ADDENDUM NO. 2

May 2, 2022

Greenfield Central High School Auditorium Renovation and Addition – Bid Package No. 1
810 N. Broadway
Greenfield, IN 46140

TO: ALL BIDDERS OF RECORD

This Addendum forms a part of and modifies the Bidding Requirements, Contract Forms, Contract Conditions, the Specifications, and the Drawings dated April 12, 2022, by Lancer+Beebe LLC. Acknowledge receipt of the Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of Pages ADD 2-1 and attached Lancer+Beebe LLC. Addendum No. 2, dated April 29, 2022, consisting of 4 pages, RFI Log consisting of 1 page, Specification Sections 04 21 00 – Unit Masonry, 05 12 00- Structural Steel Framing, 05 31 00 – Steel Decking, 05 40 00 – Cold Form Metal Framing, and Drawing Sheets: S001, S002, S100L, S101L, S102L, S103L, S104L, S201, S202, S203, S210, S211, S212, S213, S300, S301, S310, S400, S401, S410, S600, S601, S610, S612, S620, S621, S622, S623, A311, A314, A502, A511, A512 and A513:

A. **SPECIFICATION SECTION 01 12 00 MULTIPLE CONTRACT SUMMARY**

1. Paragraph 3.03A Bid Categories

A. Bid Category No. 2 - Precast

1. Replace the following specification section:

Section	04 21 00	Unit Masonry

B. Bid Category No. 4- Structural Steel

1. Replace the following specification sections:

Section	05 12 00	Structural Steel Framing
Section	05 31 00	Steel Decking

LANCER + BEEBE, LLC
Project # 21107

ADDENDUM NO. TWO

PROJECT: GREENFIELD CENTRAL – AUDITORIUM RENOVATION AND ADDITION

PROJECT NUMBER: 21107

DATE OF ADDENDUM: APRIL 29, 2022

THIS ADDENDUM FORMS A PART OF THE CONTRACT DOCUMENTS AND IS ISSUED IN ACCORDANCE WITH THE INSTRUCTIONS TO BIDDERS. ACKNOWLEDGE RECEIPT OF THIS ADDENDUM BY SIGNING THE ADDENDUM ACKNOWLEDGMENT SECTION OF THE BID FORM.

Q+A LOG: PLEASE REVIEW THE ATTACHED QUESTION AND ANSWER LOG.

SPECIFICATIONS:

1. SPEC SECTION: 04 21 00 UNIT MASONRY
   CHANGE: REISSUED ENTIRE SPEC. ALTERNATE BRICK PRODUCTS ADDED.
2. SPEC SECTION: 051200 STRUCTURAL STEEL FRAMING
   CHANGE: ADJUSTED 2.2.C TO NOTE "GRADE C" INSTEAD OF "GRADE B"
3. SPEC SECTION: 053100 STEEL DECKING
   CHANGE: ADDED 2.2.A.3 & 2.2.B.2
4. SPEC SECTION: 054000 COLD FORM METAL FRAMING

LANCER + BEEBE, LLC
Project # 21107

CHANGE: ADDED 2.7.A.1 & 2.7.B.1

DRAWINGS:

1. S001 – STRUCTURAL NOTES
    - UPDATED SNOW DESIGN CRITERIA
    - ADDED "FINISH FLOORS AND SLABS" NOTES
2. S002 – SCHEDULES
    - REVISED VARIOUS SCHEDULES AND ADDED CONDITIONS TO ALIGN CORRECTLY WITH THE REST OF THE DRAWINGS
3. S100L – GRID AND BRACE PLAN
    - ADDED PLAN NOTES
4. S101L – FOUNDATION PLAN – UNIT L
    - COORDINATED FOUNDATIONS WITH UNDERGROUND UTILITIES
    - ADJUSTED PLAN NOTES
5. S102L – LOW ROOF AND FLOOR FRAMING PLAN – UNIT L
    - MOVED SECTION 11/S610 TO MORE APPROPRIATE LOCATION
    - ADJUSTED PLAN NOTES
6. S103L – MID ROOFS FRAMING PLAN – UNIT L
    - UPDATED ACOUSTICAL ROOF FASTENING PATTERN
    - ADJUSTED PLAN NOTES
7. S104L – HIGH ROOF FRAMING PLAN – UNIT L
    - ADJUSTED ROOF DECK CALL OUT
    - DIMENSIONED TO RIDGE OF ROOF JOISTS
    - DEFINED 64DLHSP1
8. S201 – ENLARGED AUDITORIUM FOUNDATION PLAN
    - COORDINATED FOUNDATIONS WITH UNDERGROUND UTILITIES
    - ADJUSTED PLAN NOTES
9. S202 – ENLARGED AUDITORIUM BALCONY FRAMING PLAN
    - ADDED SECTIONS TO REPRESENT THE SYMMETRY OF THE FRAMING
    - ADJUSTED PLAN NOTES
10. S203 – ENLARGED AUDITORIUM CATWALK FRAMING PLAN
    - ADDED GRATING PLAN SYMBOL
    - ADJUSTED PLAN NOTES

11. S210 – AUDITORIUM BALCONY ISOMETRIC VIEW
    - ADDED FOR REFERENCE NOTE
12. S211 – AUDITORIUM BALCONY ISOMETRIC VIEW
    - ADDED FOR REFERENCE NOTE
13. S212 – AUDITORIUM BALCONY ISOMETRIC VIEW
    - ADDED FOR REFERENCE NOTE
14. S213 – AUDITORIUM CATWALK ISOMETRIC VIEW
    - ADDED FOR REFERENCE NOTE
15. S300 – BRACED FRAME ELEVATIONS
    - ADDED "BRACED FRAME NOTES"
    - ADDED KNEE BRACE WORK POINTS
    - ADD BRACE LOADING CRITERIA
16. S301 – BRACED FRAME ELEVATIONS
    - ADDED "BRACED FRAME NOTES"
    - ADDED KNEE BRACE WORK POINTS
    - ADD BRACE LOADING CRITERIA
17. S310 – STEEL JOIST LOADING DIAGRAMS
    - ADDED LOADING CRITERIA FOR JOISTS
18. S400 – TYPICAL FOUNDATION DETAILS
    - ADJUSTED DETAIL 9
    - ADDED DETAIL 16
19. S401 – TYPICAL FOUNDATION DETAILS
    - ADJUSTED DETAILS 1-4, & 12
    - ADDED DETAIL 15
20. S410 – FOUNDATION SECTIONS
    - ADJUSTED DETAILS 15 & 16
21. S600 – TYPICAL FRAMING DETAILS
    - ADJUSTED DETAILS 1-3
    - REMOVED DETAILS 4 & 5
22. S601 – TYPICAL FRAMING DETAILS
    - ADJUSTED DETAILS 1-11, 13
    - ADDED DETAIL 14
    - REMOVED DETAIL 12
23. S610 – FRAMING SECTIONS
    - ADJUSTED DETAIL 11
24. S612 – FRAMING SECTIONS
    - ADJUSTED DETAIL 1-4
25. S620 – FRAMING SECTIONS
    - ADJUSTED DETAILS A-C
    - ADDED DETAILS 1-3
26. S621 – FRAMING SECTIONS
    - ADJUSTED DETAILS D-J
27. S622 – FRAMING SECTIONS

- RELABELED DETAIL P

28. S623 – FRAMING SECTIONS
    - RELABELED DETAIL Q

ARCHITECTURE:

29. A311
    - 2/A311 - SECTION DETAIL REMOVED
30. A314
    - ADDED SECTION 8/A314
31. A502
    - REVISED DETAIL 6/A502
    - REVISED DETAIL 8/A502
32. A511
    - REVISED SHEET IN ITS ENTIRETY
33. A512
    - DETAIL 1 – [DELETED]
    - REVISED DETAIL 2
    - REVISED DETAIL 5
    - REVISED DETAIL 6
    - REVISED DETAIL 7
    - REVISED DETAIL 8
    - REVISED DETAIL 11
    - REVISED DETAIL 12
    - DETAIL 14 - [DELETED]
6. A513
    - REVISED DETAIL 7
    - ADDED DETAIL 9
    - ADDED DETAIL 10

