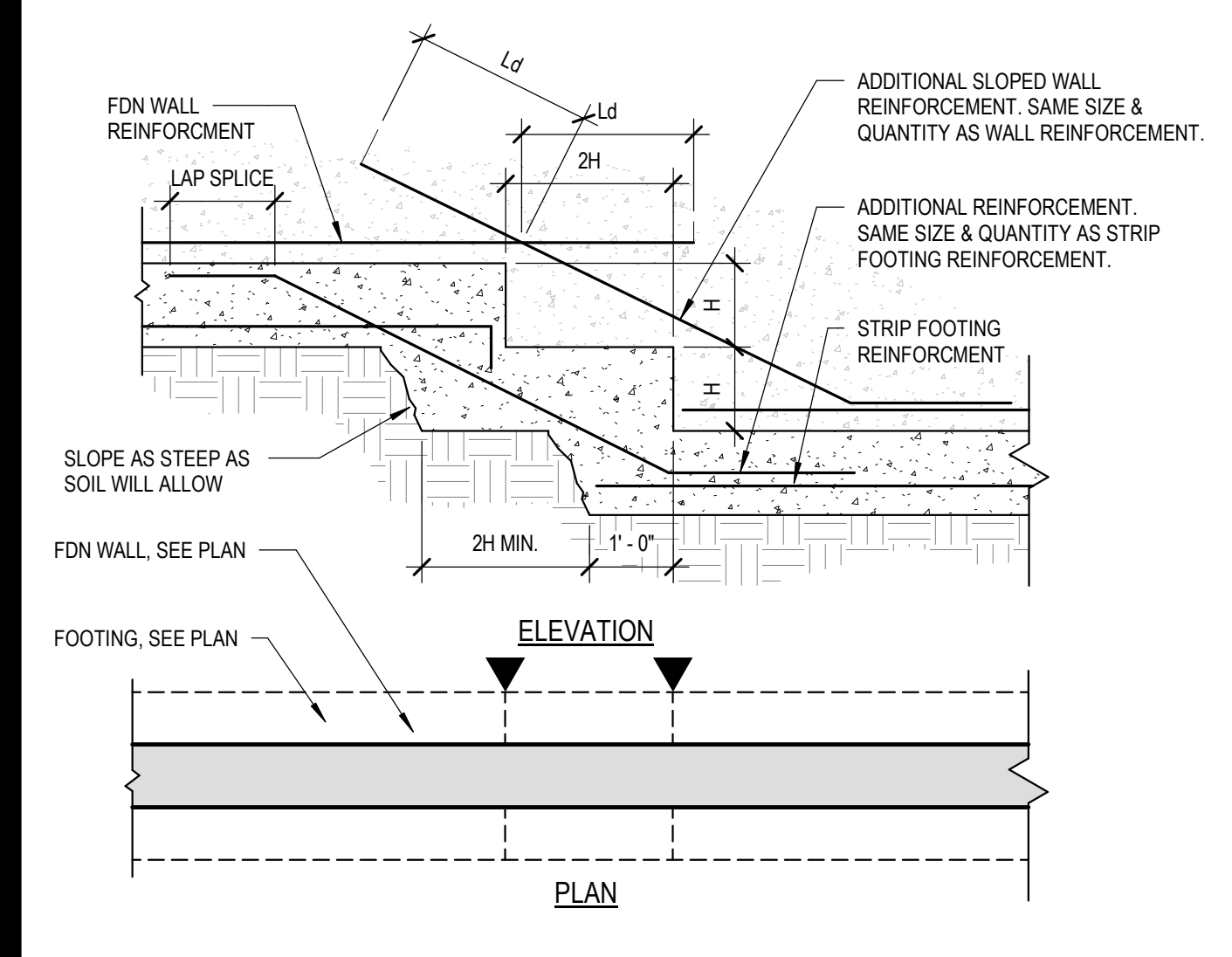
1 TYPICAL CONCRETE WALL REINFORCEMENT 1/2" = 1'-0"

2 TYPICAL CONCRETE VERTICAL WALL JOINTS 1/2" = 1'-0"

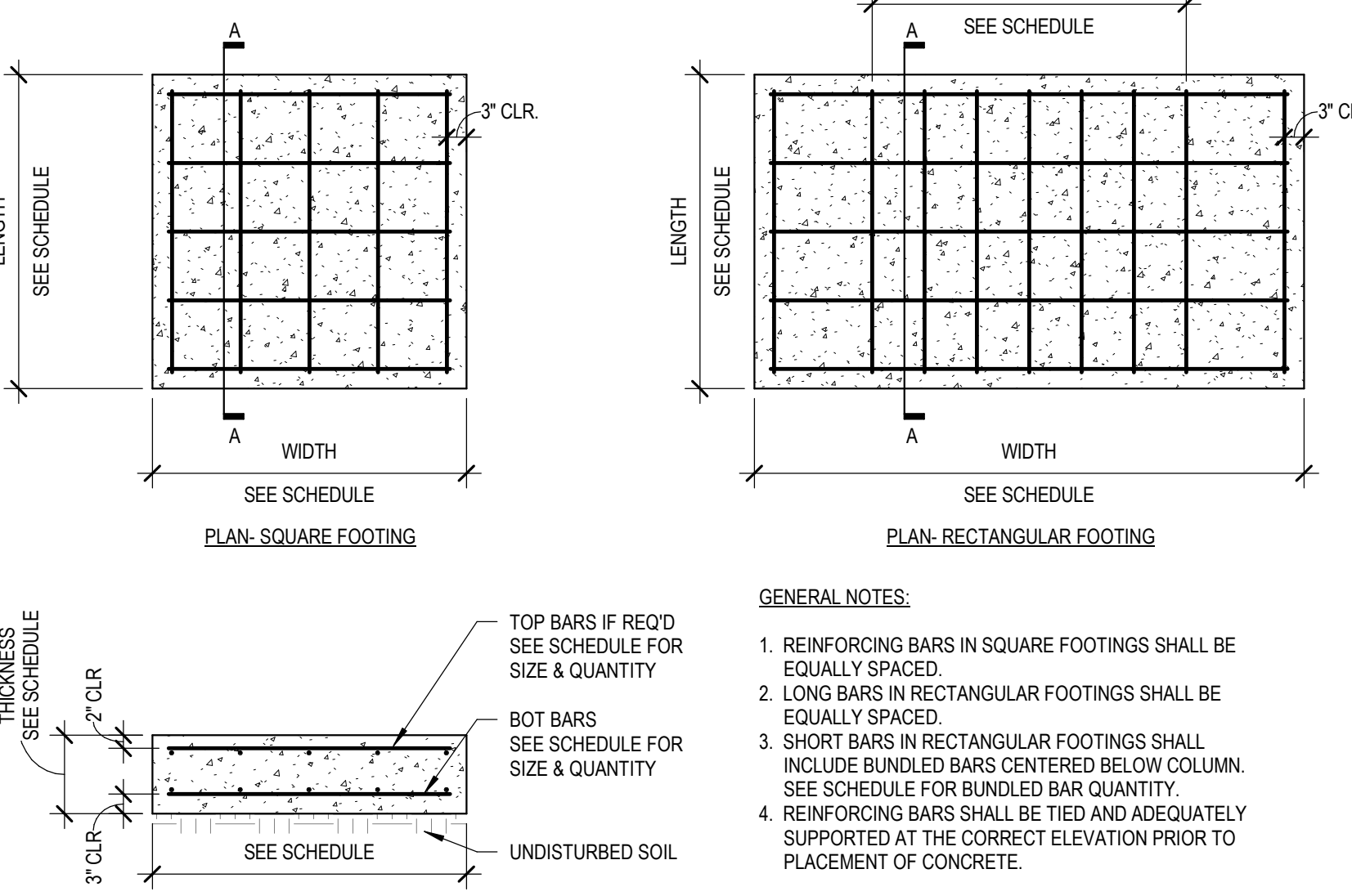
3 TYPICAL ADDL REINF AT CONCRETE OPENINGS 1/2" = 1'-0"

4 TYPICAL SLAB-ON-GRADE (SOG) 1" = 1'-0"

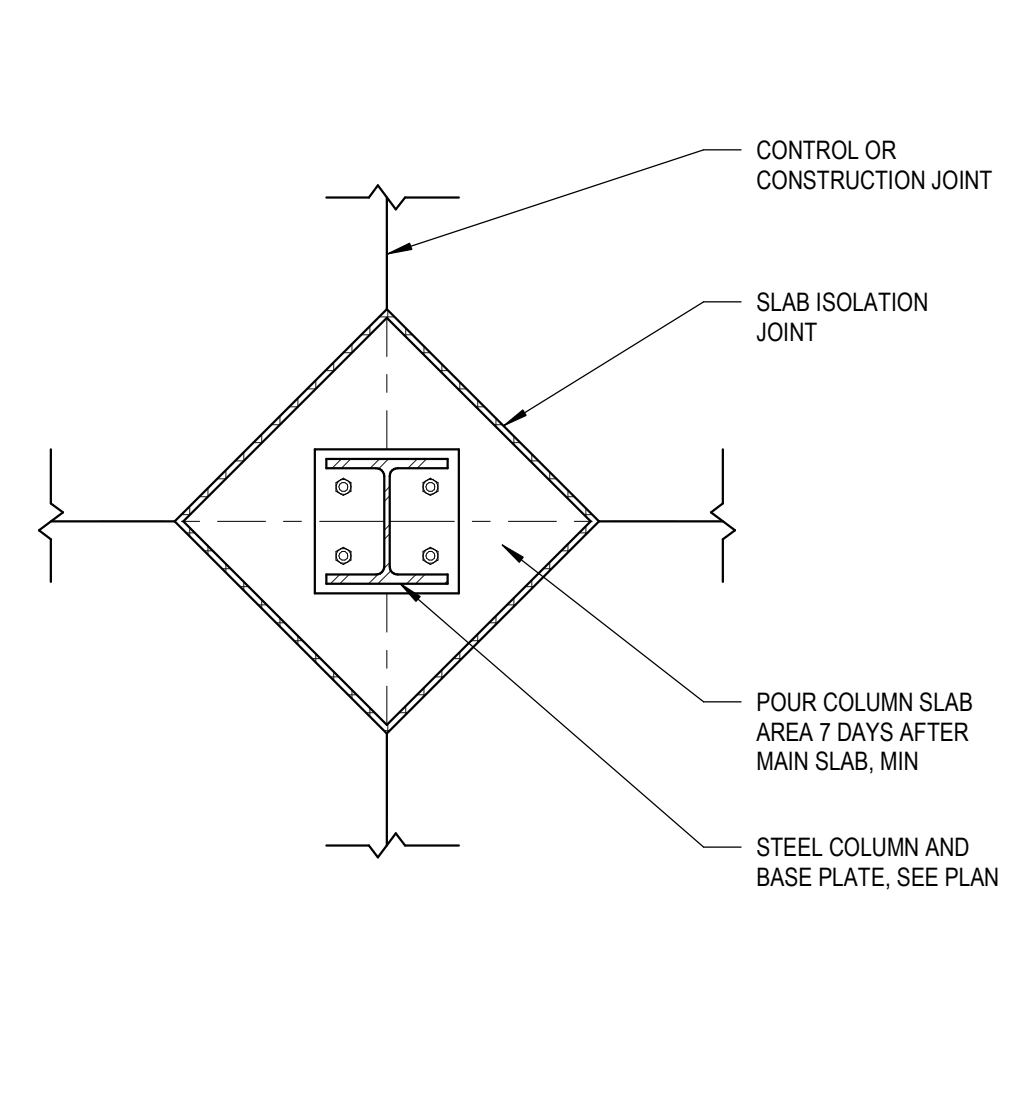
5 TYPICAL SLAB-ON-GRADE JOINTS 1 1/2" = 1'-0"



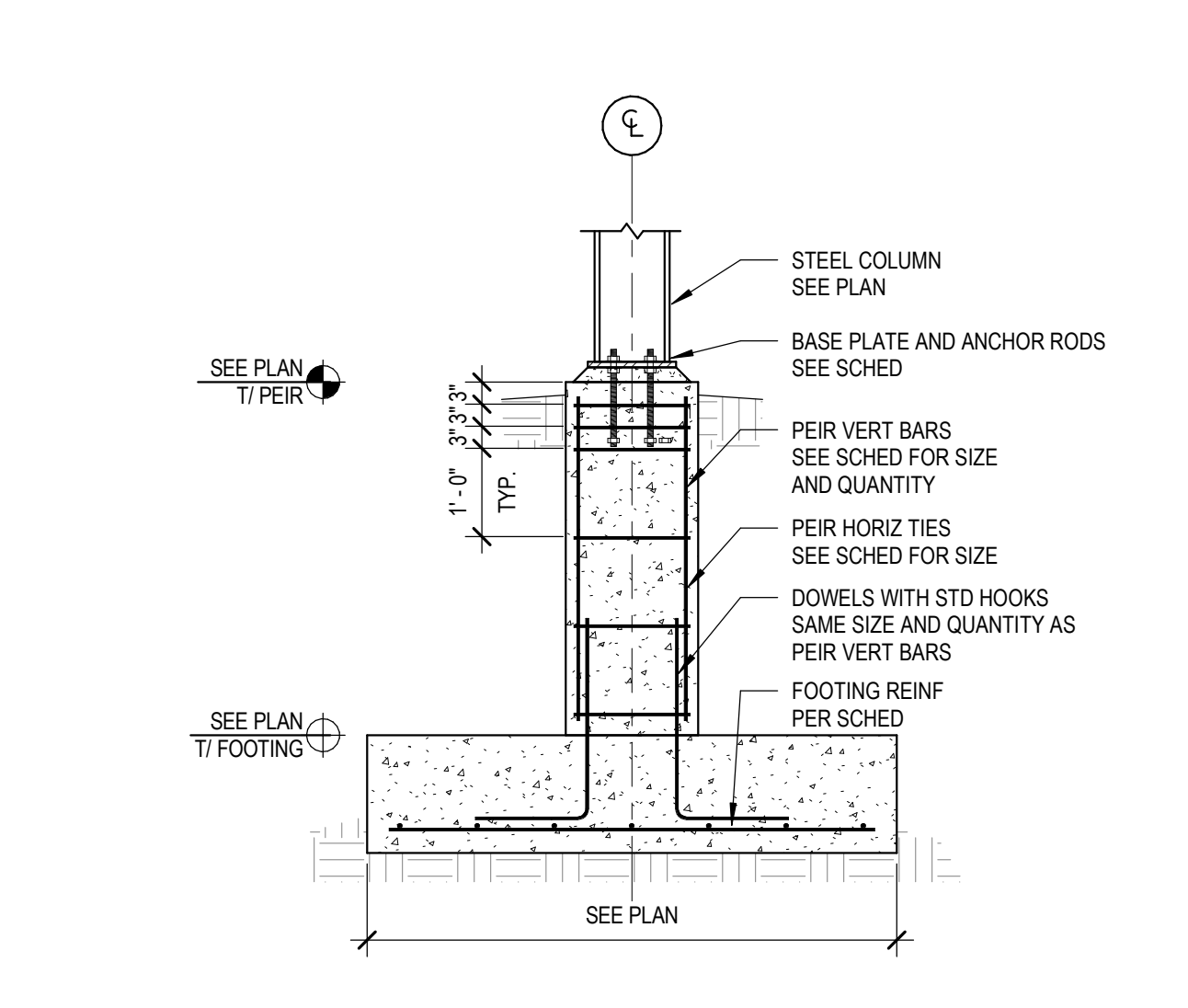
7 FTG STEP DETAIL 1/2" = 1'-0"



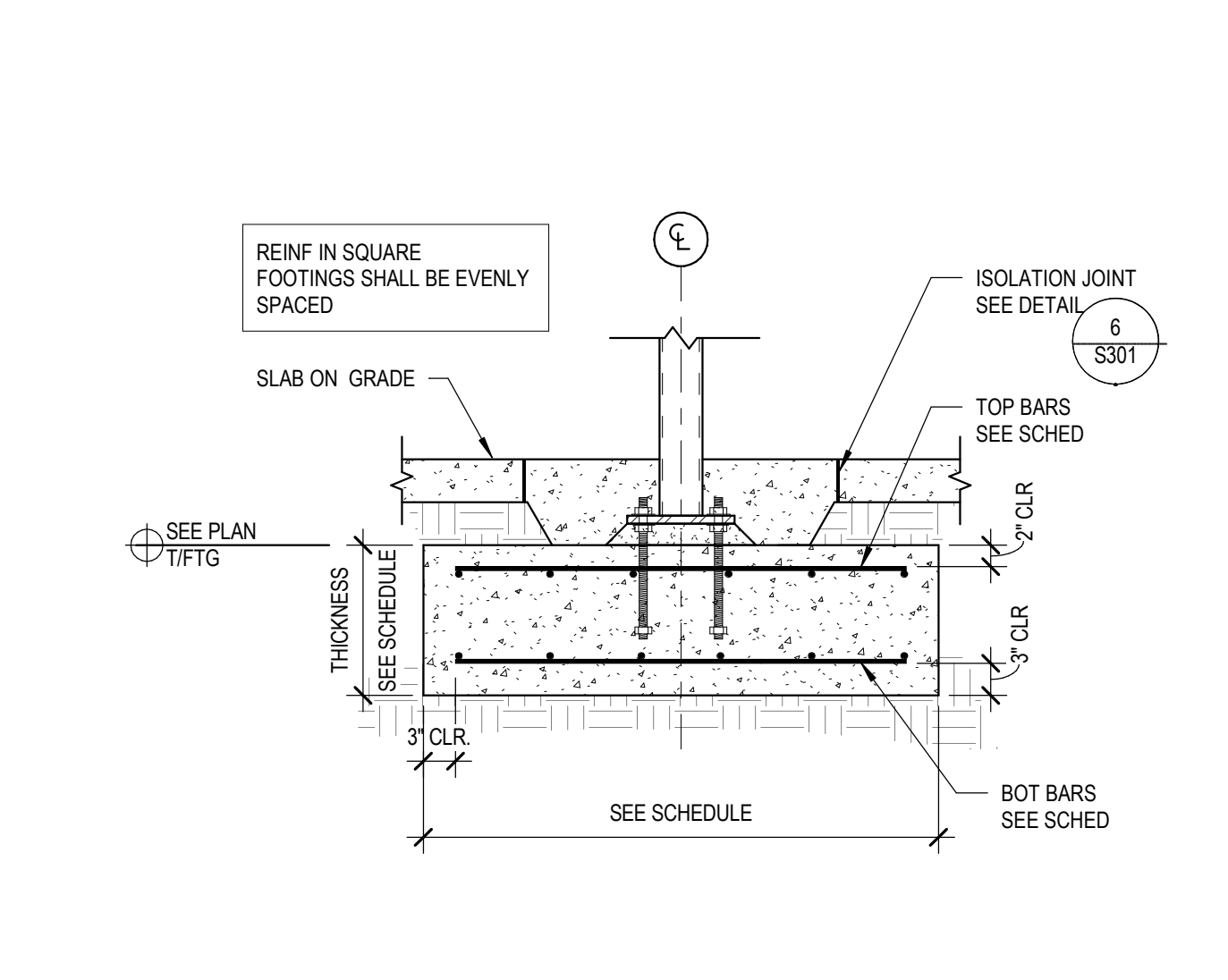
8 TYPICAL SPREAD FOOTING BAR PLACEMENT 1/2" = 1'-0"