ATTACHMENTS: RFI LOG.PDF

END OF ADDENDUM NO. TWO

Greenfield Auditorium

RFI Contact(s):
RFI Due Date/Time:
Bid Date/Time:

RFI LOG

Published:05/02/2022

No.	DATE SUBMITTED	RESPONSIBLE PARTY	QUESTION	DATE RECEIVED	FROM	RESPONSE
1	4/28/2022	L+B	Please note Item 2.4, A., in specification 034100. Is the precast mix on all panels to be all structural gray concrete? All exterior panels appear to be covered with thin brick. For thin brick clad panels, it is recommended to acid etch/rinse the precast panels to clean the thin brick and to etch between the thin brick pieces for consistency. Do you want the brick clad precast panels to be acid etched/rinsed or the leave the finished surface with the cast thin brick unfinished?	4/28/2022	CORESLAB	Structural gray concrete is acceptable. Acid etched/rinsed is desired on the exterior.
2	4/28/2022	L+B	Please note Item 2.13, A. in specification 034100. The interior precast panel faces, are they to have a smooth as cast from the form finish? And, can the precast panel (all) back finishes be a two-pass hard hand steel trowel?	4/28/2022	CORESLAB	Precast panel back finishes can be a two-pass hand steel trowel.
3	4/28/2022	L+B	Please not Item 2.14, B., 3.(thin brick type 3), per the Exterior Elevation Notes on sheets A201, 202, and 203, Glen Gery Brick noted should be Pearl River, Wire Cut, not Brazilwood, Wire cut. Please confirm? Please be advised that thin brick lead times are not controlled by the precaster and could affect the project schedule if the thin brick material is not available/received at the precast plant in time to meet the casting schedule	4/28/2022	CORESLAB	See revised specification issued in Addendum No. 2.
4	4/28/2022	TSC	Are electrical boxes and conduits going to need to be cast into the precast panels? If so, please confirm that the electrical hardware will be furnished by others to the precast plant prior to casting by Others. Also, can we be given an estimated quantity of electrical hardware that will need to be cast in?	4/28/2022	CORESLAB	Yes, these items will be furnished by the Electrical/Low Voltage Contractor to the Bid Category No. 2 Contractor. Please refer to the bid documents to determine quantities and locations.
5	4/28/2022	TSC	Please confirm the steel ledge angels shown, attached to steel embed cast in precast embed plates, are to be furnished and installed by Others. (Ex. details 7, 9, 10 – S610). And the precaster in those similar details is to furnish and cast in the flat embed plates only cast into the precast panel backs?	4/28/2022	Geiger & Peters	All connection steel shapes, attched to precast embed plates, required for the proper support of the structural steel system shall be provided by Bid Category No. 4 Contractor..
6	4/28/2022	L+B	Please reference specification 034100, page 7, Item 2.13, B. Can you confirm the size of all thin brick to be cast into the precast panels for the project is to be modular size, 2-1/4” x 7-5/8”?	4/28/2022	CORESLAB	See revised specification issued in Addendum No. 2.

SECTION 04 21 00

UNIT MASONRY

PART 1 GENERAL

1.1 SUMMARY

A. Section includes brick and concrete masonry units; reinforcement, anchorage, and accessories.

1.2 REFERENCES

A. American Society for Testing and Materials:
1. ASTM A153/A153M - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
2. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
3. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
4. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
5. ASTM A951 - Standard Specification for Masonry Joint Reinforcement.
6. ASTM C62 - Standard Specification for Building Brick (Solid Masonry Units Made From Clay or Shale).
7. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units.
8. ASTM C126 - Standard Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units.
9. ASTM C140 - Standard Test Methods of Sampling and Testing Concrete Masonry Units.
10. ASTM C212 - Standard Specification for Structural Clay Facing Tile.
11. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale).

B. The Masonry Society:
1. TMS MSJC - Building Code for Masonry Structures (ACI 530/ASCE 5/TMS 402), Specification for Masonry Structures (ACI 530.1/ASCE 6/TMS 602) and Commentaries.

1.3 PERFORMANCE REQUIREMENTS

A. Provide unit masonry that develops the following net-area compressive strength (f'm) at 28 days. Determine compressive strength on masonry by testing masonry prisms according to ASTM C1314.
1. For Concrete Unit Masonry: f'm = 2000 p.s.i.
2. For Brick Unit Masonry: f'm = 2000 p.s.i.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal requirements.

B. Product Data: Submit data for decorative masonry units and fabricated wire reinforcement, wall ties, anchors and other accessories.

C. Samples: Submit two samples of face brick, units to illustrate color, texture and extremes of color range.

D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

E. Test Reports: Submit test results indicating compressive strength, water absorption, saturation and suction.

F. Shop drawings: Show fabrication and installation details for following:
   1. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, “Detail and Detailing of Concrete Reinforcement.” Show elevation of each reinforced walls.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with TMS MSJC Code and TMS MSJC Specification.

B. Fire Performance Characteristics: Where fire-resistance ratings are indicated, provide materials and construction which are identical to those of assemblies who fire endurance has been determined by testing in compliance with ASTM E119 by a recognized testing and inspecting organization or by another means, as acceptable to authorities having jurisdiction.

C. Single Source Responsibility for Masonry Units: Obtain exposed masonry units of uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one manufacturer for each different product required for each continuous surface or visually related surfaces.

1.6 QUALIFICATIONS

A. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.7 MOCKUP

A. Section 01 40 00 - Quality Requirements: Mockup requirements.

B. Construct cavity masonry wall mockup, 8 feet long by 6 feet high, including masonry, mortar and accessories, structural backup, flashings, wall insulation and weeps.

C. Locate where directed at the project site.

D. Incorporate accepted mockup as part of Work.

1.8 PRE-INSTALLATION MEETINGS

A. Administrative Requirements: Pre-installation meeting.

B. Convene minimum one week prior to commencing work of this section.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

1.10 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements.

B. Cold Weather Requirements: IMIAC – Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

C. Perform the following construction procedures while masonry work is progressing. Temperature ranges indicated below apply to air temperatures existing at time of installation except for grout. For grout, temperature ranges apply to anticipated minimum night temperatures. In heating mortar and grout materials, maintain mixing temperature selected within 10 degrees F.

1. 40 degrees F to 32 degrees F:
   a. Mortar: Heat mixing water to produce mortar temperature between 40 degrees F and 120 degrees F.
   b. Grout: Follow normal masonry procedures.

2. 32 degrees F to 25 degrees F:
   a. Mortar: Heat mixing water and sand to produce mortar temperatures between 40 degrees F and 120 degrees F; maintain temperature of mortar on boards above freezing.
   b. Grout: Heat grout materials to 90 degrees F to produce in-place grout temperature of 70 degrees F at end of work day.

3. 25 degrees F to 20 degrees F:
   a. Mortar: Heat mixing water and sand to produce mortar temperatures between 40 degrees F and 120 degrees F; maintain temperature of mortar on boards above freezing.
   b. Grout: Heat grout materials to 90 degrees F to produce in-place grout temperature of 70 degrees F at end of work day.
   c. Heat both sides of walls under construction using salamanders or other heat sources.
   d. Use windbreaks or enclosures when wind is in excess of 15 mph.
4. 20 degrees F and below:
   a. Mortar: Heat mixing water and sand to produce mortar temperatures between 40 degrees F and 120 degrees F:

b. Grout: Heat grout materials to 90 degrees F to produce in-place grout temperature of 70 degrees F at end of work day.
c. Masonry Units: Heat masonry units so that they are above 20 degrees F at time of laying.
d. Provide enclosure and auxiliary heat to maintain an air temperature of at least 40 degrees F for 24 hours after laying units.
e. Do not heat water for mortar and grout to above 160 degrees F.