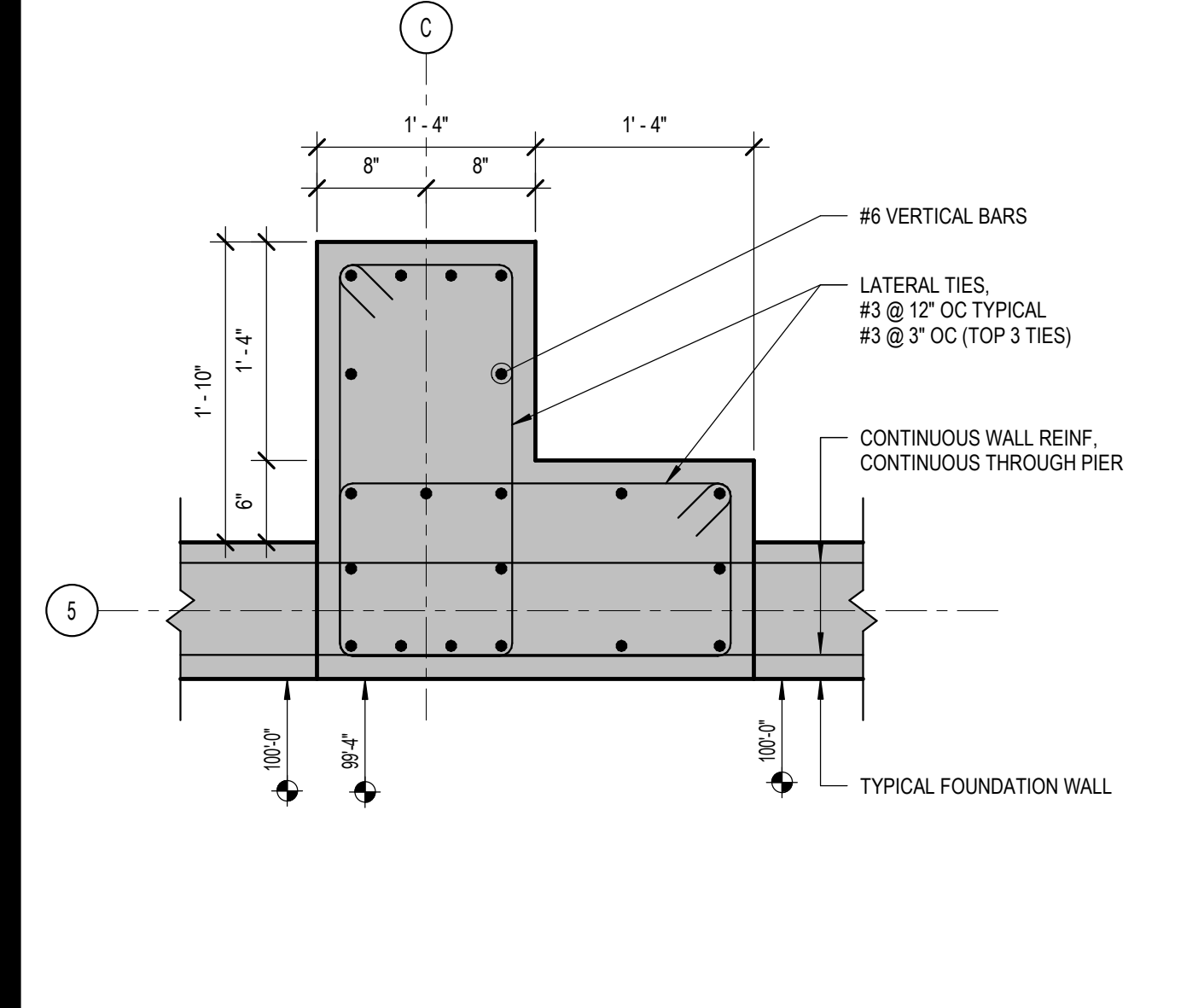
6 SLAB ON GRADE ISOLATION JOINT 3/4" = 1'-0"



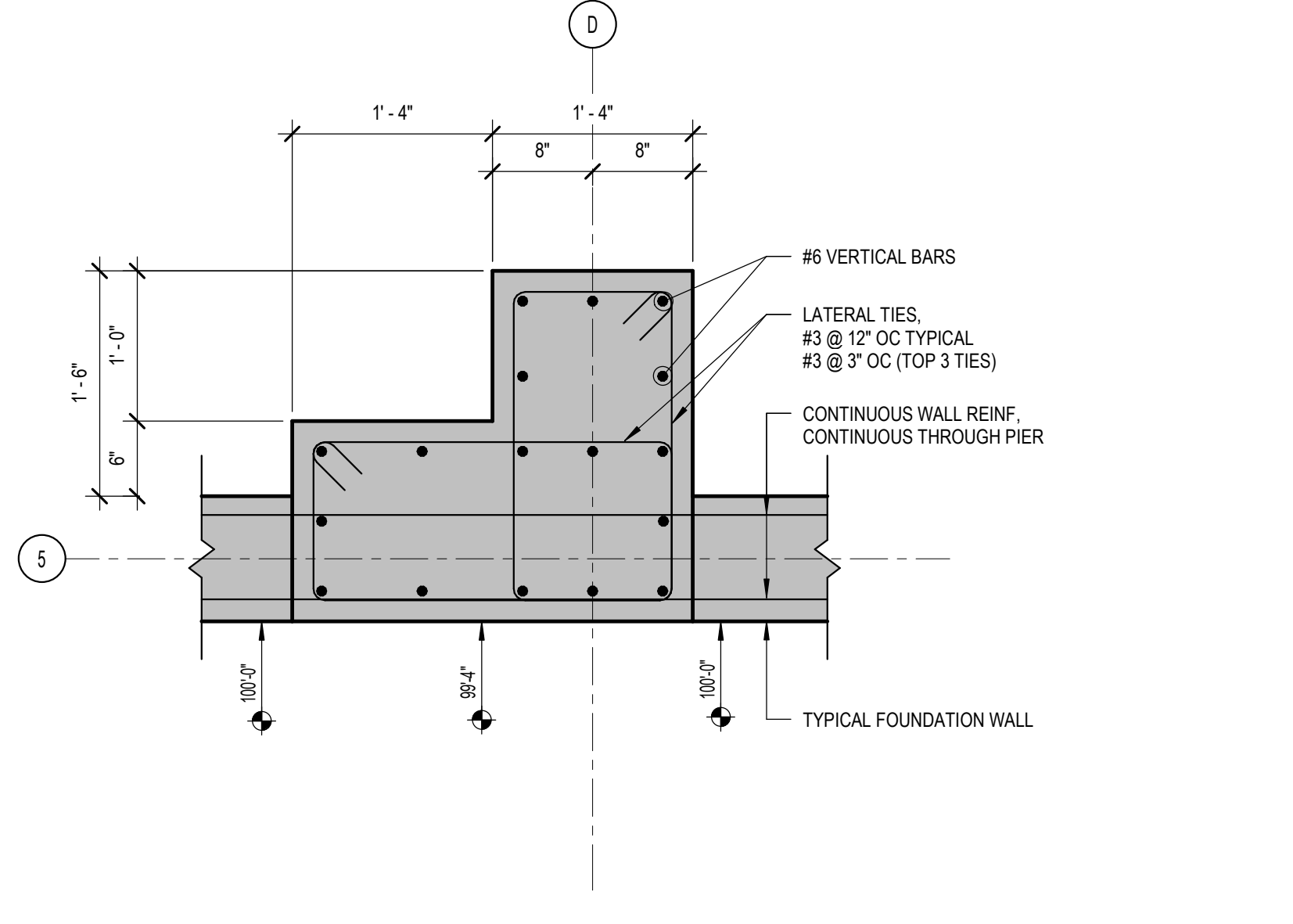
9 STEEL COLUMN ON CONCRETE PEIR 1/2" = 1'-0"



10 TYPICAL INTERIOR COLUMN FOOTING 3/4" = 1'-0"



11 PIER PLAN DETAIL AT C-5 1" = 1'-0"



12 PIER PLAN DETAIL AT D-5 1" = 1'-0"

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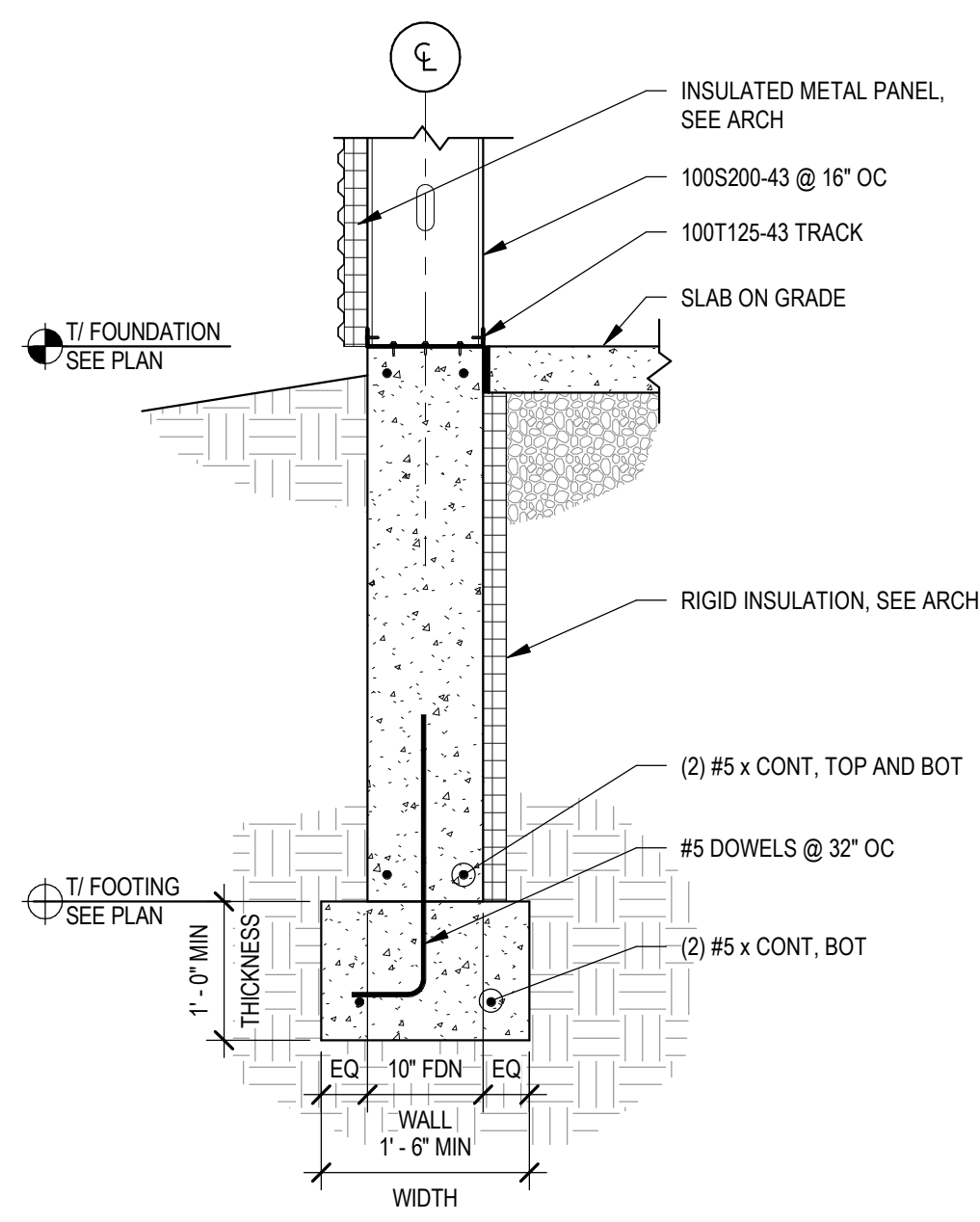
DATE OF ISSUE: 12.18.17

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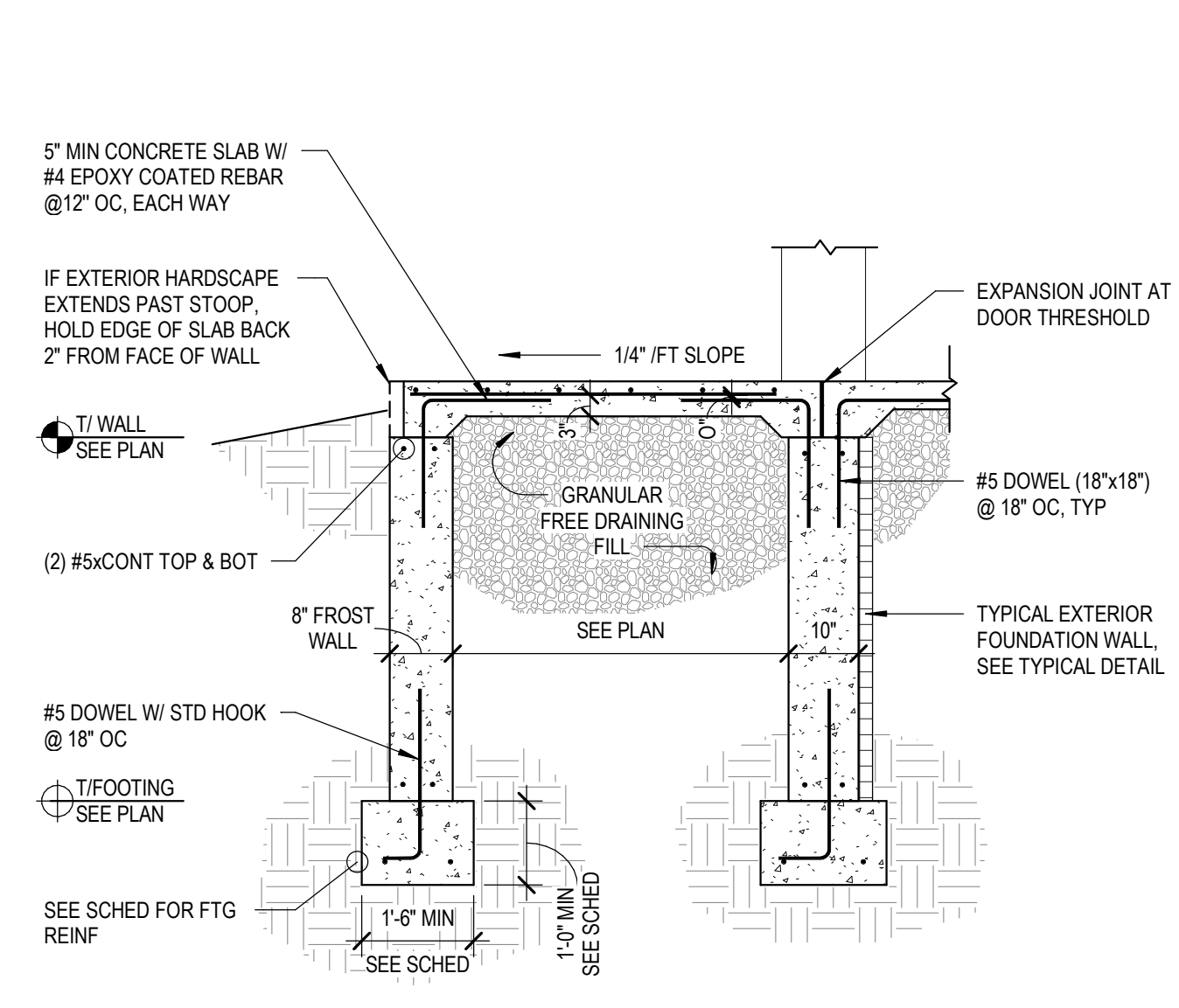
**FOUNDATION
DETAILS**

S301

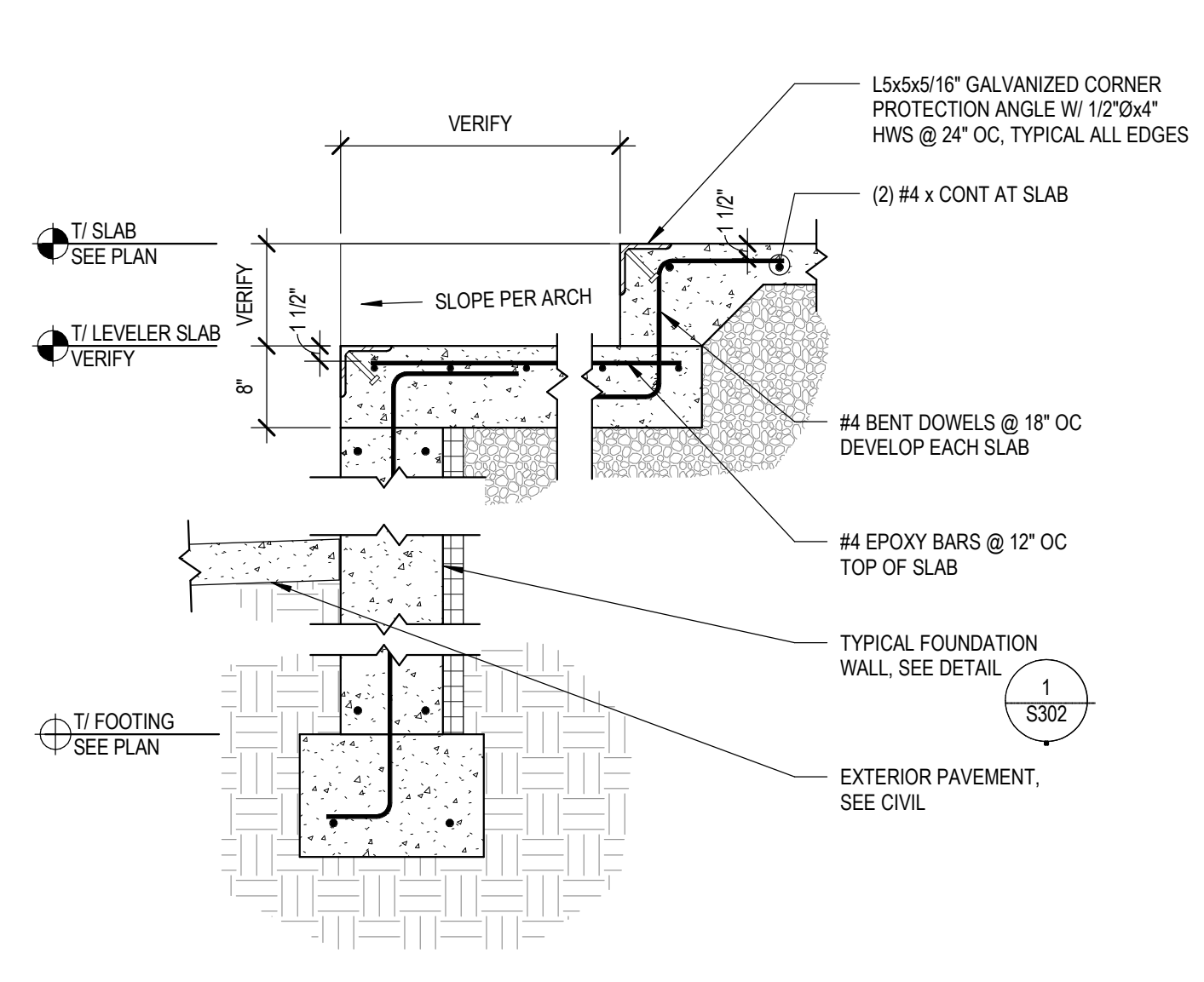
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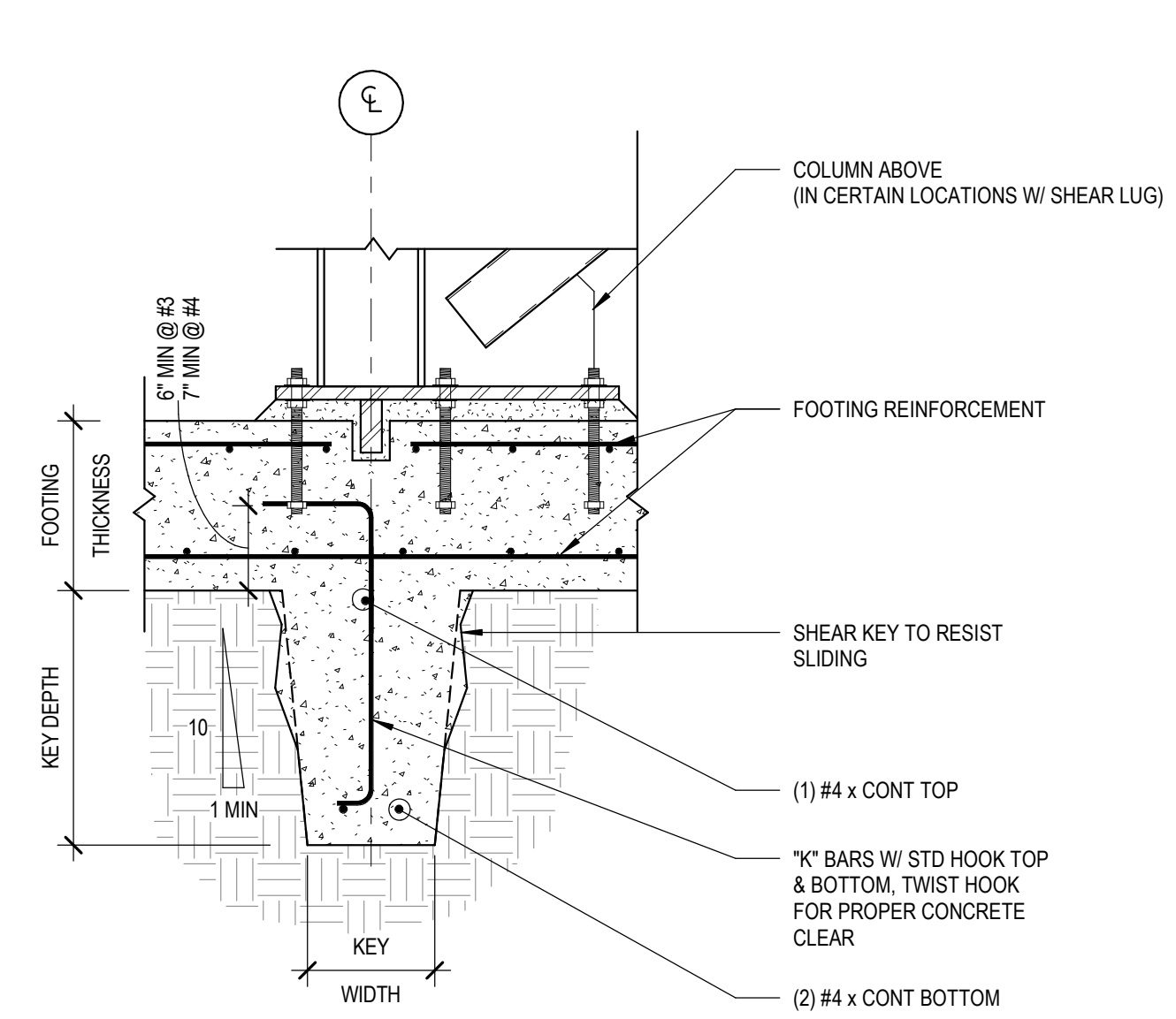
1
S302
CONCRETE FOUNDATION WALL
3/4" = 1'-0"



2
S302
EXTERIOR STOOP DETAIL
1/2" = 1'-0"



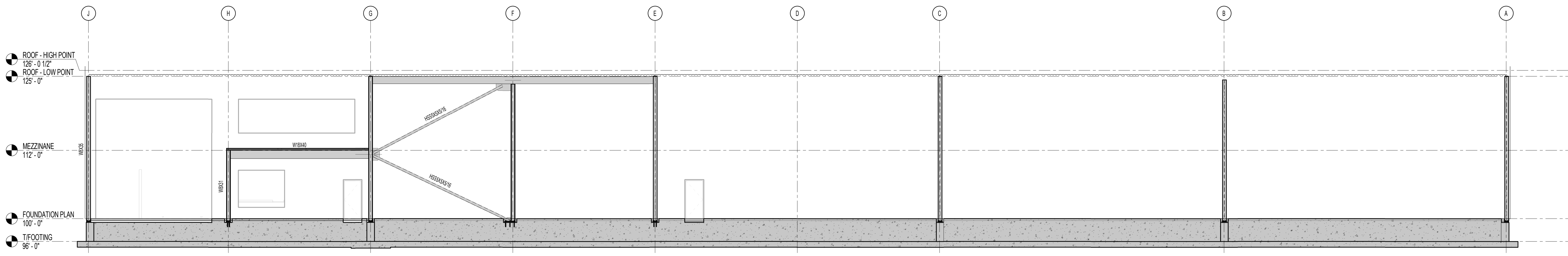
3
S302
PRELIMINARY DOCK LEVELER FOUNDATION
3/4" = 1'-0"



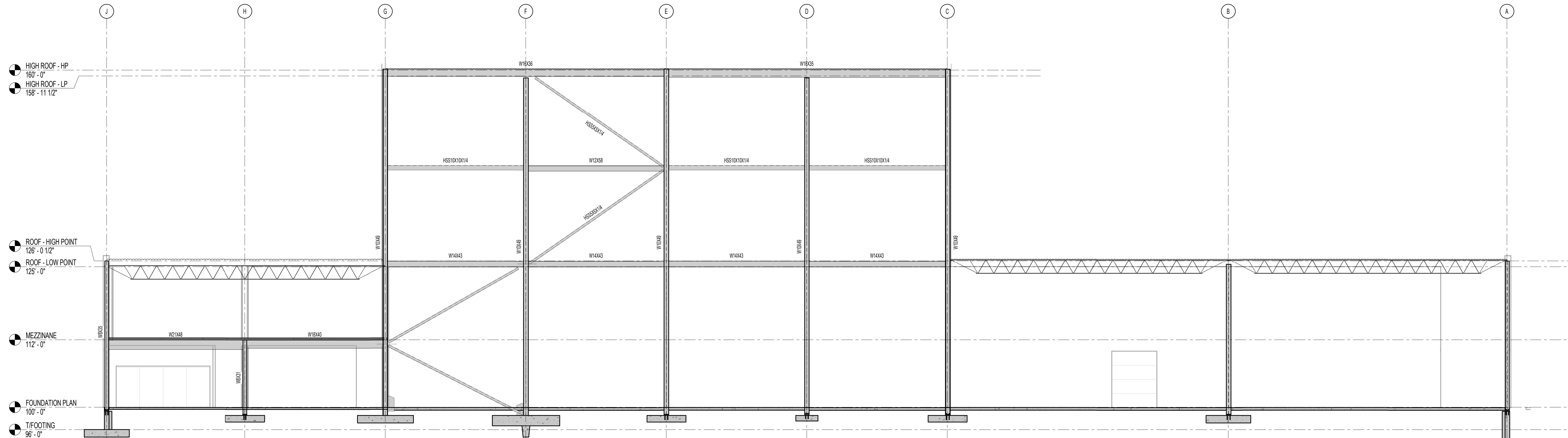
4
S302
FOOTING KEY AT BRACED FRAMES
3/4" = 1'-0"

FOOTING KEY SCHEDULE				
COLUMN LOCATION	KEY WIDTH	KEY DEPTH	"K" BARS	COMMENTS
C	4	1'-0"	1'-8"	#4 @ 18" OC
F	3	1'-0"	2'-0"	#4 @ 14" OC
G	4	1'-0"	2'-2"	#4 @ 12" OC

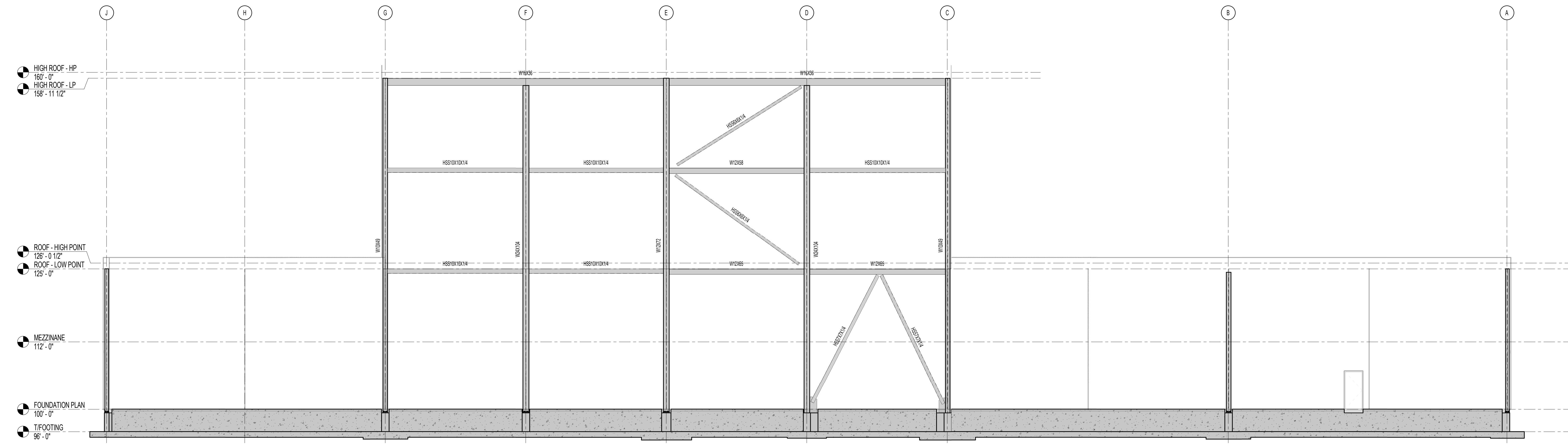
FOOTING KEY NOTES:
 1. KEY MUST BE CAST MONOLITHICALLY W/ FOOTING. COLD JOINT NOT ALLOWED
 2. SEE PLAN FOR KEY MINIMUM LENGTH. SEE ABOVE FOR SECTION SIZE.