D. Protect completed masonry and masonry not being worked on in the following manner. Temperature ranges indicated apply to mean daily air temperatures except for grouted masonry. For grouted masonry temperature ranges apply to anticipated minimum night temperatures.

1. 40 degrees F to 32 degrees F:
   a. Protect masonry from rain or snow for at least 24 hours by covering with weather-resistive membrane.

2. 32 degrees F to 25 degrees F:
   a. Completely cover masonry with weather-resistive membrane for at least 24 hours.

3. 25 degrees F to 20 degrees F:
   a. Completely cover masonry with weather-resistive insulating blankets or similar protection for at least 24 hours, 48 hours for grouted masonry.

4. 20 degrees F and below:
   a. Except as otherwise indicated, maintain masonry temperature above 32 degrees F for 24 hours using enclosures and supplementary heat, electric heating blankets, infrared lamps or other methods proven to be satisfactory. For grouted masonry maintain heated enclosure to 40 degrees F for 48 hours.

1.11 PROJECT CONDITIONS

A. Protection of Masonry: During construction, cover tops of walls, projections and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
1. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.
2. Where one wythe of multwythe masonry walls is completed in advance of other wythe, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.

B. Do not apply uniform floor or roof loads for a least 12 hours and concentrated loads for Least 3 days after building masonry walls or columns.

1.12 COORDINATION

A. Administrative Requirements: Coordination and project conditions.

B. Coordinate masonry work with installation of window and door anchors.

1.13 EXTRA MATERIALS

A. Supply 100 of each size, color, and type of brick units or decorative masonry units.

PART 2 PRODUCTS

2.1 COMPONENTS

A. Face Brick: ASTM C216, Type FBX, Grade SW. (Basis of Design)
1. Metro Brick – Brownstone Wirecut
2. Glen Gery Brick – Brazilwood Wirecut
3. Glen Gery Brick – Pearl River Wirecut

Face Brick: ASTM C216, Type FBX, Grade SW (alternate acceptable combination providing construction schedule can be met)
1. Belden: Modular Midland Blend A
2. Belden: Modular Seal Brown Velour A
3. Belden: Modular Sea Gray Velour

Thin Brick: ASTM C216, PCI Compliant, Type FBX, Grade SW. (Basis of Design)
Size: Modular 2-1/4” x 7-5/8”
1. Metro Brick – Brownstone Wirecut
2. Glen Gery Brick – Brazilwood Wirecut
3. Glen Gery Brick – Pearl River Wirecut

Thin Brick: ASTM C216, PCI Compliant, Type FBX, Grade SW (alternate acceptable combination providing construction schedule can be met)
Size: Modular 2-1/4” x 7-5/8”
1. Belden: Modular Midland Blend A
2. Belden: Modular Seal Brown Velour A
3. Belden: Modular Sea Gray Velour

B. Special Brick Shapes:
1. Shaped to profile indicated or required to prevent a sawed surface exposed to view.
2. Vertical reveal line separating thin brick types within a penal when two types are indicated.

C. Hollow Load Bearing Concrete Masonry Units (CMU): ASTM C90, Type I - Moisture Controlled; normal weight.

D. Concrete Masonry Unit Size and Shape: Nominal modular size (width) as indicated on the Drawings. Furnish special units for 90 degree corners, bond beams, lintels, bullnosed corners. Provide bullnose units for outside corner, unless otherwise indicated.

2.2 LINTELS

A. Build-In-Place Masonry Lintels. Use specially formed bond beam units with reinforcing bars placed as indicated and filled with coarse grout. Temporarily support built-in-place lintels until cured.

B. Steel Lintels: Sizes as indicated on the drawings, hot-dip galvanized.

2.3 ACCESSORIES

A. Single Wythe Joint Reinforcement: Truss type; steel wire, hot dip galvanized to ASTM A641 Class 3 after fabrication; 3/16 inch side rods with 9 gage cross ties.

B. Multiple Wythe Joint Reinforcement: Truss type; with moisture drip; steel wire, hot dip galvanized to ASTM A641 Class 3 after fabrication, 3/16 inch side rods, 9 gage cross ties.

C. Reinforcing Steel: ASTM A615/A615M, 60 ksi yield grade, deformed billet bars, uncoated finish.

D. Strap Anchors: bent steel shape, as detailed on drawings, hot dip galvanized to ASTM A153 B2 finish.

E. Wall Ties (CMU Back-up): Formed steel wire, 9 gage thick, adjustable, eye and pintle type, hot dip galvanized to ASTM A153 B2 finish.

F. Wall Ties (Frame Back-up): Formed steel wire, 12 gage, with tab plates galvanized to ASTM A153 finish. Plates secured to substrate with corrosion resistant screws as recommended by the Manufacturer.

G. Anchor Bolts: Headed, J-shaped or L-shaped.

H. Mortar and Grout: As specified in Section 04 05 13.

I. Copper/Kraft Paper Flashings: 3 oz/sq ft rolled sheet copper bonded to fiber reinforced asphalt treated Kraft paper; “Cop-R-Tex” manufactured by Wasco or equal of AFCO, Hohmann& Barnard, Sandell or York.

J. Termination Bars: Hohmann & Barnard T2 Aluminum Termination Bar, 14 ga. Or equal.

K. Sealant for Termination Bars: Hohmann & Barnard HB Sealant or equal

L. Drip Plate/Edge: Hohman & Barnard DP-LB 26 gauge type 304 stainless steel or equal.

M. Preformed Control Joints: Rubber, Neoprene or Polyvinyl chloride material. Furnish with corner and tee accessories, heat or cement fused joints.

N. Joint Filler: Closed cell polyethylene ; oversized 50 percent to joint width; self expanding; maximum lengths.

O. Building Paper/Air Barrier/Weather Resistant Barrier: Tyvek Commercial Wrap or Stucco Wrap determined by location. Install at entire building envelope whether indicated on the drawings or not. Other manufacturers as approved by the Architect.

P. Weeps: Cotton rope or tubes.

Q. Cavity Vents: Molded polyvinyl chloride grilles; insect resistant. “Vinyl Block Vent” manufactured by Williams Products or Architect approved equal.

R. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

S. Cavity Drainage System: Mortar Net or others as approved by the Architect.

PART 3 EXECUTION

3.1 EXAMINATION

A. Administrative Requirements: coordination and project conditions.

B. Verify field conditions are acceptable and are ready to receive work.

C. Verify items provided by other sections of work are properly sized and located.

D. Verify built-in items are in proper location, and ready for roughing into masonry work.

3.2 PREPARATION

A. Direct and coordinate placement of metal anchors supplied to other sections.

B. Furnish temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent support.

3.3 INSTALLATION

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form bed and head joints of uniform thickness.

C. Coursing of Concrete Masonry Units:
1. Bond: Running. Unless Stacked is indicated.
2. Coursing: One unit and one mortar joint to equal 8 inches.
3. Mortar Joints: Concave typical; Flush where a direct applied finish occurs other than paint.

D. Coursing of Brick Units:
1. Bond: Running.
2. Coursing: Three units and three mortar joints to equal 8 inches.

3. Mortar Joints: Concave.

E. Placing And Bonding:
1. Lay solid masonry units in full bed of mortar, with full head joints.
2. Lay hollow masonry units with face shell bedding on head and bed joints.
3. Buttering corners of joints or excessive furrowing of mortar joints are not permitted.
4. Remove excess mortar as work progresses.
5. Interlock intersections and external corners.
6. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment is required, remove mortar and replace.
7. Perform job site cutting of masonry units with proper tools to assure straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
8. Cut mortar joints flush where wall tile is scheduled.
9. Isolate masonry from vertical structural framing members with movement joint.
10. Isolate top of masonry from horizontal structural framing members and slabs or decks with compressible joint filler.

F. Weeps and Vents: Furnish weeps and vents in outer wythe at 24 inches oc horizontally above through-wall flashing,above shelf angles and lintels, and at bottom of walls.

G. Cavity Wall: Do not permit mortar to drop or accumulate into cavity air space or to plug weeps. Build inner wythe ahead of outer wythe to receive cavity insulation and air/vapor barrier adhesive.

H. Joint Reinforcement And Anchorage - Single Wythe Masonry:
1. Install horizontal joint reinforcement 16 inches oc., unless otherwise indicated.
2. Install horizontal joint reinforcement 8 inches oc., at parapet walls
3. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
4. Place joint reinforcement continuous in first and second joint below top of walls.
5. Lap joint reinforcement ends minimum 6 inches.
6. Reinforce joint corners and intersections with strap anchors 16 inches oc.

I. Joint Reinforcement And Anchorage - Masonry Veneer:
1. Install horizontal joint reinforcement 16 inches oc., unless otherwise indicated.
2. Install horizontal joint reinforcement 8 inches oc., at parapet walls.
3. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
4. Place joint reinforcement continuous in first and second joint below top of walls.
5. Lap joint reinforcement ends minimum 6 inches.
6. Embed wall ties in masonry backing to bond veneer at maximum 16 inches oc vertically and 16 inches oc horizontally. Place at maximum 3 inches oc each way around perimeter of openings, within 12 inches of openings.
7. Secure anchors to stud framed backing and embed into masonry veneer at maximum 16 inches oc vertically and 16 inches oc horizontally. Place at maximum 3 inches oc each way around perimeter of openings, within 12 inches of openings.
8. Reinforce joint corners and intersections with strap anchors 16 inches oc.

J. Joint Reinforcement And Anchorages - Cavity Wall Masonry:
1. Install horizontal joint reinforcement 16 inches oc., unless otherwise indicated.
2. Install horizontal joint reinforcement 8 inches oc., at parapet walls
3. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
4. Place joint reinforcement continuous in first and second joint below top of walls.
5. Lap joint reinforcement ends minimum 6 inches.
6. Embed anchors in concrete. Attach to structural steel members. Embed anchorages in every second block and sixth brick joint.
7. Reinforce joint corners and intersections with strap anchors 16 inches oc.

K. Reinforcement And Anchorages - Multiple Wythe Unit Masonry:
1. Install horizontal joint reinforcement 16 inches oc., unless otherwise indicated.
2. Install horizontal joint reinforcement 8 inches oc., at parapet walls.
3. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
4. Place joint reinforcement continuous in first and second joint below top of walls.
5. Lap joint reinforcement ends minimum 6 inches.
6. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch (13 mm) of dimensioned position.
7. Embed anchors embedded in concrete or attached to structural steel members. Embed anchorages in every second block or sixth brick joint.
8. Reinforce joint corners and intersections with strap anchors 16 inches oc.

L. Masonry Flashings:
1. Extend flashings horizontally through outer wythe at foundation walls, above ledge or shelf angles and lintels, under parapet caps, at bottom of walls, and turn down on outside face to form drip.
2. Turn flashing up minimum 8 inches and bed into mortar joint of masonry or seal to concrete or seal to sheathing over backing.
3. Lap end joints minimum 6 inches and seal watertight.
4. Turn flashing, fold, and seal at corners, bends, and interruptions.

M. Lintels:
1. Provide masonry lintels where shown and where openings of more than 12 inches for brick-size units and 24 inches for block-size units are shown without structural steel or other supporting lintels.
2. Provide minimum bearing for 8 inches at each jamb, unless otherwise indicated.

N. Grouted Components:
1. Reinforce bond beam with 2 No. 5 bars, 2 inch from bottom web.
2. Reinforce pilaster with bars, as detailed on the drawings.
3. Lap splices bar diameters required by code.
4. Support and secure reinforcing bars from displacement. Maintain position within ½ inch dimensional location.
5. Place and consolidate grout fill without displacing reinforcing.
6. At bearing locations, fill masonry cores with grout for required bearing, both sides of opening; refer to the lintel schedule on the Drawings.

O. Reinforced Masonry:
1. Lay masonry units with core cells vertically aligned and cavities between wythes clear of mortar and unobstructed.
2. Place mortar in masonry unit bed joints back ¼ inch from edge of unit grout spaces, bevel back and upward. Permit mortar to cure 7 days before packing grout.
3. Place reinforcement bars as indicated on Drawings.
4. Retain vertical reinforcement in position at top and bottom of cells and at intervals not exceeding 192 bar diameters.
5. Splice reinforcement as indicated.
6. Support and secure reinforcement from displacement.
7. Place and consolidate grout fill without displacing reinforcing.
8. Place grout in accordance with TMS MSJC Specification.

P. Control And Expansion Joints:
1. General: Install control and expansion joints in unit masonry where indicated. Build-in related items as masonry progresses. Do not form a continuous span through movement joints unless provisions are made to prevent in-plane restraint of wall or partition movement.
2. If locations of control joints are not indicated on the Drawings provide as follows. Not less than a control joint every 25’ of wall. Other locations are at changes in wall height or thickness, at construction joints in foundations, roof or floors, at chases and recesses for piping, columns and fixtures, at one side of wall openings 6’ or less and both sides of wall openings over 6’. If the shape and design of the structure causes excessive number of control joints, review locations with Architect.
3. Do not continue horizontal joint reinforcement through control and expansion joints.
4. Install preformed control joint device in continuous lengths. Seal butt and corner joints.
5. Size control joint in accordance with Section 07900 for sealant performance.
6. Form expansion joint by omitting mortar and cutting unit to form open space.

Q. Built-In Work:
1. As work progresses, install built-in metal door and glazed frames, fabricated metal frames, window frames, anchor bolts, and other items to be built-in the work and furnished by other sections.
2. Install built-in items plumb and level.
3. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout or mortar. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.
4. Do not build in materials subject to deterioration.

R. Cutting And Fitting:
1. Cut and fit for chases, pipes, conduit, sleeves, and grounds. Coordinate with other sections of work to provide correct size, shape, and location.
2. Obtain Architect/Engineer’s approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.4 ERECTION TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Maximum Variation From Alignment of Columns and Pilasters: 1/4 inch.

C. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.

D. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.

E. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.

F. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.

G. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.

H. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

3.5 FIELD QUALITY CONTROL

A. Section 01 40 00 – Quality Requirements: Testing and Inspection Services.

B. Brick Units: Test each type in accordance with ASTM C67, 5 random units for each 50,000 units installed.

C. Concrete Masonry Units: Test each type in accordance with ASTM C140.

3.6 CLEANING

A. Section 01 70 00 - Execution Requirements: Final cleaning.

B. Remove excess mortar and mortar smears as work progresses.

C. Replace defective mortar. Match adjacent work.

D. Clean soiled surfaces with cleaning solution.

E. Use non-metallic tools in cleaning operations.

END OF SECTION

SECTION 05 12 00

STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Structural steel.
   2. Grout.

B. Related Requirements:
   1. Section 055000 "Metal Fabrications" for steel lintels not attached to structural-steel frame, miscellaneous steel fabrications, and other steel items not defined as structural steel.
   2. Section 051213 “Architecturally Exposed Structural Steel”.
   3. Section 099123 "Interior Painting" and Section 099600 "High-Performance Coatings".

1.3 DEFINITIONS

A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

B. Protected Zone: Structural members or portions of structural members indicated as "Protected Zone" on Drawings. Connections of structural and nonstructural elements to protected zones are limited.

1.4 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Show fabrication of structural-steel components.
   1. Structural calculations for connection designs prepared and sealed by a qualified engineer licensed in the State of Indiana for each connection.