1 BRACED FRAME - COLUMN LINE 1
1/8" = 1'-0"

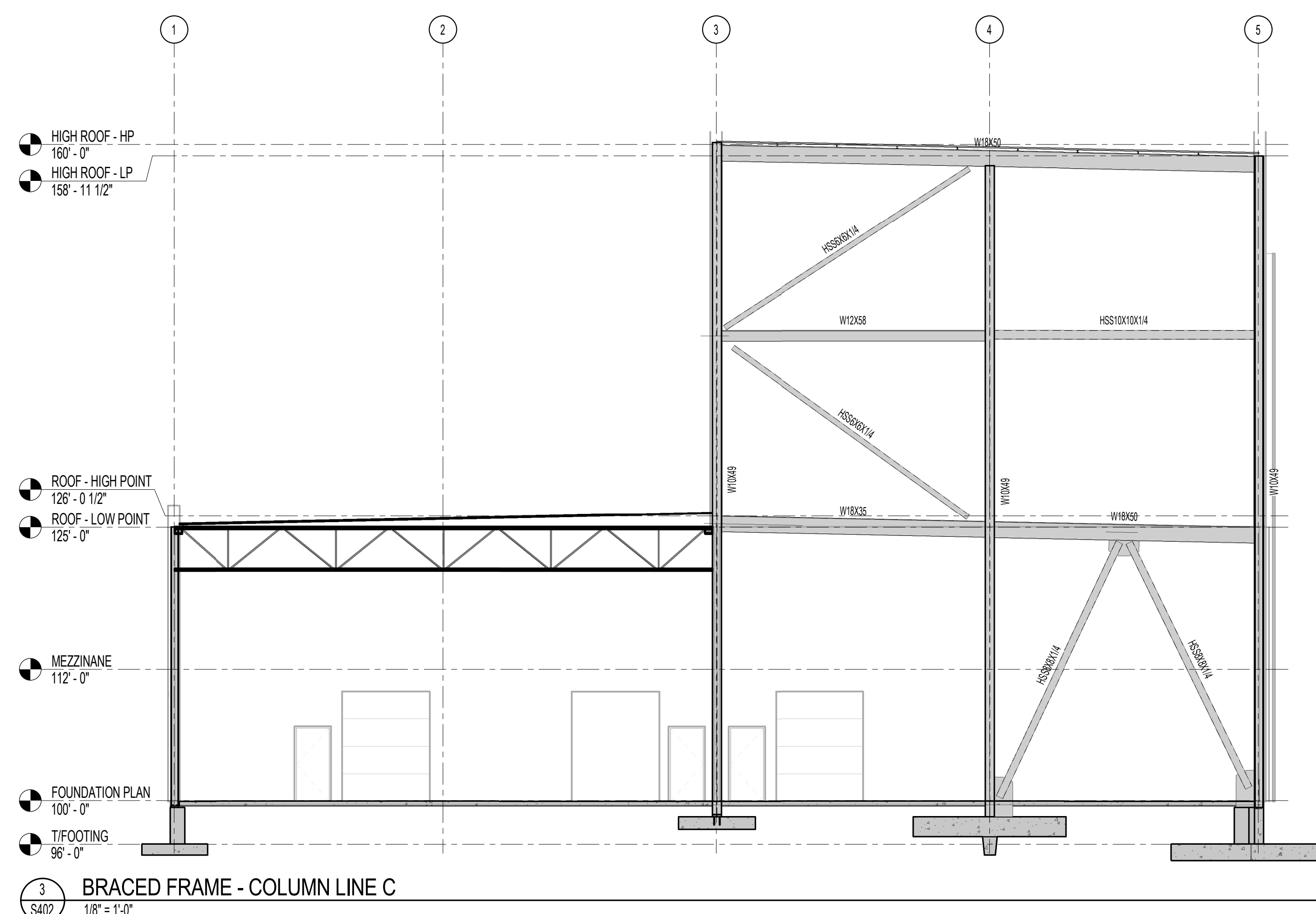


2 BRACED FRAME - COLUMN LINE 2
1/8" = 1'-0"

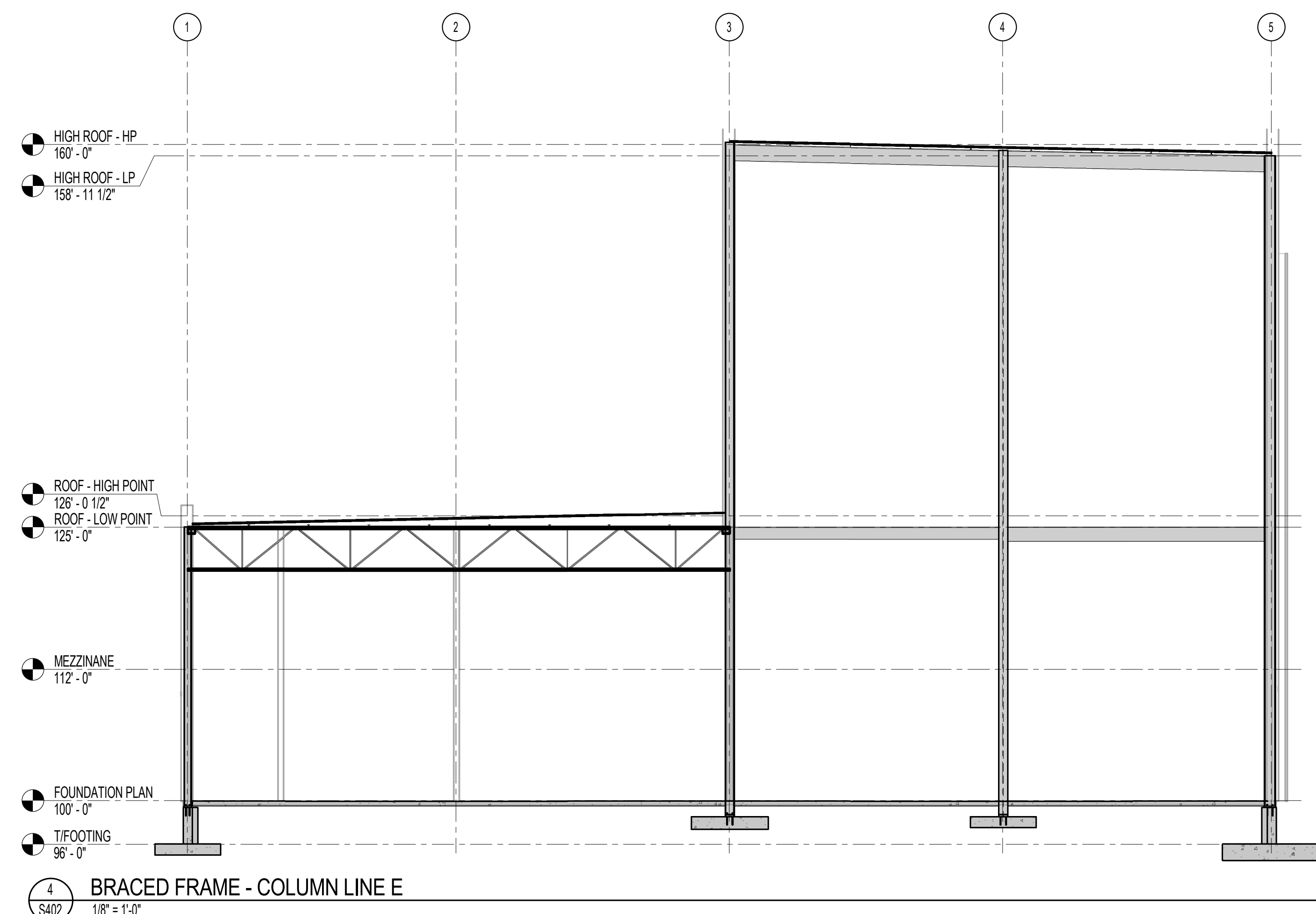


3 BRACED FRAME - COLUMN LINE 3
1/8" = 1'-0"

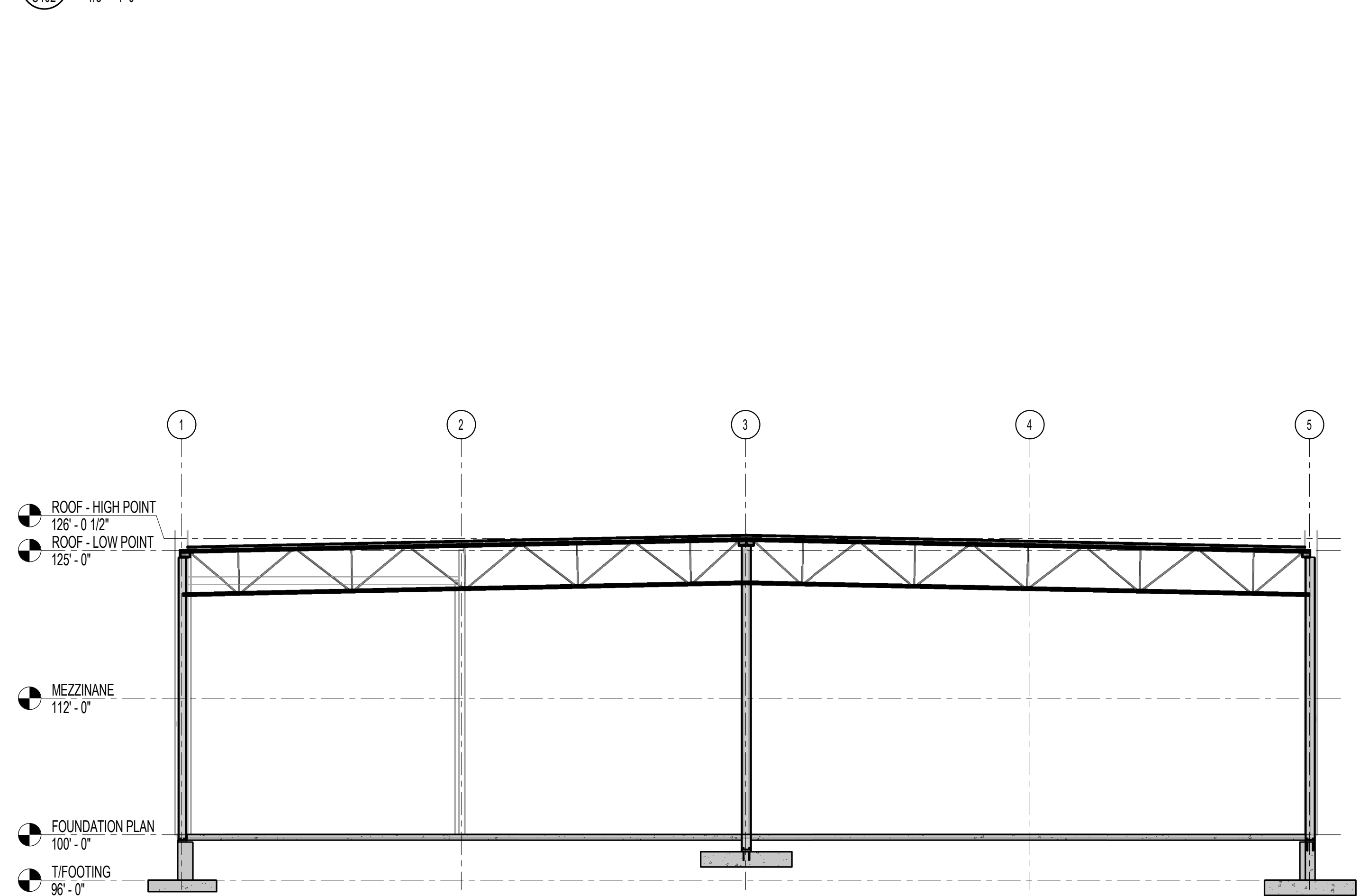
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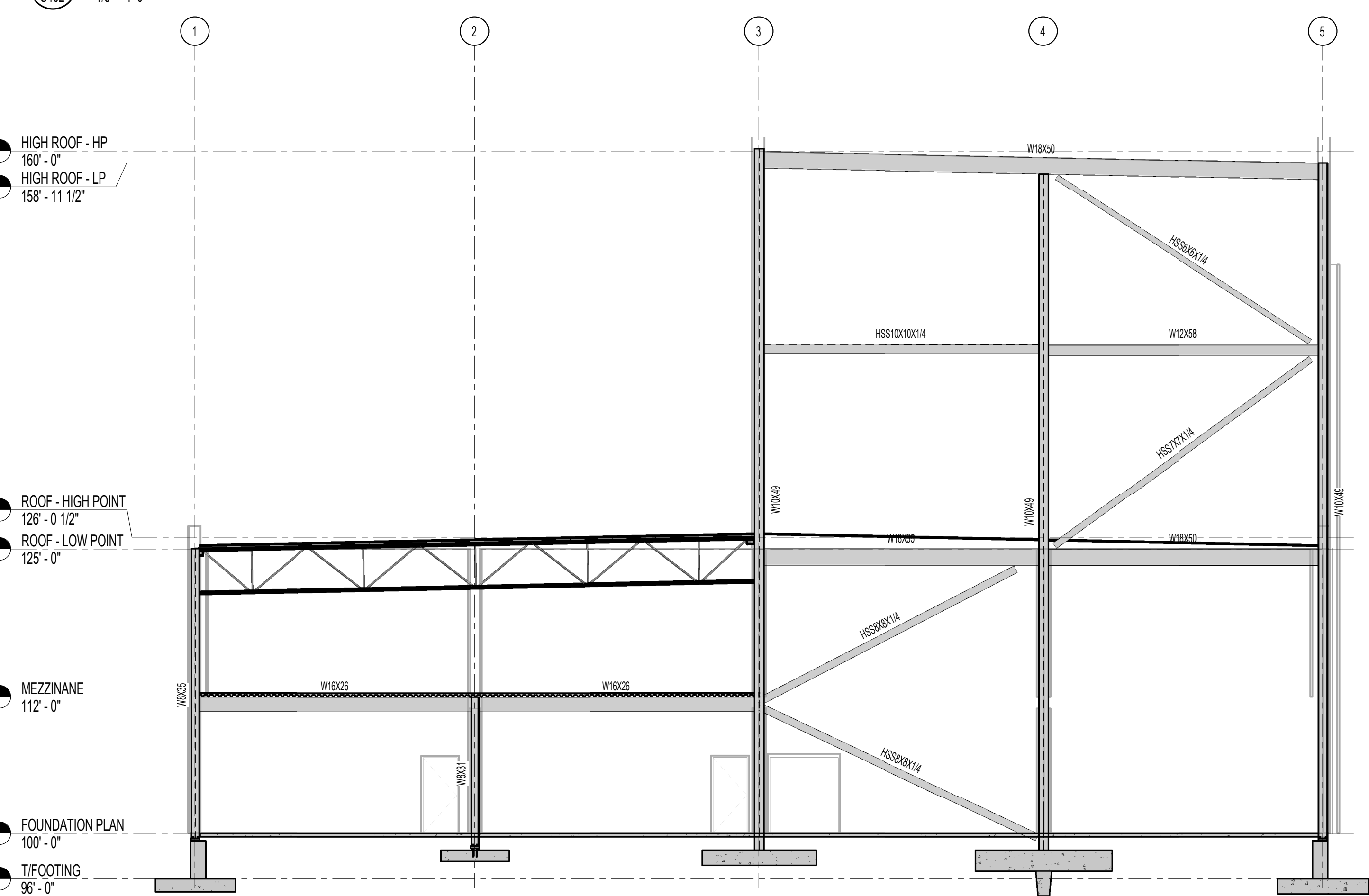
3 BRACED FRAME - COLUMN LINE C
S402 1/8" = 1'-0"



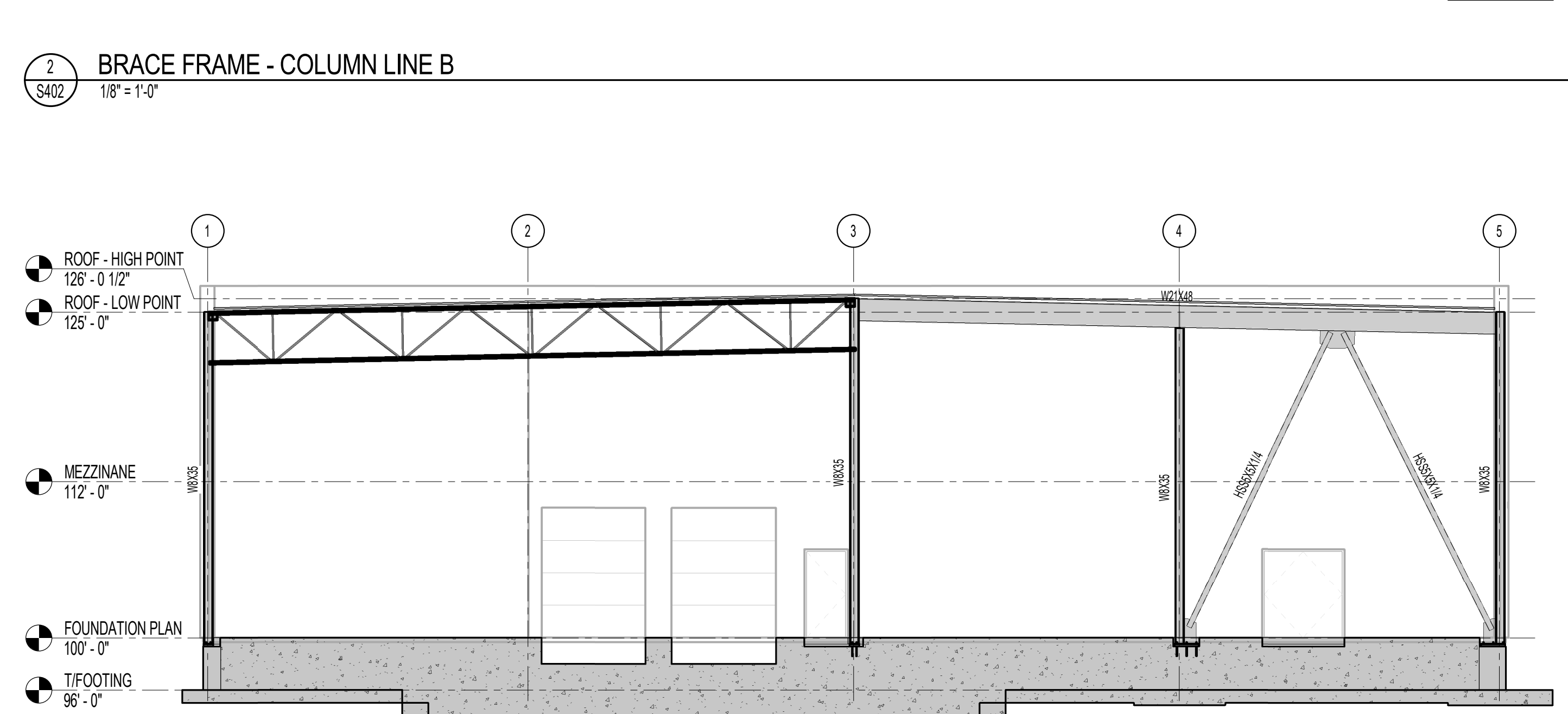
4 BRACED FRAME - COLUMN LINE E
S402 1/8" = 1'-0"