2. Base plate and anchor rod plans showing the location, size and identification marks of all base plate, bolts, grades of steel and setting elevations.
3. Erection Plans (minimum 1/8"=1'-0" scale) showing type, size, weight and identification marks of all structural steel members. Include temporary members required for erection, dimensions locating all members relative to column grid lines, elevations of all members, and clear cross references with all other related drawings. Also, include the necessary information and instructions regarding field welds and field bolts including type, size and extent of field welds, types of electrodes, joint welding procedures, welding sequence and size and type of field bolts.
4. Detail Drawings showing complete details for the fabrication of all structural steel members and components including, but not limited to: identification marks, dimensions, size, type, weight and grade of steel; requirements for installation of other materials or parts of construction, such as punched or drilled holes, cleats, openings, etc.; type, size and extent of shop and field welds; type of electrodes, joint welding procedures, welding sequences, size and type of shop and field bolts; cleaning requirements prior to painting; type and dry thickness of paint. Use welding symbols used by the American Welding Society.
5. Drawings and calculations of all shop and field modifications and/or remedial work.
6. Drawing index sheets, including updated sheets, at the same time that details are submitted.
7. Contract Document plan drawings may be reproduced by the Contractor with the following provisions:
    a. Plan drawings may be reproduced only to locate piece marks. The responsibility for producing complete and accurate shop drawings remains with the Contractor.
    b. The Contractor must remove all title blocks, notes, references, revision marks, and section marks referring to the Contract Document plan drawings.
    c. Only the plans, modified as described above, may be reproduced. Contract Document detail drawings may not be reproduced, in whole or in part, for any reason.

C. Substitutions: Substitutions for the members sizes, type(s) of steel, connection details, or any other modifications proposed by the Contractor will be considered by the Architect/Engineer under the following conditions:
1. The revisions in no case result in additional cost to the Owner. In considering cost savings to the Owner, adequate compensation for the Engineer's review of these substitutions should be considered.
2. The request is made in writing and accepted prior to the submission of shop drawings.
3. It is suitably demonstrated that there is a substantial cost or time advantage to the Owner.
4. Sufficient sketches, engineering calculations by a Professional Engineer licensed in the State of Indiana, and other data submitted to facilitate the review by the Architect/Engineer.

D. Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs): Provide according to AWS D1.1/D1.1M, "Structural Welding Code - Steel," for each welded joint, including the following:
1. Power source (constant current or constant voltage).
2. Electrode manufacturer and trade name, for demand critical welds.

1.6 INFORMATION SUBMITTALS

A. Qualification Data: For installer, fabricator, shop-painting applicators, and professional engineer.

B. Welding certificates.

C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

D. Field quality-control reports.

1.7 QUALITY ASSURANCE

A. Fabricator Qualifications: Fabricator Qualifications: A qualified fabricator who participates in the AISC Certification program and is designated an AISC Certified Plant, Category BU at time of bid.

B. Installer Qualifications: A qualified installer who participates in the AISC Certification program and is designated an AISC Certified Erector, Category CSE at time of bid.

C. Shop-Painting Applicators: Qualified in accordance with AISC's Sophisticated Paint Endorsement P1 or to SSPC-QP 3.

D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
   1. Welders and welding operators performing work on bottom-flange, demand-critical welds shall pass the supplemental welder qualification testing, as required by AWS D1.8/D1.8M. FCAW-S and FCAW-G shall be considered separate processes for welding personnel qualification.

E. Comply with applicable provisions of the following specifications and documents:
   1. AISC 303.
   2. AISC 341 and AISC 341s1.
   3. AISC 360.
   4. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

1.8 DELIVERY, STORAGE, AND HANDLING

A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.
   1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.
   1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
   2. Clean and relubricate bolts and nuts that become dry or rusty before use.

3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F 1852 fasteners and for retesting fasteners after lubrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Connections: Provide details of connections required by the Contract Documents to be selected or completed by structural-steel fabricator to withstand loads indicated and comply with other information and restrictions indicated.
   1. Use Allowable Stress Design; data are given at service-load level.

2.2 STRUCTURAL-STEEL MATERIALS

A. Angles and Channels: ASTM A 36/A 36M.

B. Plate and Bar: ASTM A 36/A 36M.

C. Cold-Formed Hollow Structural Sections: ASTM A 500/A 500M, Grade C (minimum) structural tubing.

D. Welding Electrodes: Comply with AWS requirements.

E. W-Shapes: ASTM A 992/A 992M.

2.3 BOLTS, CONNECTORS, AND ANCHORS

A. High-Strength Bolts, Nuts, and Washers: ASTM A 325M (ASTM A 325), Type 1, heavy-hex steel structural bolts; ASTM A 563M, Class 8S (ASTM A 563, Grade C,) heavy-hex carbon-steel nuts; and ASTM F 436M (ASTM F 436), Type 1, hardened carbon-steel washers; all with plain finish.

B. Threaded Rods: ASTM A 36/A 36M.
   1. Nuts: ASTM A 563M (ASTM A 563) hex carbon steel.
   2. Washers: [ASTM A 36/A 36M] carbon steel.
   3. Finish: Plain.

2.4 PRIMER

A. Comply with Section 099123 “Interior Painting” and Section 099600 “High-Performance Coatings.”

B. Standard primer, steel not exposed to view:
   1. SSPC-Paint 23, latex primer.

C. Standard primer, exposed steel:
   1. Fabricator's standard lead and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.

2.5 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107/C 1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.6 DESIGN

A. Connections:
   1. Design and detail all connections to resist the loads and reactions indicated on the Drawings or specified herein. Use details consistent with the details shown on the Drawings, supplementing where necessary. The details shown on the Drawings are conceptual, show only the minimum requirements to convey design intent, and do not indicate the required weld sizes or numbers of bolts unless specifically noted. Use rational engineering design and standard detailing practice in detailing, accounting for all loads and eccentricities in both the connection and the members. Promptly notify the Architect/Engineer of any location where the connection design criteria is not clearly indicated. The design of all connections is subject to the review and acceptance of the Architect/Engineer.
   2. A combination of bolts and welds to transmit loads in the same faying surface is not permitted.
   3. Data are given at the service level.
   4. Use beam-to-column connections which minimize the eccentric loading on the column. Detail and fabricate unrestrained simple beam end connections to minimize end restraint of the beam. Design all parts of such connections (such as welds, bolts, and material) taking eccentricity into account.
   5. The contractor shall design and provide any stiffeners plates, doubler plates, reinforcing plates, etc. and their connections that may be required to develop and/or transfer the forces and/or connection design criteria called for in the contract documents.
   6. Design connections to withstand the combined effects of shear, axial forces, moments and torques and as required by applicable code(s) and the contract documents.
   7. All forces shown on the drawings are to be assumed reversible unless noted otherwise and must be checked for both directions. If no transfer/pass-through forces are shown on the contract documents, the most critical combinations of members forces and directions shall be assumed for the connection design.

2.7 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," and to AISC 360.
   1. Camber structural-steel members where indicated.
   2. Fabricate beams with rolling camber up.
   3. Identify high-strength structural steel according to ASTM A 6/A 6M and maintain markings until structural steel has been erected.
   4. Mark and match-mark materials for field assembly.
   5. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.

B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
   1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.

C. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.

D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.

E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 3, "Power Tool Cleaning."

F. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.

G. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel members.
   1. Cut, drill, or punch holes perpendicular to steel surfaces.
   2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
   3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

2.8 SHOP CONNECTIONS

A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
   1. Joint Type: Snug tightened, except where indicated Slip Critical on drawings.

B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
   1. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303 for mill material.

2.9 SHOP PRIMING

A. Shop prime steel surfaces except the following:
   1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches (50 mm).
   2. Surfaces to be field welded.
   3. Surfaces of high-strength bolted, slip-critical connections.
   4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).
   5. Galvanized surfaces.
   6. Surfaces enclosed in interior construction.

B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:
   1. Steel unexposed to view:
      a. SSPC-SP 3, "Power Tool Cleaning."
   2. Exposed steel to receive standard shop primer:
      a. SSPC-SP 6 (WAB)/NACE WAB-3, “Commercial Blast Cleaning.”

C. Priming:
   1. Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a dry film thickness as follows:

a. Polysiloxane Coating primer: 2 coats, not less than 4.0 mils (0.102 mm) each coat.
b. Standard primer: Not less than 1.5 mils (0.038 mm).

2. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
   a. Stripe painting adds cost but helps ensure that hard-to-reach areas, such as crevices, inside corners, and welds, are thoroughly coated and that sharp edges receive adequate coverage.
   b. Stripe paint corners, crevices, bolts, welds, and sharp edges.
   c. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

2.10 GALVANIZING

A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123/A 123M.
   1. Fill vent and drain holes that are exposed in the finished Work unless they function as weep holes, by plugging with zinc solder and filing off smooth.
   2. Galvanize lintels located in exterior walls.
   3. Steel to be galvanized will also be noted on the contract drawings.

2.11 SOURCE QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform shop tests and inspections.
   1. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.

B. Bolted Connections: Inspect shop-bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

C. Welded Connections: Visually inspect shop-welded connections according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
   1. Liquid Penetrant Inspection: ASTM E 165.
   2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
   3. Ultrasonic Inspection: ASTM E 164.
   4. Radiographic Inspection: ASTM E 94.

D. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.
   1. Prepare a certified survey of existing conditions. Include bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.
   1. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

3.3 ERECTION

A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.

B. Maintain erection tolerances of structural steel within AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

C. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that are in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
   1. Level and plumb individual members of structure.
   2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.

D. Splice members only where indicated.

E. Do not use thermal cutting during erection.

F. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

3.4 FIELD CONNECTIONS

A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
   1. Joint Type: Snug tightened typical unless noted otherwise.

B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
   1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
   2. Remove backing bars or runoff tabs, back gouge, and grind steel smooth.
   3. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," for mill material.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Contractor will engage a qualified testing agency to perform tests and inspections.

B. Bolted Connections: Inspect bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

C. Welded Connections: Visually inspect field welds according to AWS D1.1/D1.1M.
   1. In addition to visual inspection, test and inspect field welds according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
      a. Liquid Penetrant Inspection: ASTM E 165.
      b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
      c. Ultrasonic Inspection: ASTM E 164.
      d. Radiographic Inspection: ASTM E 94.

3.6 REPAIRS AND PROTECTION

A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A 780/A 780M.

B. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged or missing and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
   1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.

END OF SECTION 05 12 00

SECTION 05 31 00

STEEL DECKING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Roof deck.
   2. Composite floor deck.

B. Related Requirements:
   1. Section 055000 "Metal Fabrications" for framing deck openings with miscellaneous steel shapes.
   2. Section 051200 "Structural Steel Framing" for shop- and field-welded shear connectors.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of deck, accessory, and product indicated.

B. Shop Drawings:
   1. Include layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.

1.4 INFORMATIONAL SUBMITTALS

A. Welding certificates.

B. Product Certificates: For each type of steel deck.

C. Evaluation Reports: For steel deck.

D. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code - Sheet Steel."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.

B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

B. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
   1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

C. Low-Emitting Materials: Paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.2 ROOF DECK

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. New Millennium Building Systems, LLC.
   2. Nucor Corp.; Vulcraft Group.
   3. EPIC Metals Corporation

B. Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with "SDI Specifications and Commentary for Steel Roof Deck," in SDI Publication No. 31, and with the following:
   1. Prime-Painted Steel Sheet: ASTM A 1008/A 1008M, Structural Steel (SS), Grade 230 (33) minimum, shop primed with manufacturer's standard baked-on, rust-inhibitive primer.
      a. Color: Manufacturer’s standard color
   2. Where noted to be galvanized, provide Galvanized-Steel Sheet: ASTM A653/A653M, Structural Steel (SS), Grade 40 (280), G90, zinc coating.
   3. Deck Profiles: as indicated in the drawings.
   4. Profile Depths: 38 mm (1-1/2 inches), 51mm (2 inches).
   5. Design Uncoated-Steel Thickness: As indicated.
   6. Span Condition: Triple span or more.
   7. Side Laps: Overlapped.
   8. Acoustical Roof Deck to meet a NRC of 0.95.

2.3 COMPOSITE FLOOR DECK

A. Composite Floor Deck: Fabricate panels, with integrally embossed or raised pattern ribs and interlocking side laps, to comply with "SDI Specifications and Commentary for Composite

Steel Floor Deck," in SDI Publication No. 31, with the minimum section properties indicated, and with the following:

1. Galvanized-Steel Sheet: ASTM A653/A653M, Structural Steel (SS), Grade 40 (280), G60 (Z180**)**, zinc coating.
2. Profile depth: As indicated on the drawings
3. Design uncoated-steel thickness: As indicated on the drawings.
4. Span condition: Triple span or more.

2.4 ACCESSORIES

A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.

C. Pour Stops and Girder Fillers: Steel sheet, minimum yield strength of 33,000 psi (230 MPa), of same material and finish as deck, and of thickness and profile recommended by SDI Publication No. 31 for overhang and slab depth.

D. Column Closures, End Closures, Z-Closures, and Cover Plates: Steel sheet, of same material, finish, and thickness as deck unless otherwise indicated.

E. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, 4.8-mm (No. 10) minimum diameter.

F. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.

G. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 230 MPa (33,000 psi), not less than 0.91-mm (0.0359-inch) design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.

H. Recessed Sump Pans: Single-piece steel sheet, 1.90 mm (0.0747 inch) thick, of same material and finish as deck, with 76-mm- (3-inch-) wide flanges and recessed pans of 38-mm (1-1/2-inch) minimum depth. For drains, cut holes in the field.

I. Galvanizing Repair Paint: SSPC-Paint 20 or MIL-P-21035B, with dry film containing a minimum of 94 percent zinc dust by weight.

J. Repair Paint: Manufacturer's standard rust-inhibitive primer of same color as primer.

K. Acoustical Insulation: Inert, non-organic mineral fiber or glass fiber, sound absorbing batts compatible with the indicated fire rating requirements and having a minimum 0.60 noise reduction coefficient.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 31, manufacturer's written instructions, and requirements in this Section.

B. Install temporary shoring before placing deck panels if required to meet deflection limitations.

C. Locate deck bundles to prevent overloading of supporting members.

D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.

E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.

F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.

G. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.

H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

I. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

3.3 ROOF-DECK INSTALLATION

A. Fasten roof-deck panels to steel supporting members with mechanical fasteners:
   1. Powder Actuated Fasteners by “Hilti USA”:
      a. X-HSN 24 for open-web steel joists & structural steel 1/8" $\leq$ 't' $\leq$ 3/8".
      b. X-ENP-19 L15 for heavy open-web steel joists & structural steel 't' $\geq$ 1/4"
   2. Acceptable alternate: Air/safe fastening system by “Pneutek, Inc.”.
   3. Submit proposed fasteners & technical date for review prior to installation

B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports at intervals indicated and as follows:
   1. Mechanically fasten with one of the following:
      a. Self-drilling, 4.8-mm- (No. 10) diameter or larger, carbon-steel screws.
      b. S-SLC 01 HWH Sidelap Fasteners by “Hilti USA”.

C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 38 mm (1-1/2 inches), with end joints as follows:
   1. End Joints: Lapped 51 mm (2 inches) minimum.

D. Roof Sump Pans and Sump Plates: Install over openings provided in roof deck and weld flanges to top of deck. Space welds not more than 305 mm (12 inches) apart with at least one weld at each corner.