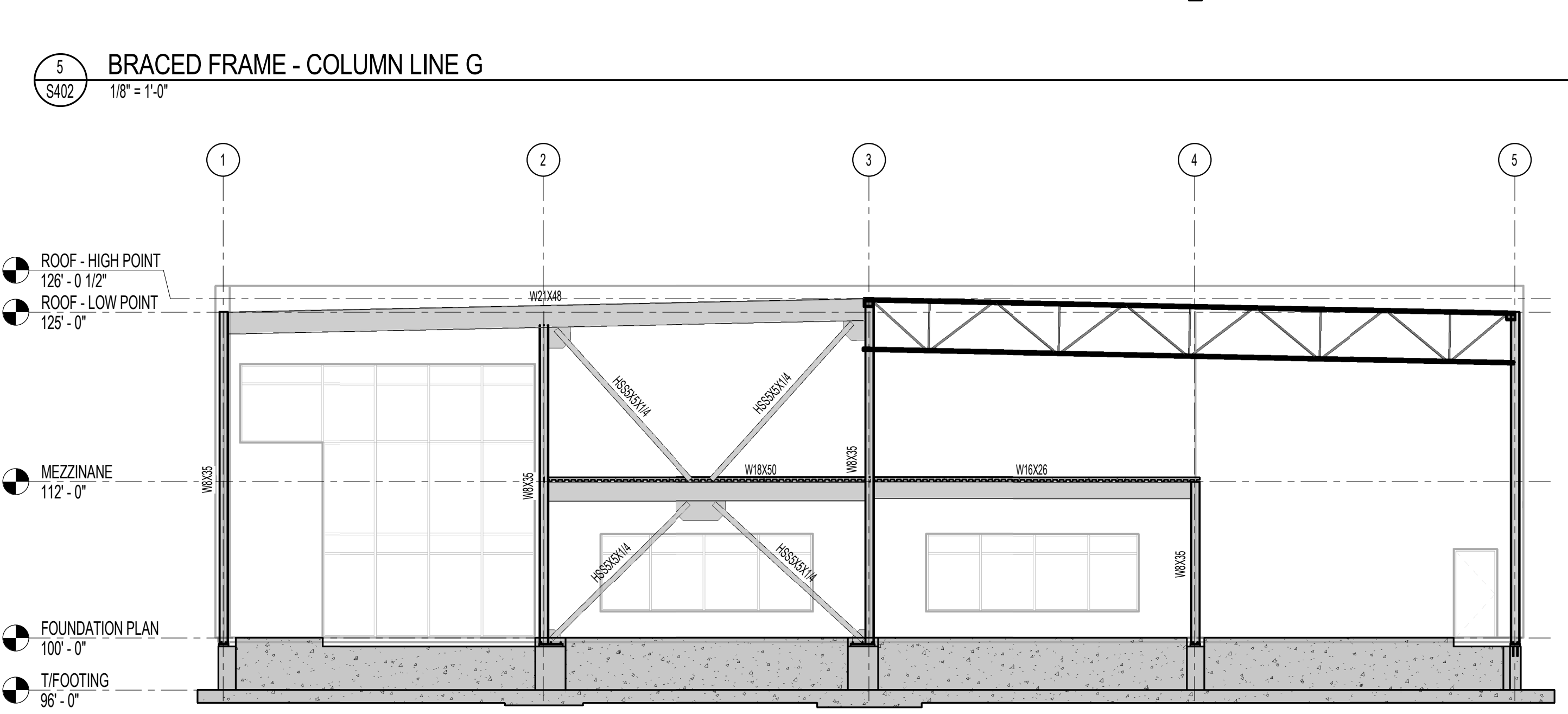
2 BRACE FRAME - COLUMN LINE B
S402 1/8" = 1'-0"



5 BRACED FRAME - COLUMN LINE G
S402 1/8" = 1'-0"



1 BRACED FRAME - COLUMN LINE A
S402 1/8" = 1'-0"



6 BRACED FRAME - COLUMN LINE J
S402 1/8" = 1'-0"

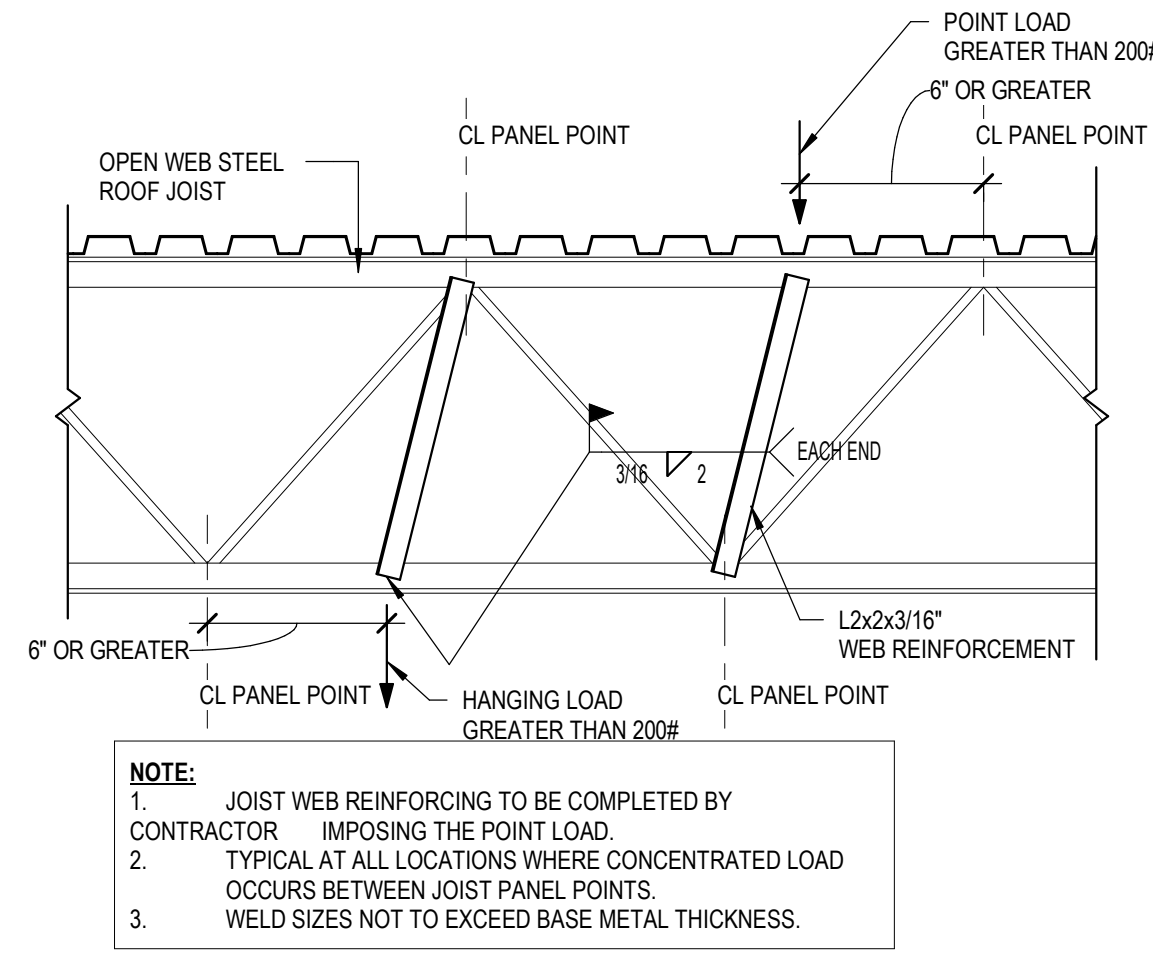
DATE OF ISSUE: 12.18.17

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For Reference Only

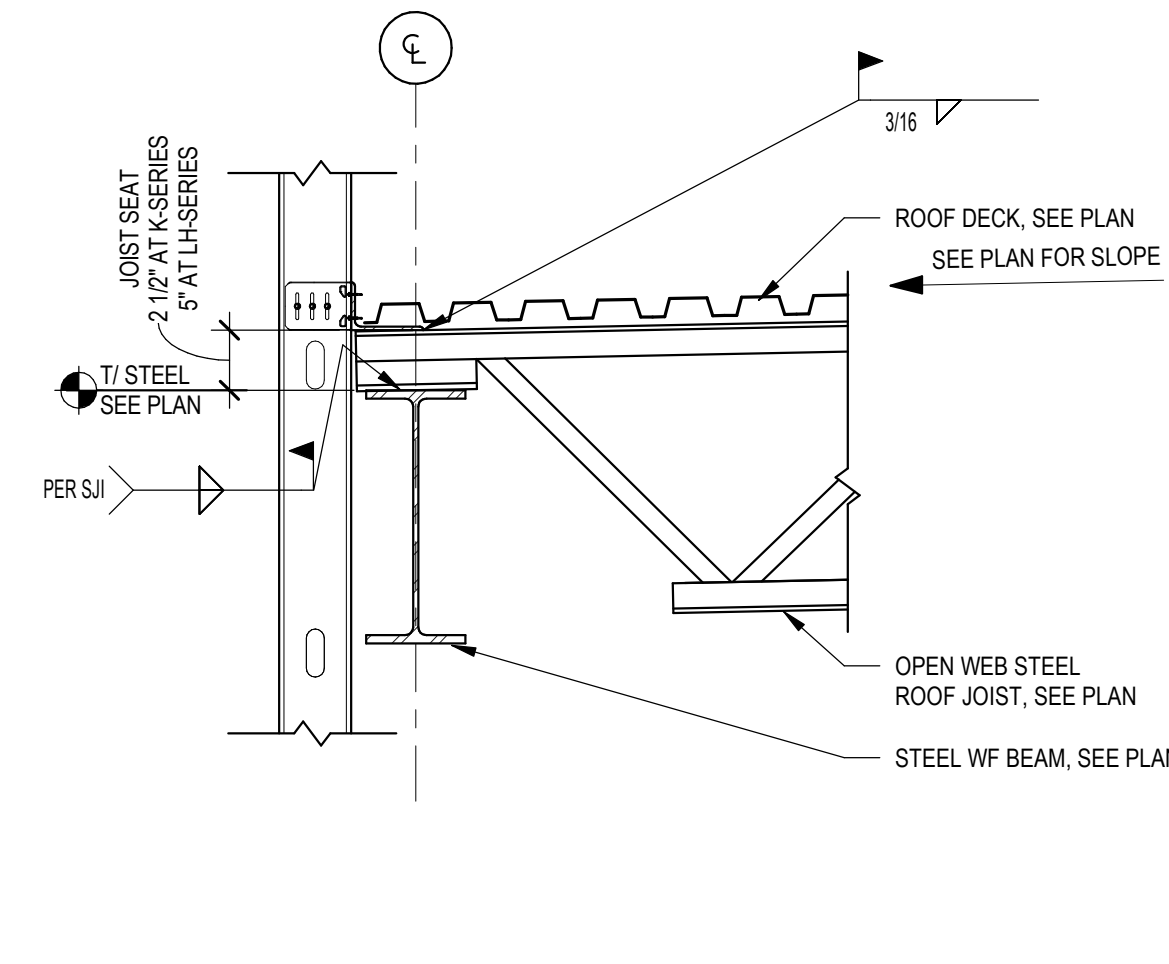
PROJECT # 17112

**BRACED FRAME
ELEVATIONS**

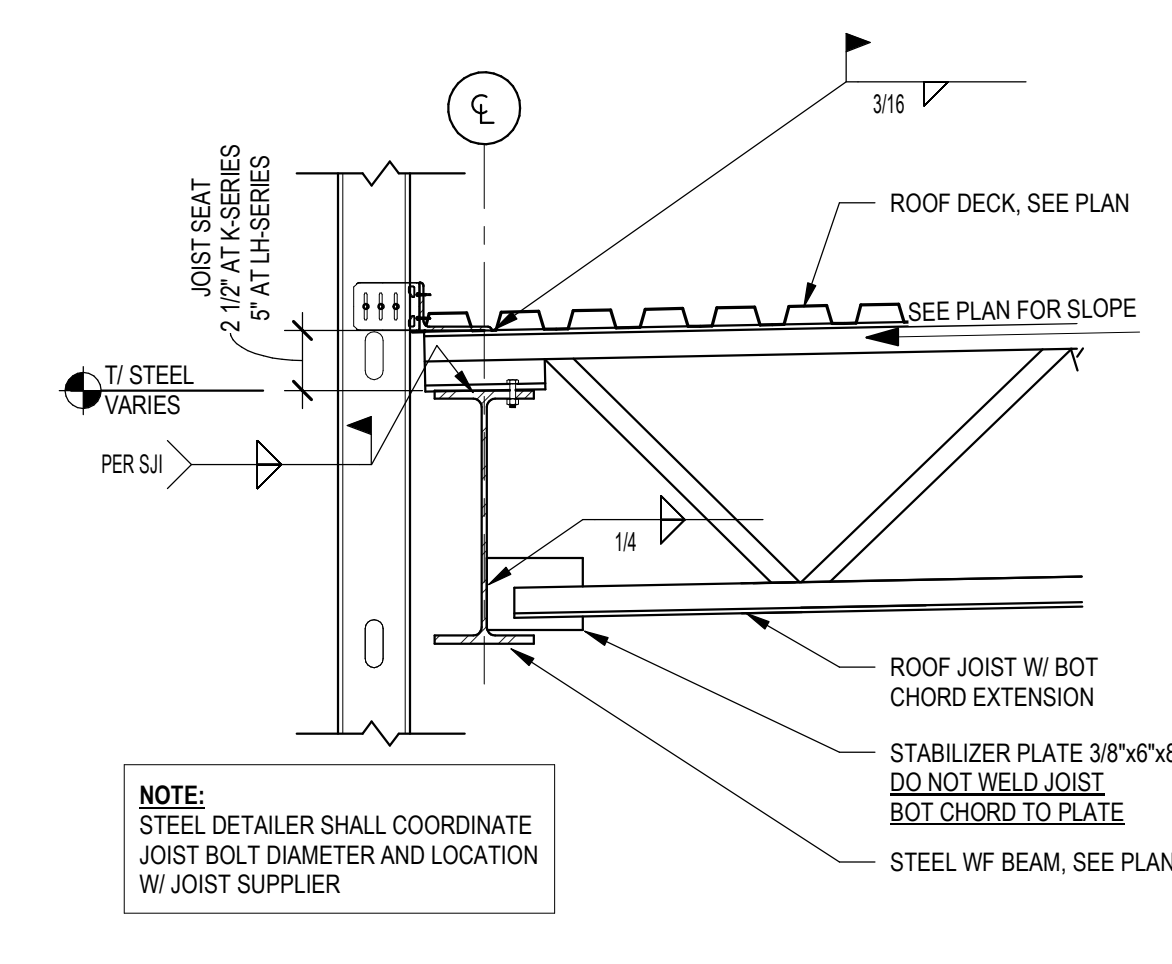
S402



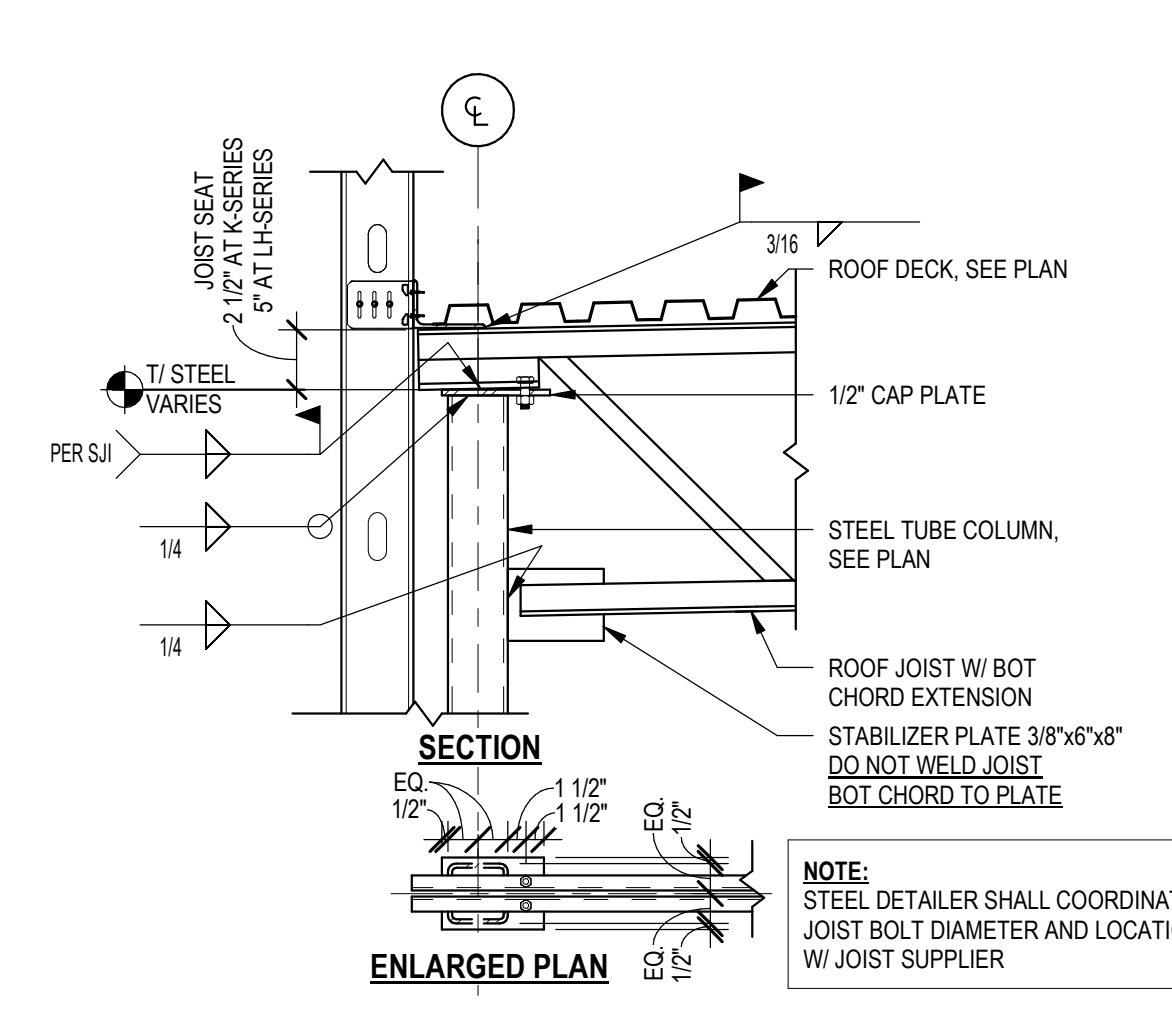
1 TYPICAL JOIST REINFORCEMENT DETAIL
3/4" = 1'-0"



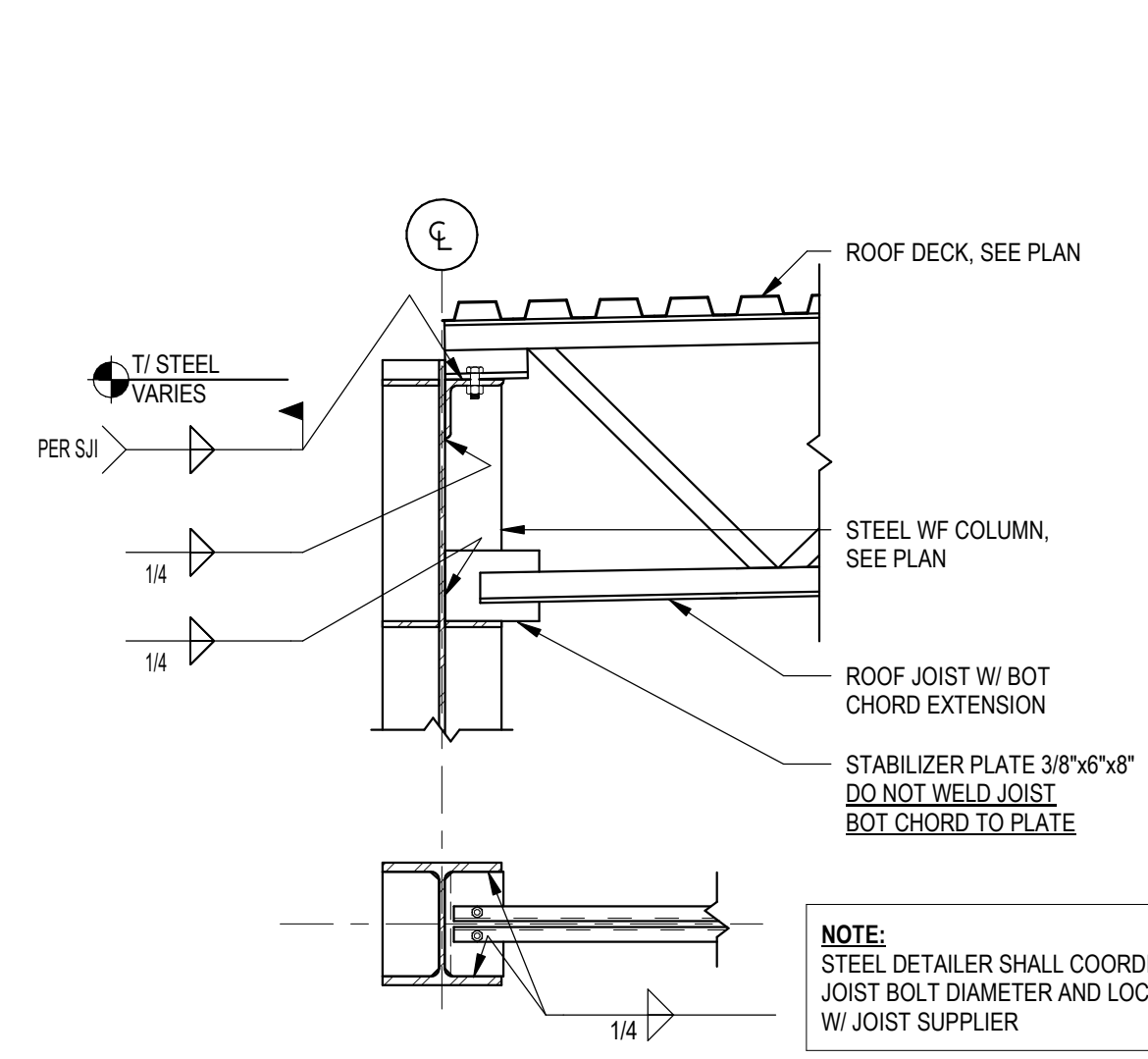
2 JOIST BEARING AT PERIMETER BEAM
3/4" = 1'-0"



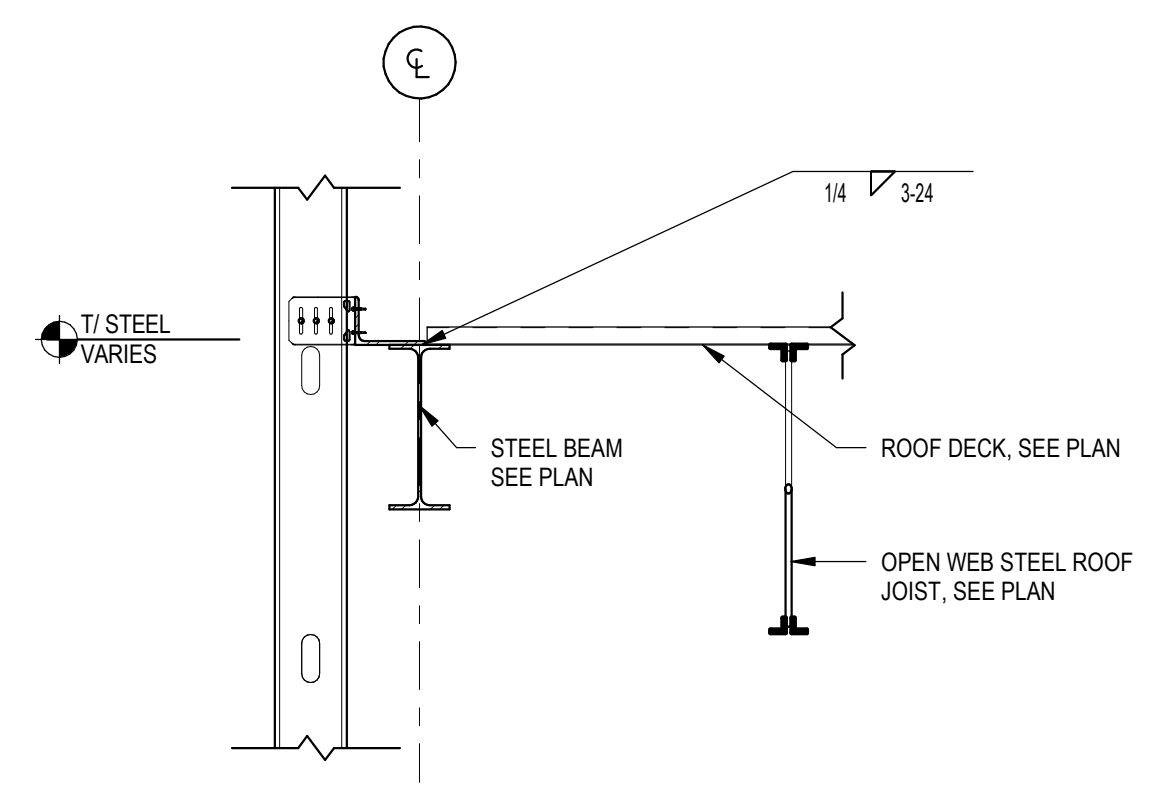
3 BOLTED JOIST CONNECTION AT BEAM
3/4" = 1'-0"



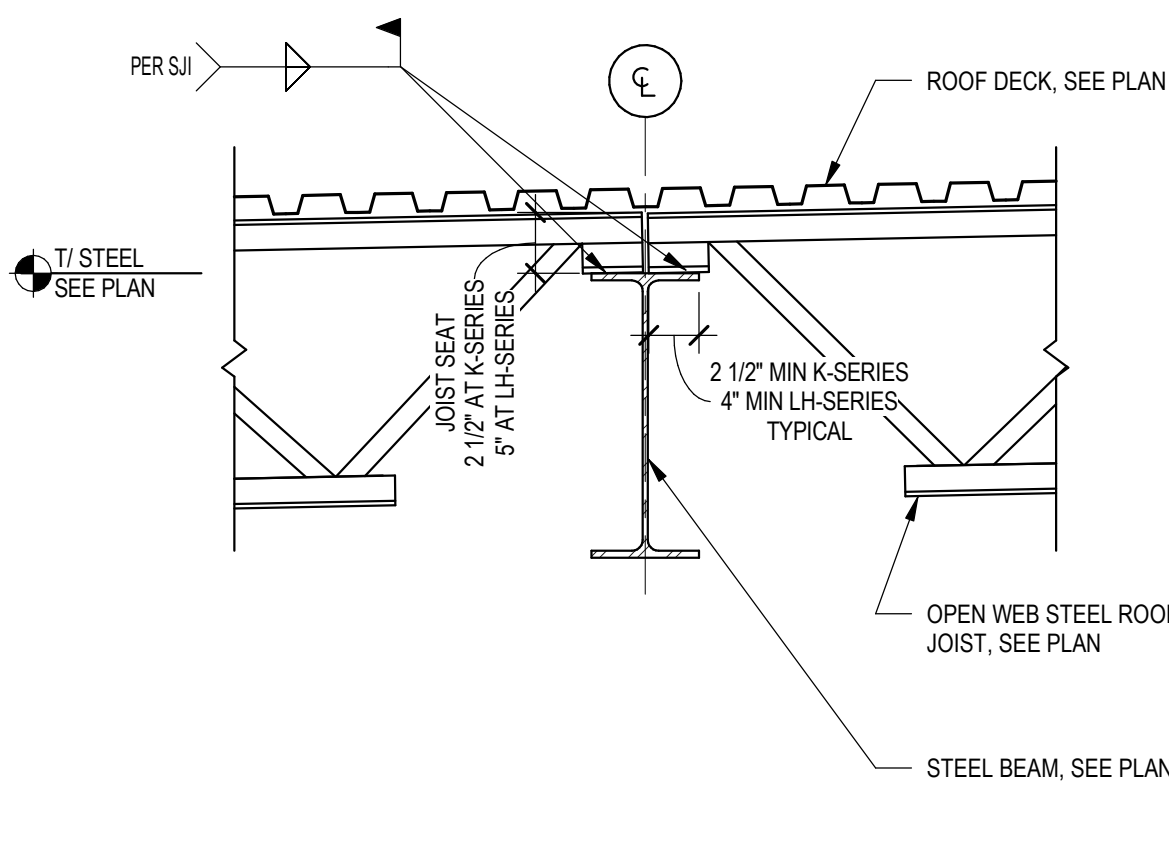
4 BOLTED JOIST BEARING AT EXT TUBE COL
3/4" = 1'-0"



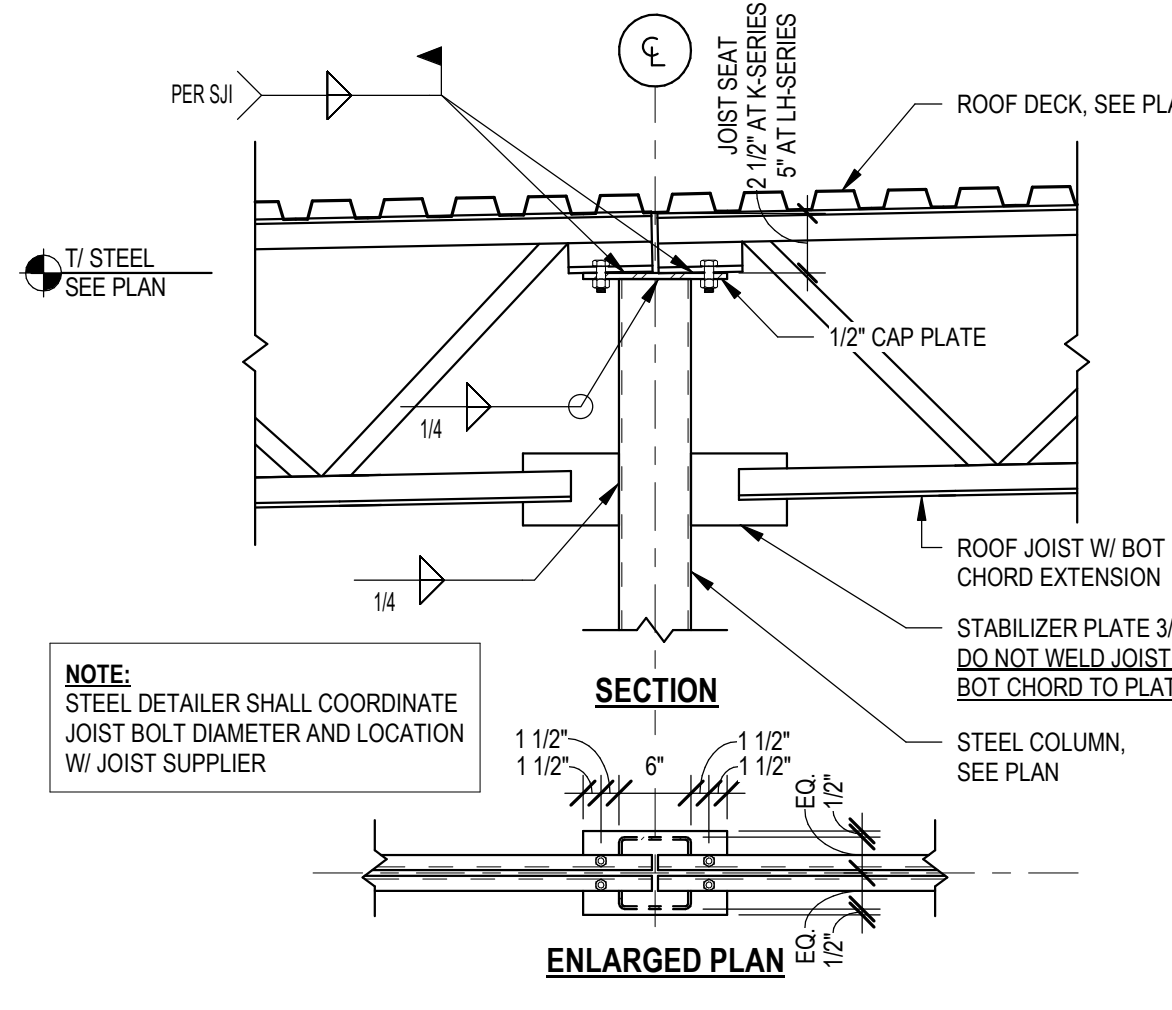
5 BOLTED JOIST BEARING AT EXT WF COL
3/4" = 1'-0"



6 JOIST PARALLEL AT PERIMETER BEAM
3/4" = 1'-0"



7 JOIST BEARING AT INTERIOR BEAM
3/4" = 1'-0"

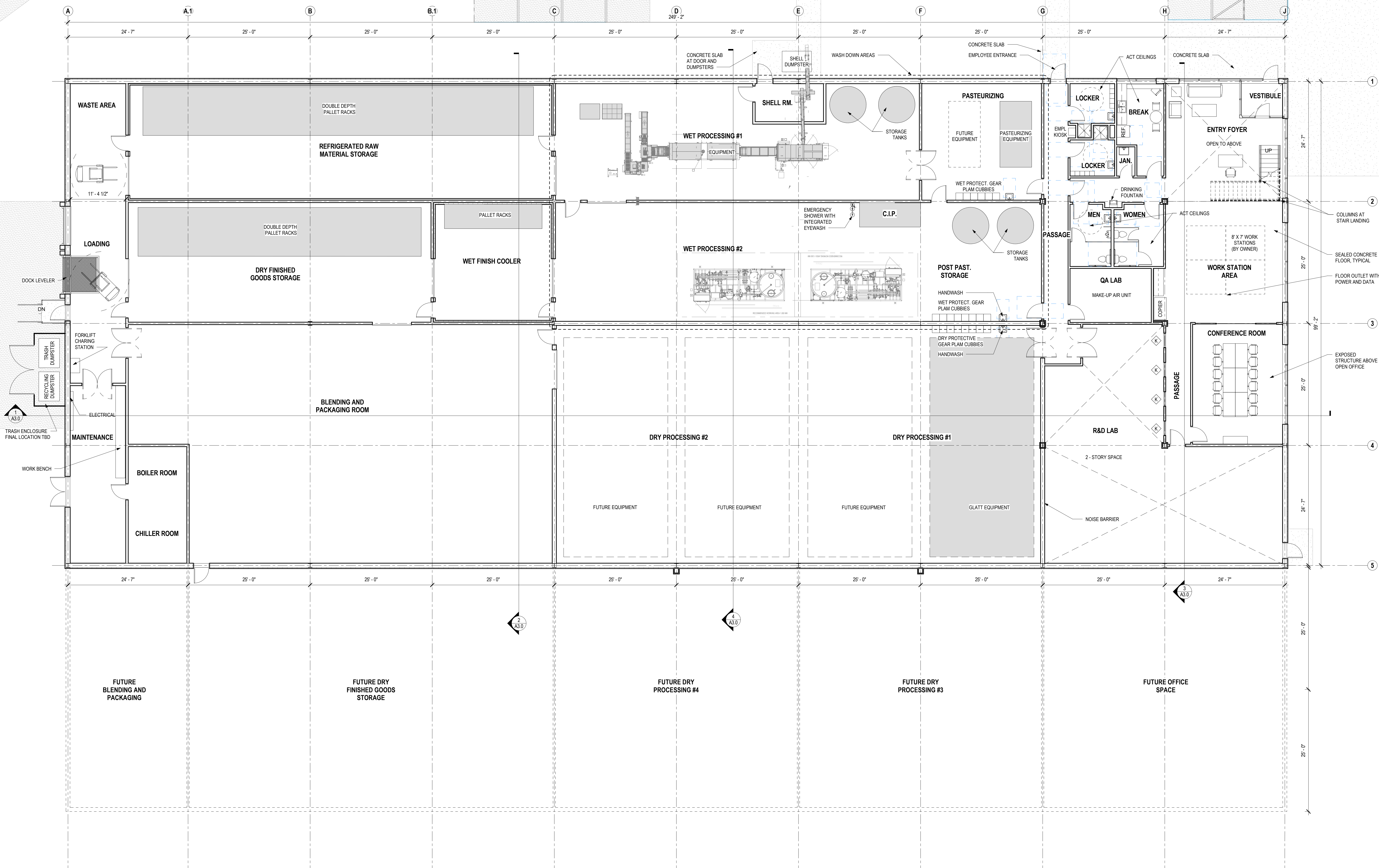


8 BOLTED JOIST BEARING AT COLUMN
3/4" = 1'-0"

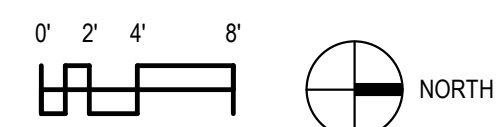
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**AB E DISCOVERY -
NEW HIEP FACILITY**