1. Install reinforcing channels or zees in ribs to span between supports and weld.

E. Miscellaneous Roof-Deck Accessories:
1. Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld to substrate to provide a complete deck installation.
2. Weld cover plates at changes in direction of roof-deck panels unless otherwise indicated.
3. Acoustical insulation in the perforated ribs shall be turned over to and installed by the Roofing Contractor.

F. Flexible Closure Strips: Install flexible closure strips over partitions, walls, and where indicated. Install with adhesive according to manufacturer's written instructions to ensure complete closure.

3.4 FLOOR DECK INSTALLATION

A. Fasten floor-deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated and as follows:
1. Weld Diameter: **3/4 inch (19 mm)**, nominal.
2. Weld Spacing: Weld edge ribs of panels at each support. Space additional welds an average of 12 inches (305 mm) apart, but not more than 18 inches (457 mm) apart.
3. Weld Spacing: Space and locate welds as indicated.

B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of one-half of the span or 36 inches (914 mm), and as follows:
1. Fasten with a minimum of 1-1/2-inch- (38-mm-) long welds.

C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches (38 mm), with end joints as follows:
1. End Joints: Lapped or butted at Contractor's option.

D. Pour Stops and Girder Fillers: Weld steel sheet pour stops and girder fillers to supporting structure according to SDI recommendations unless otherwise indicated.

E. Floor-Deck Closures: Weld steel sheet column closures, cell closures, and Z-closures to deck, according to SDI recommendations, to provide tight-fitting closures at open ends of ribs and sides of deck

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Contractor will engage a qualified testing agency to perform tests and inspections.

B. Field welds will be subject to inspection.

C. Testing agency will report inspection results promptly and in writing to Contractor and Architect.

D. Remove and replace work that does not comply with specified requirements.

E. Additional inspecting, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.

3.6 PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A780/A780M and manufacturer's written instructions.

B. Repair Painting:
   1. Wire brush and clean rust spots, welds, and abraded areas on both surfaces of prime-painted deck immediately after installation, and apply repair paint of same color as adjacent shop-primed deck.

END OF SECTION 05 31 00

SECTION 05 40 00

COLD-FORMED METAL FRAMING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes load bearing formed steel stud exterior wall and interior wall framing; and formed steel joist, purlin, slotted channel framing and bridging; steel formed.

1.2 REFERENCES

A. American Iron and Steel Institute:
   1. AISI SG-973 - Cold-Formed Steel Design Manual.

B. ASTM International:
   1. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
   2. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   3. ASTM C955 - Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases.

C. American Welding Society:
   1. AWS D1.1 - Structural Welding Code - Steel.
   2. AWS D1.3 - Structural Welding Code - Sheet Steel.

D. National Association of Architectural Metal Manufacturers:
   1. NAAMM ML/SFA 540 - Lightweight Steel Framing Systems Manual.

E. SSPC: The Society for Protective Coatings:
   1. SSPC Paint 15 - Steel Joist Shop Paint.
   2. SSPC Paint 20 - Zinc-Rich Primers (Type I - Inorganic and Type II - Organic).

F. Steel Stud Manufacturers Association:
   1. SSMA - Product Technical Information.

1.3 SYSTEM DESCRIPTION

A. Maximum Allowable Deflection: 1: 600 of span for exterior walls and l:360 of span for interior partitions.

B. Wall System:
   1. Design to AISI SG-9736 Cold-Formed Steel Design Manual.
   2. Design to provide for movement of components without damage, failure of joint seals, undue stress on fasteners, or other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.
   3. Design system to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings. Bridging, web stiffeners and blocking shall be included in design.

1.4 SUBMITTALS

A. Division 01 - Submittal Procedures: Submittal requirements.

B. Shop Drawings:
   1. Indicate component details, framed openings, bearing, anchorage, loading, welds, type and location of fasteners, and accessories or items required of related Work.
   2. Indicate stud, floor joist, ceiling joist, roof joist, roof rafter, and roof truss layout.
   3. Describe method for securing studs to tracks and for bolted or welded framing connections.
   4. Submit calculations for loadings and stresses of specially fabricated framing under Professional engineer's seal from the State of Indiana.

C. Product Data: Submit data on standard framing members; describe materials and finish, product criteria and limitations.

D. Manufacturer's Installation Instructions: Submit special procedures and perimeter conditions requiring special attention.

E. Mill Certifications: Submit mill certifications for steel delivered to site. Certify steel bare metal thickness in 0.001 inch (0.025 mm), yield strength, tensile strength, total elongation in 2 inch (50 mm) or 8 inch (200 mm) gauge length, chemical analysis, and galvanized coating thickness.

1.5 QUALITY ASSURANCE

A. Calculate structural properties of framing members in accordance with AISI SG-973 Specification for Design of Cold-Formed Steel Structural Members.

B. Furnish framing materials in accordance with SSMA - Product Technical Information.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum five years documented experience.
   1. Current member of Steel Stud Manufacturers Association.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience and approved by manufacturer.

C. Design structural elements under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of the project.

D. Form, fabricate, provide, and connect components in accordance with NAAMM ML/SFA 540 - Lightweight Steel Framing Systems Manual.

1.7 COORDINATION

A. Division 01 - Administrative Requirements: Coordination and project conditions.

B. Coordinate placement of components within stud framing system specified in Division Nine.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, registered in the State of Indiana, as defined in Section 014000 "Quality Requirements," to design cold-formed steel framing.

B. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.
   1. Design Loads: As indicated on the structural drawings or ASCE 7-10, whichever is worse.
   2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
      a. Exterior Wall Framing (masonry back-up): Horizontal deflection of 1/600 of the wall height.
      b. Exterior Wall Framing (non-masonry back-up): Horizontal deflection of 1/360 of the wall height.
   3. Design framing systems to account for movement of framing members located outside the insulated building envelope without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F.
   4. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
      a. Downward movement of 1-1/4 inches and upward movement of 3/4 inch.
   5. Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.

C. Cold-Formed Steel Framing Design Standards:
   1. Wall Studs: AISI S211.
   2. Headers: AISI S212.
   3. Lateral Design: AISI S213.

D. AISI Specifications and Standards: Unless more stringent requirements are indicated, comply with AISI S100 and AISI S200.

E. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
   1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.2 COLD-FORMED METAL FRAMING

A. Manufacturers:
   1. Clark Steel Framing Systems.
   2. Consolidated Systems, Inc.
   3. Dietrich Industries, Inc.
   4. Marino\Ware.
   5. Unimast Incorporated.
   6. MBA Building Supplies

2.3 FRAMING MATERIALS

A. Studs: ASTM A653, Class SS-Structural Steel, grade 40, sheet steel, formed to channel shape, punched web, knurled faces; 16 gauge, 1-5/8 inch face with ½" return, 6 inch depth unless otherwise shown.

B. Joists: Refer to plans and sections.

C. Track: Formed steel; channel shaped; same width as studs, tight fit; 16 gauge thick, solid web, 2" legs.

D. Framing Materials: Roll from new sheet steel; cold reduction steels not being acceptable.

2.4 ACCESSORIES

A. Bracing, Furring, Bridging: Formed sheet steel, thickness determined by performance requirements specified.

B. Plates, Gussets, Clips: Formed sheet steel, thickness determined by performance requirements specified.

C. Touch-Up Primer for Galvanized Surfaces: SSPC Paint 20 Type I Inorganic, zinc rich.

2.5 FASTENERS

A. Self-drilling, Self-tapping Screws, Bolts, Nuts, and Washers: Steel, hot dip galvanized to ASTM A123 1.25 oz/sq ft.

B. Anchorage Devices: Power actuated, drilled expansion bolts, screws with sleeves, and pre-set anchor bolts.

C. Welding: In conformance with AWS D1.1 and AWS D1.3.

2.6 FABRICATION

A. Fabricate assemblies of formed sections of sizes and profiles required.

B. Fit, reinforce, and brace framing members to suit design requirements.

C. Fit and assemble in largest practical sections for delivery to site, ready for installation.

2.7 FINISHES

A. Studs: Galvanize to G60 coating class.
   1. Where studs are used in the natatorium environment, G90 coating class shall be used.