COMMERCIAL AVE.
WATERLOO, WI



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



**FOOTING AND
FOUNDATION
SUBMITTAL**

DATE OF ISSUE: 12/20/17

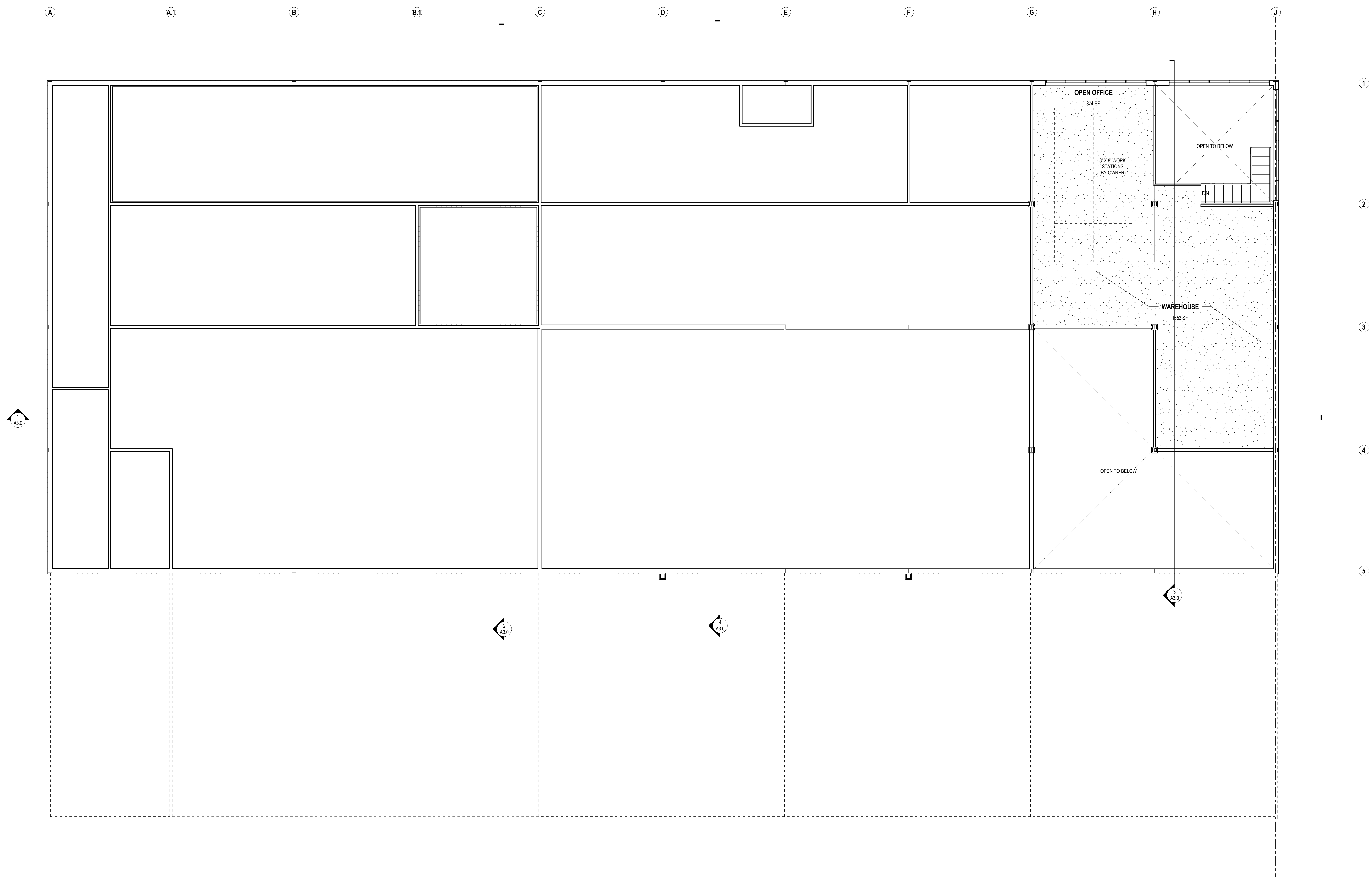
PRELIMINARY
Not for
Construction

PROJECT # 17112

FIRST FLOOR PLAN

**AB E DISCOVERY -
NEW HIEP FACILITY**

COMMERCIAL AVE.
WATERLOO, WI



**FOOTING AND
FOUNDATION
SUBMITTAL**

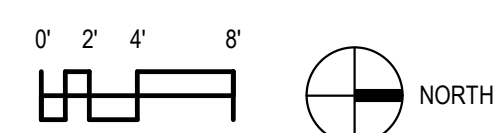
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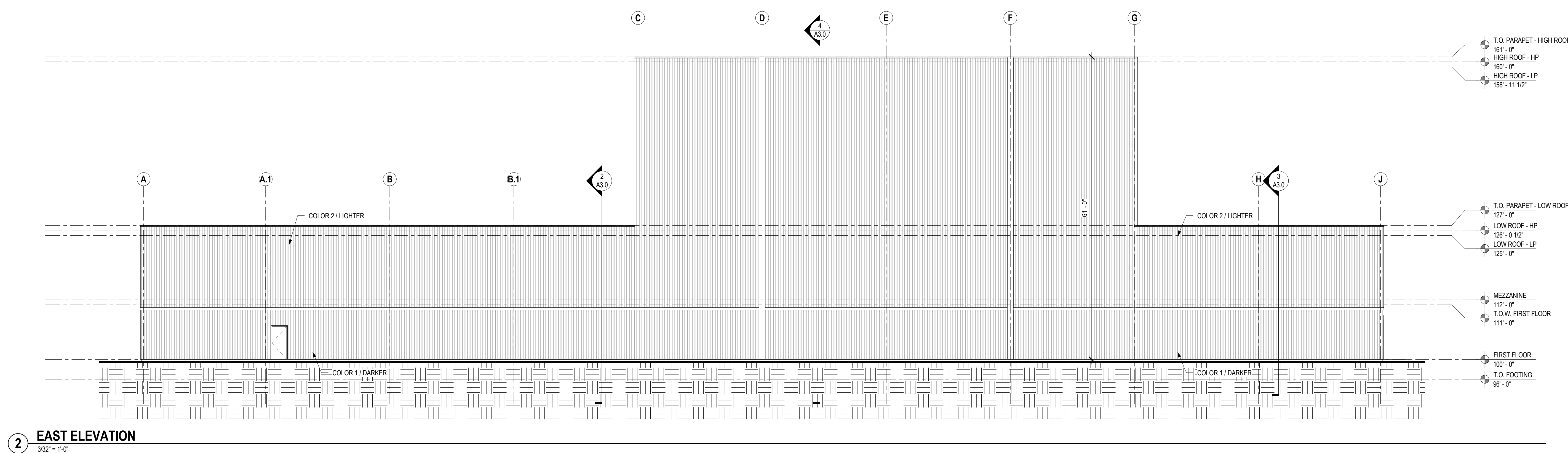
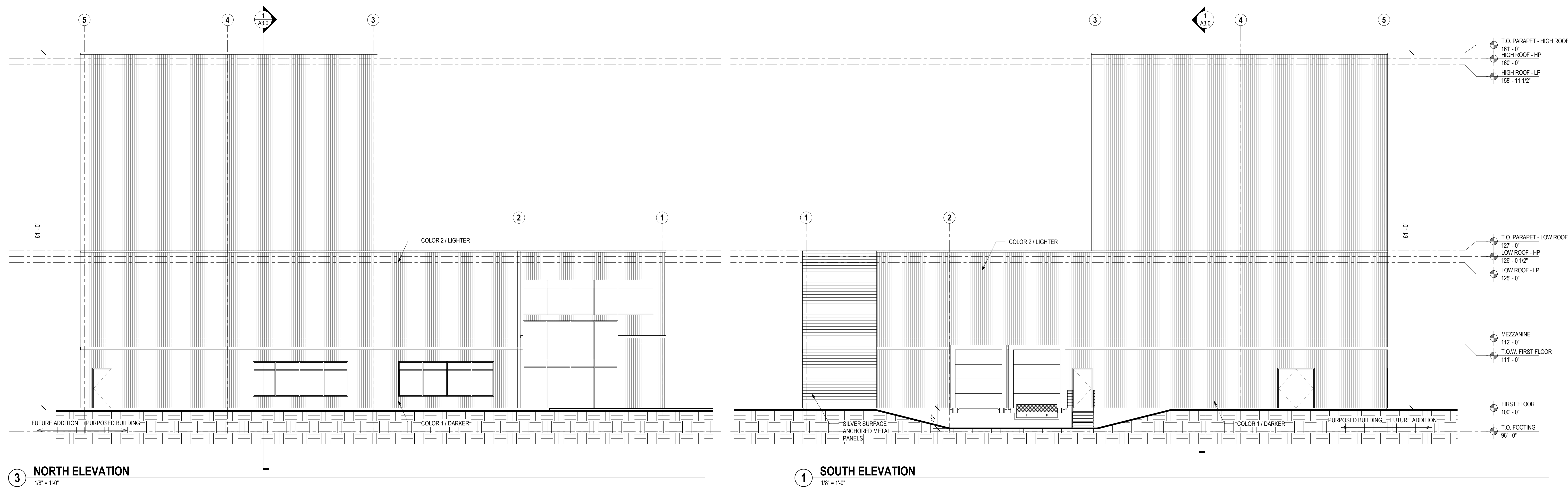
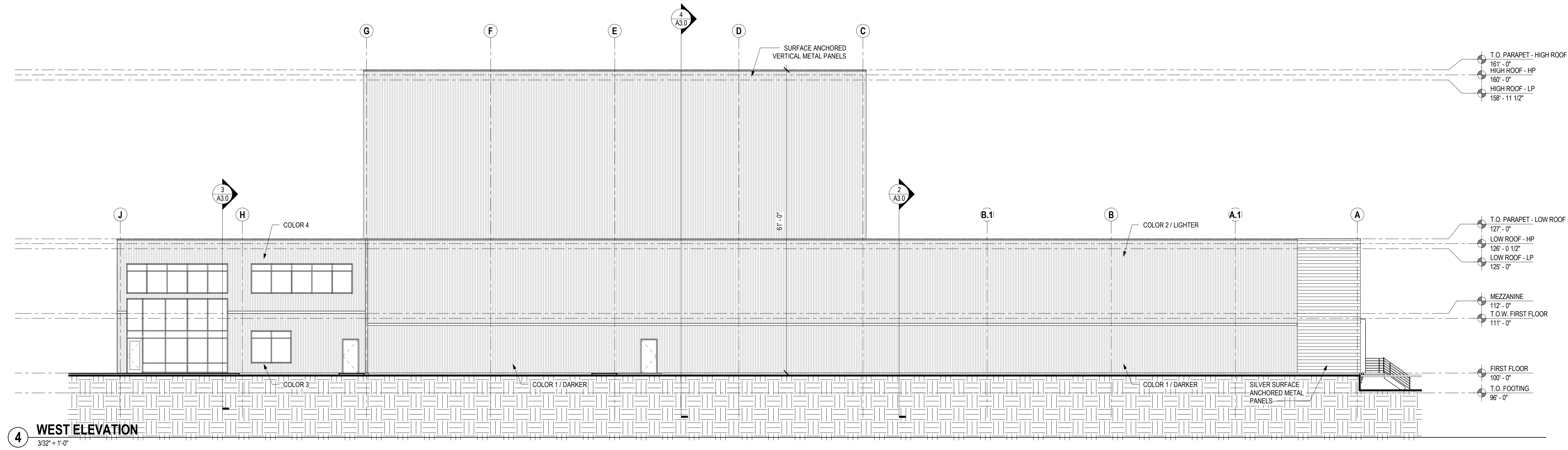
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Construction

PROJECT # 17112

**MEZZANINE FLOOR
PLAN**

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





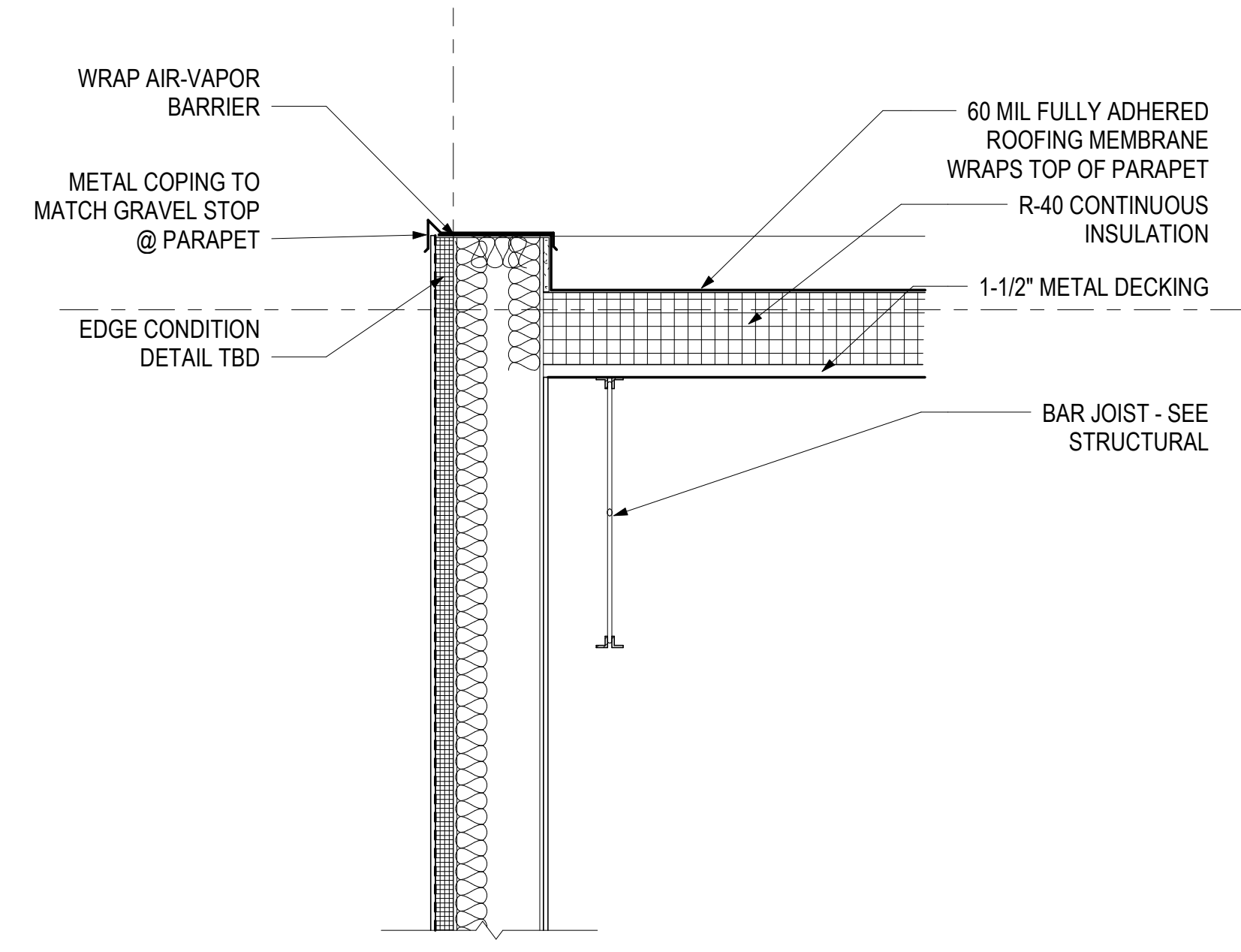
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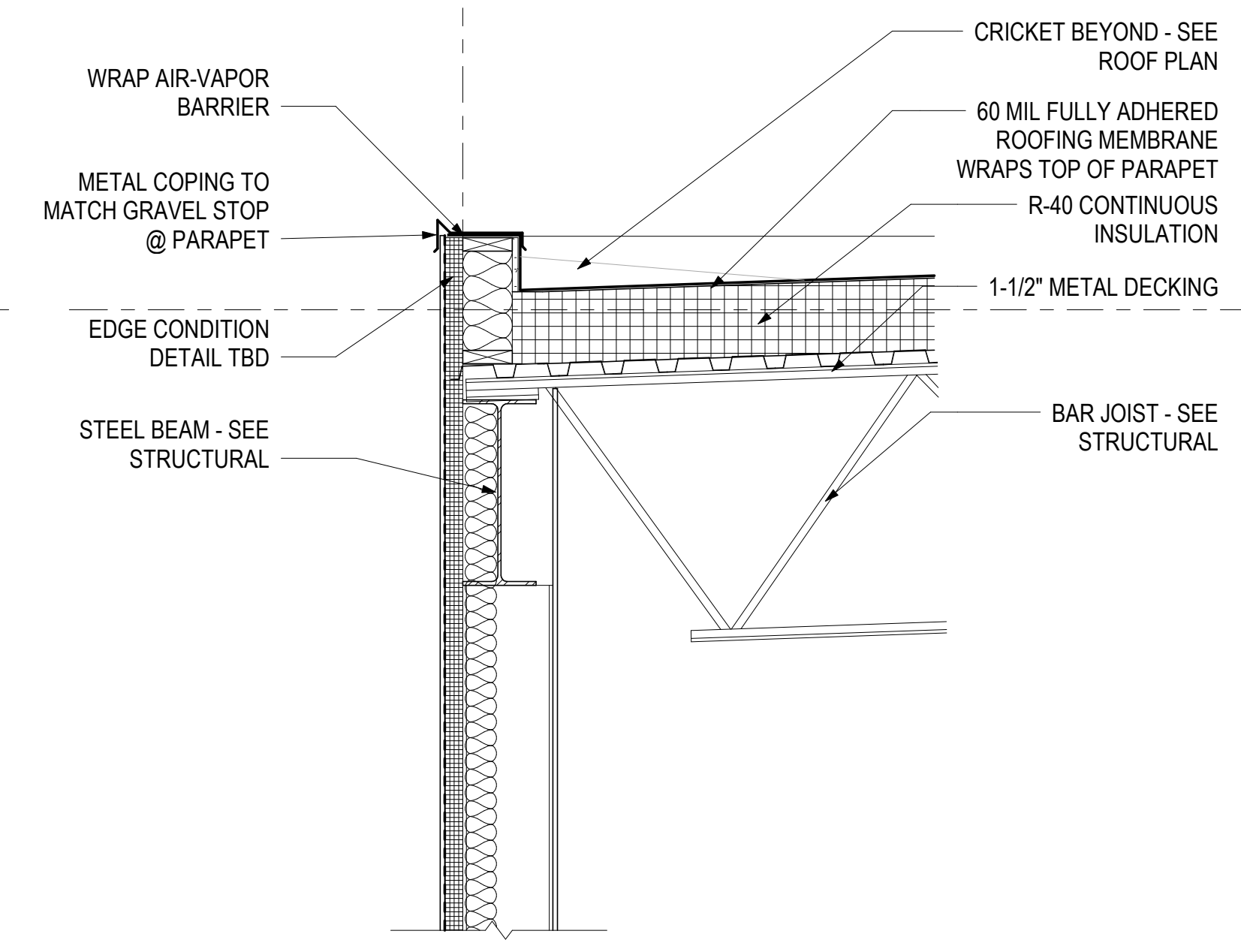
PROJECT # 17112

**EXTERIOR
ELEVATIONS**

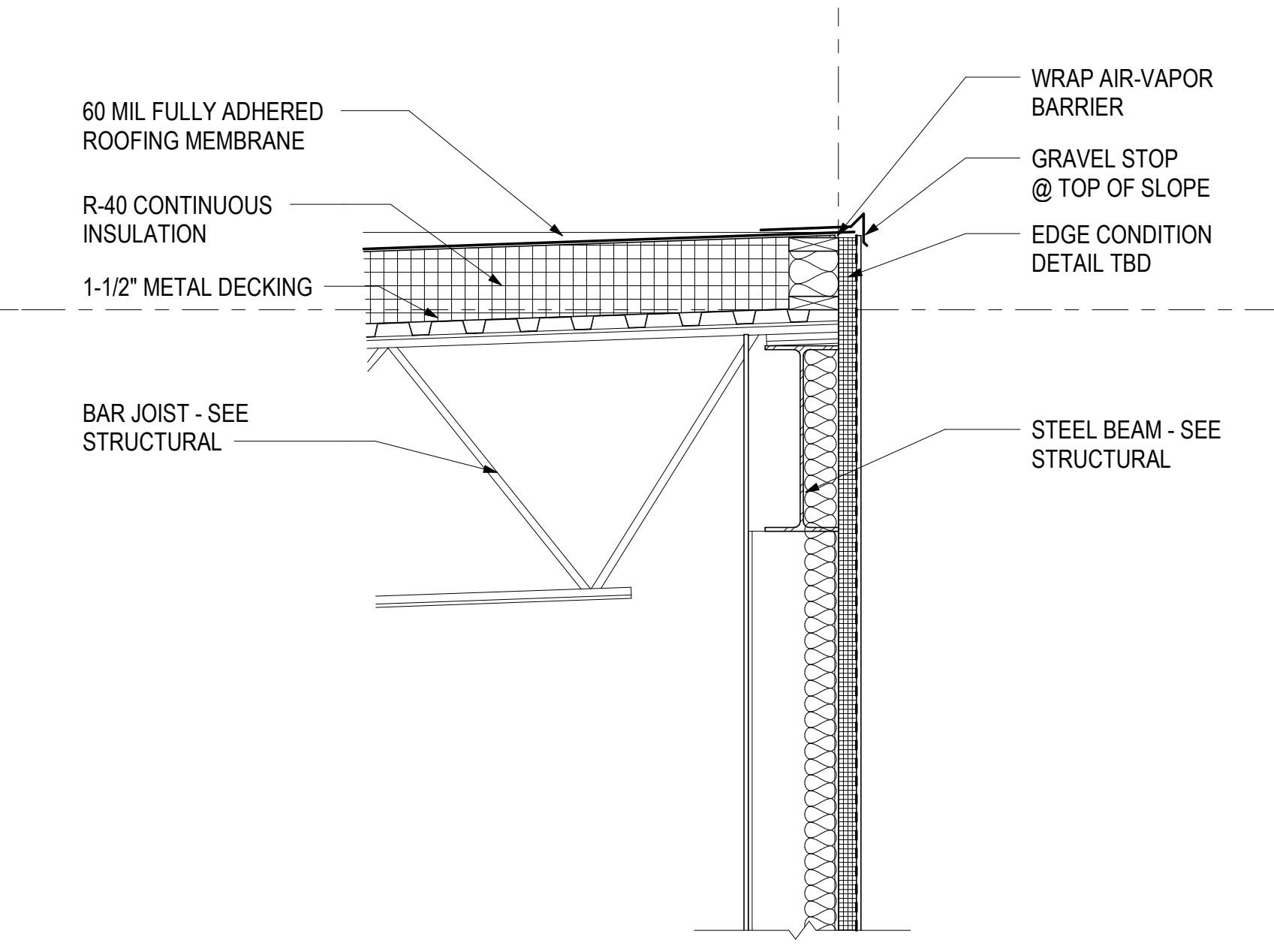
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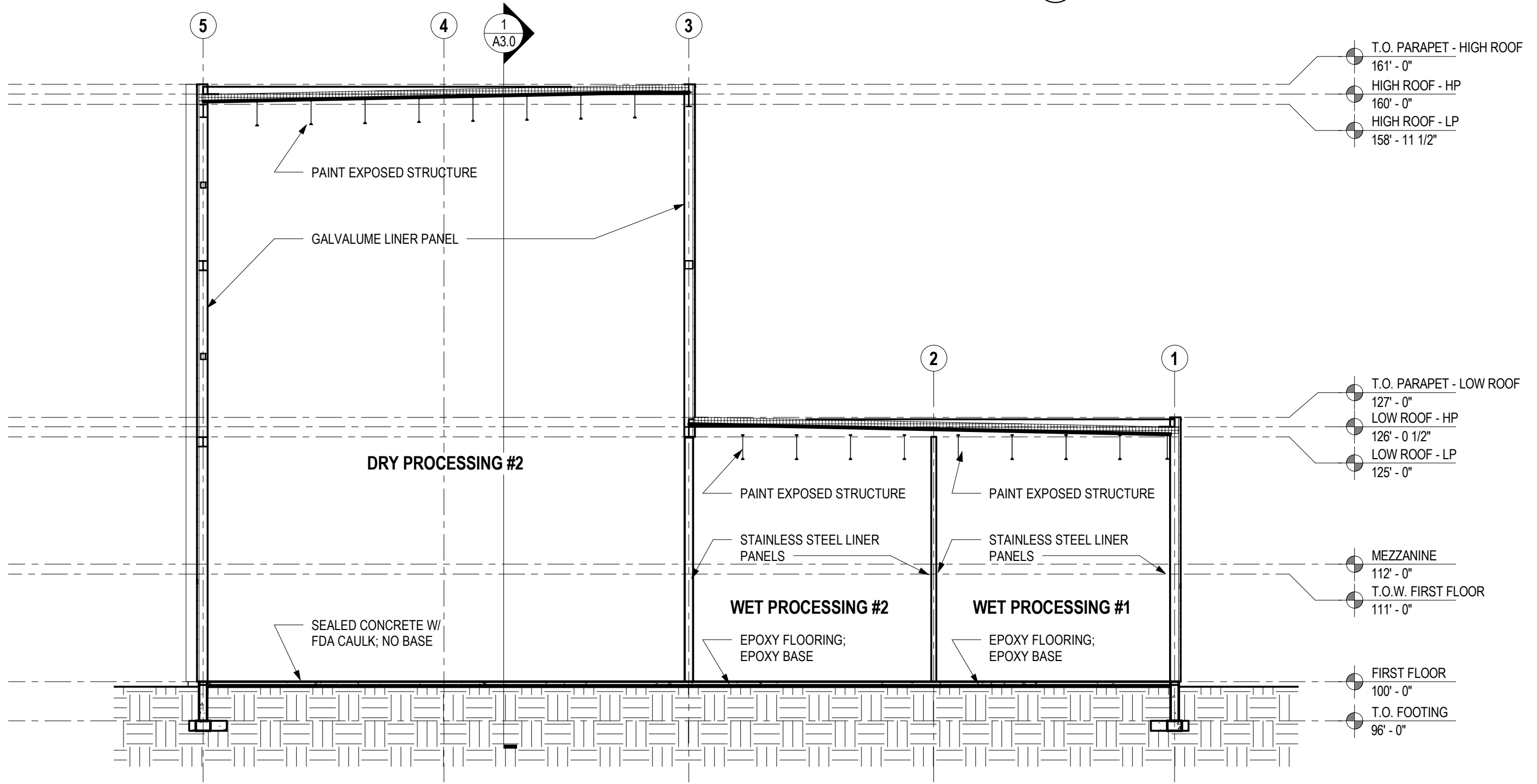
7 TYPICAL WALL - PARAPET AT UNBRACED STRUCTURE
3/4" = 1'-0"



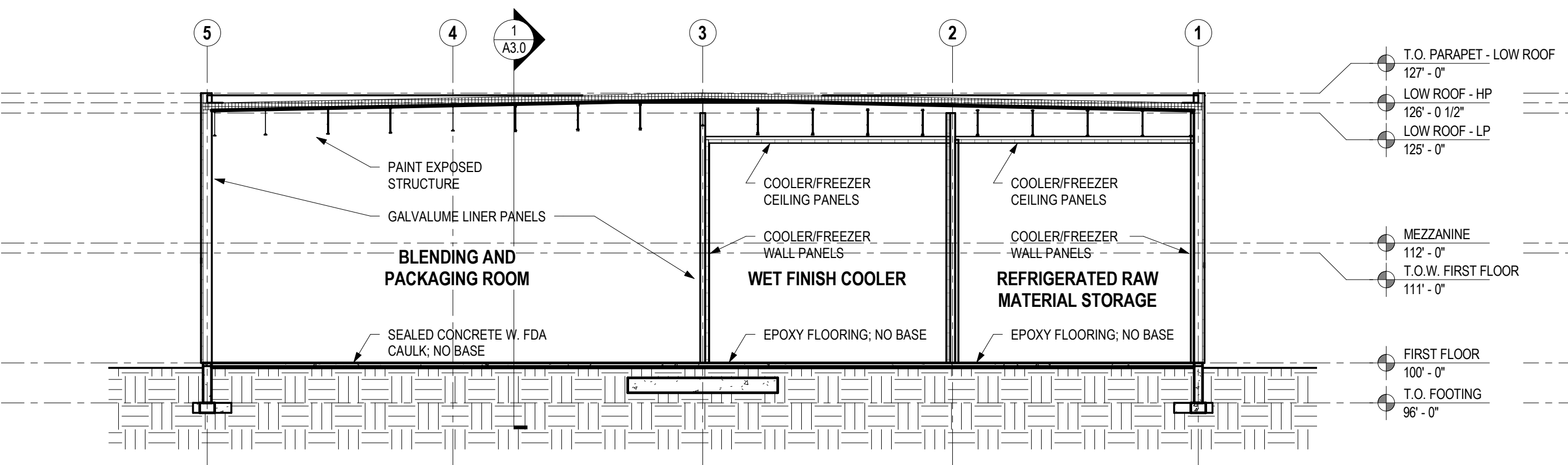
6 TYPICAL WALL - PARAPET AT BOTTOM OF SLOPE
3/4" = 1'-0"



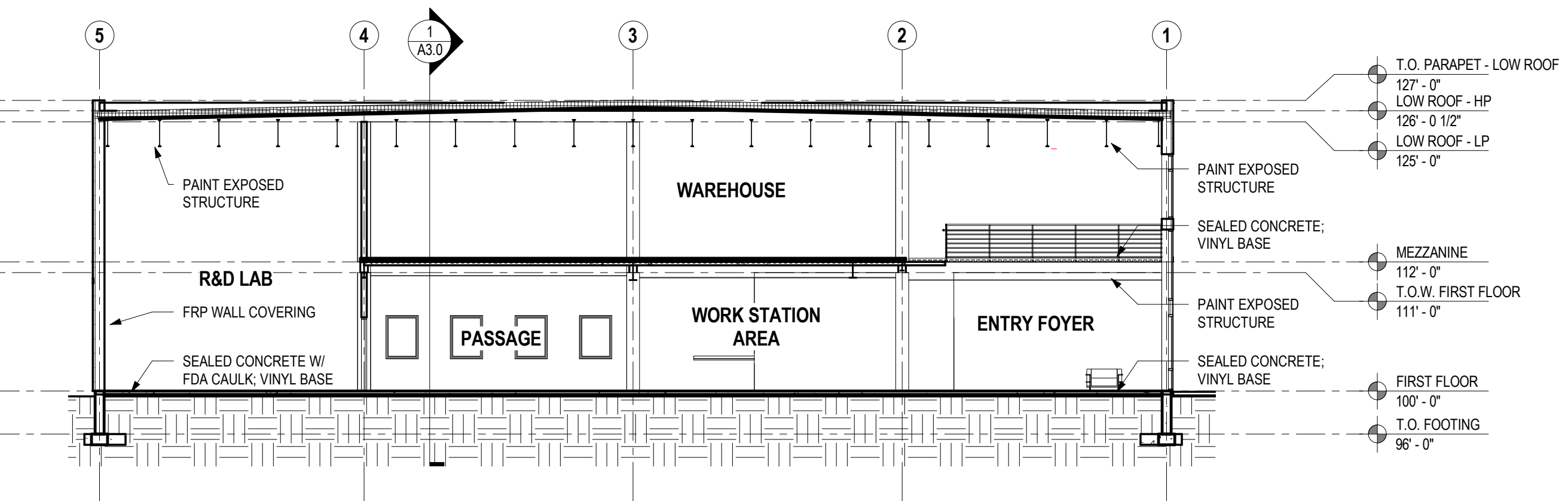
5 TYPICAL WALL SECTION
3/4" = 1'-0"



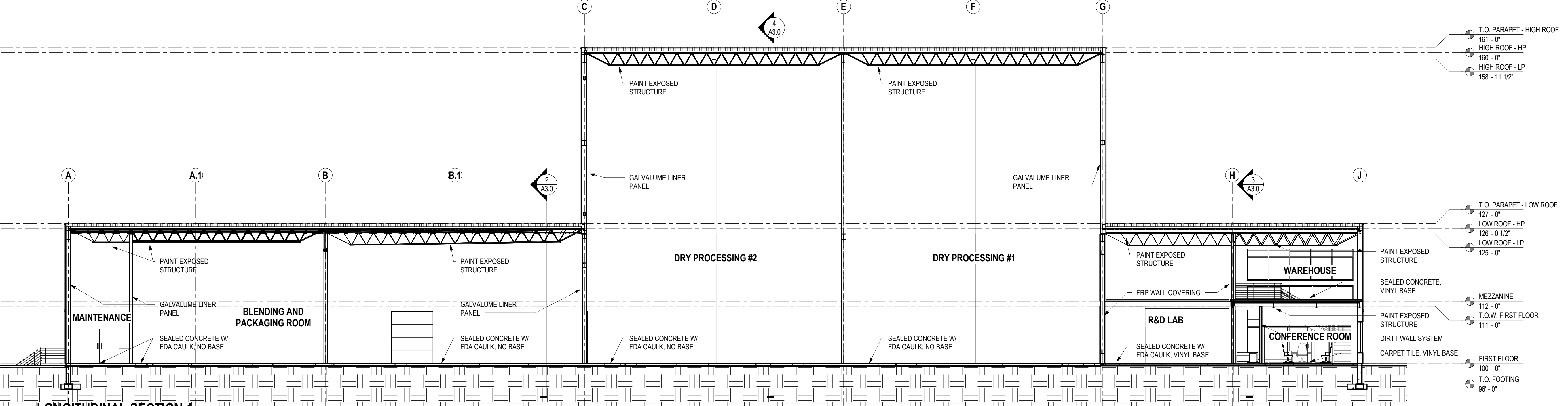
4 TRANSVERSE SECTION 4
3/32" = 1'-0"



2 TRANSVERSE SECTION 2
3/32" = 1'-0"



3 TRANSVERSE SECTION 3
3/32" = 1'-0"



1 LONGITUDINAL SECTION 1
3/32" = 1'-0"

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