B. Tracks and Headers: Galvanize to G60 coating class.
   1. Where tracks and headers are used in the natatorium environment, G90 coating class shall be used.

C. Bracing, Furring, and Bridging: Same finish as framing members.

D. Plates, Gussets, and Clips: Same finish as framing members.

PART 3 EXECUTION

3.1 EXAMINATION

A. Division 01 - Administrative Requirements: Coordination and project conditions.

B. Verify substrate surfaces and building framing components are ready to receive Work.

C. Verify rough-in utilities are in proper location.

3.2 ERECTION OF STUDS

A. Align floor and ceiling tracks; locate to wall layout. Secure in place with fasteners at maximum 24 inches oc. Coordinate installation of acoustic sealant with floor and ceiling tracks.

B. Place studs at 16 inches oc; unless otherwise indicated, not more than 2 inches from abutting walls and at each side of openings. Connect studs to tracks using fastener method.

C. Construct corners using minimum three studs. Double stud wall openings, door jambs, and window jambs.

D. Coordinate placement of insulation in multiple stud spaces after erection.

E. Install intermediate studs above and below openings to align with wall stud spacing.

F. Install studs with deflection allowance in stud track, directly below horizontal building framing at non-load bearing framing.

G. Attach cross studs to studs for attachment of fixtures anchored to walls.

H. Install framing between studs for attachment of mechanical and electrical items, and to prevent stud rotation.

I. Touch-up field welds and damaged galvanized surfaces with primer.

3.3 ERECTION TOLERANCES

A. Division 01 - Quality Requirements: Tolerances.

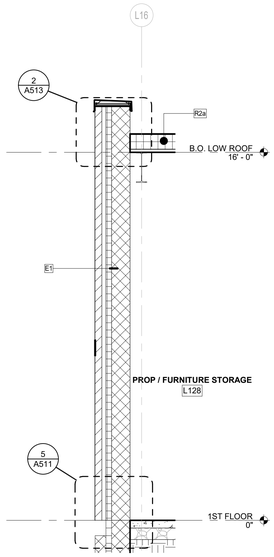
B. Maximum Variation from Indicated Position: 1/4 inch.

C. Maximum Variation of Members from Plane: ¼ inch.

END OF SECTION

GENERAL NOTES - ARCHITECTURAL DETAILS

1. REFERENCE SHEETS A002 AND A003 FOR WALL TYPES INDICATED BY WALL TYPE TAGS.
2. REFERENCE A110 SERIES FOR DIMENSION PLANS.
3. REFERENCE SHEET A003 FOR ROOF TYPES.
4. REFERENCE SHEETS A611 AND A612 FOR FRAMING AND GLAZING TYPES.
5. REFERENCE A400 SERIES FOR VERTICAL CIRCULATION DETAILS.
6. REFERENCE SHEET A521 FOR MFR. STANDARD DETAILS FOR EXPANSION JOINT ASSEMBLIES.
7. PROVIDE G-60 16 GA CONTINUOUS METAL PLATE BEHIND TRANSITION STRIPS, TERMINATION BARS AND BASE FLASHING WHEN ANCHORING THROUGH GYPSUM SHEATHING
8. AIR AND VAPOR BARRIERS INSTALLED ON MASONRY WALLS WHERE INDICATED ON DRAWINGS SHALL BE FLUID APPLIED.



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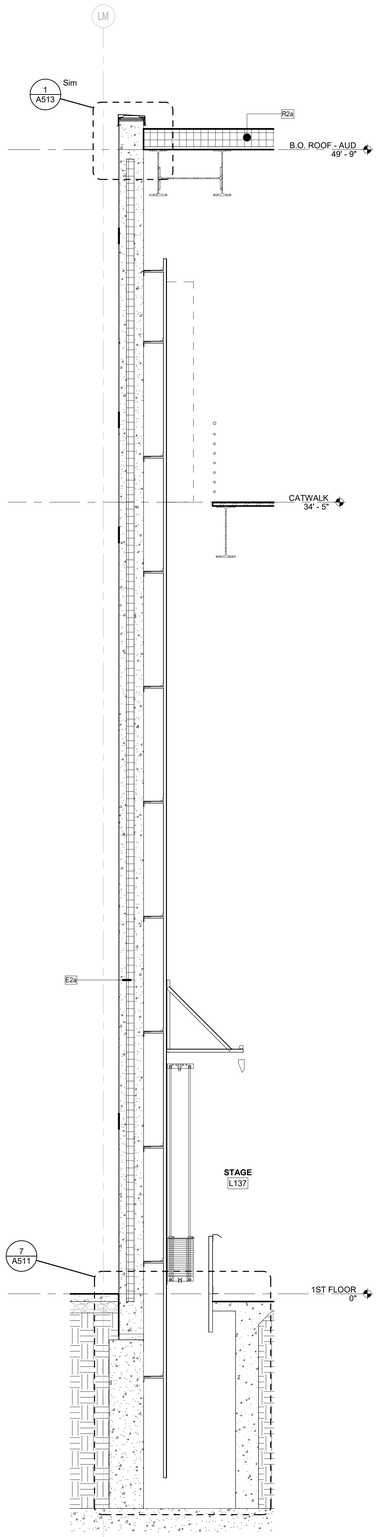

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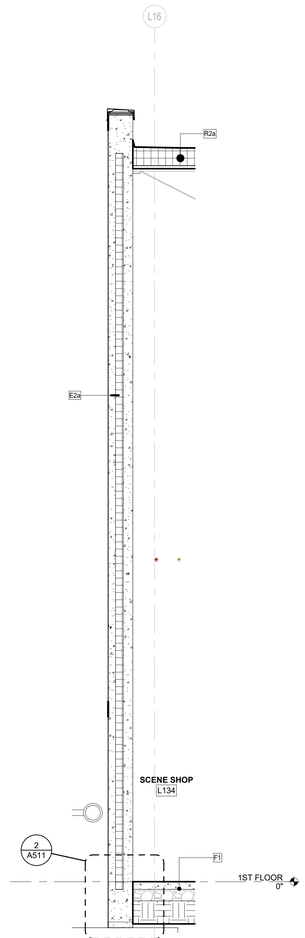

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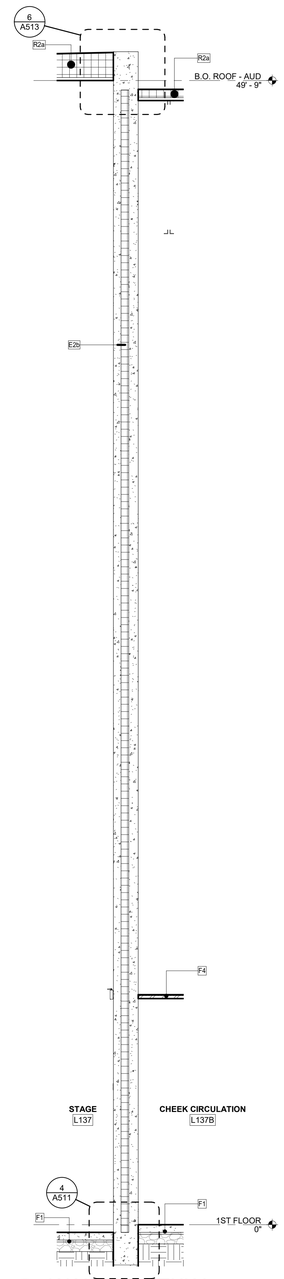

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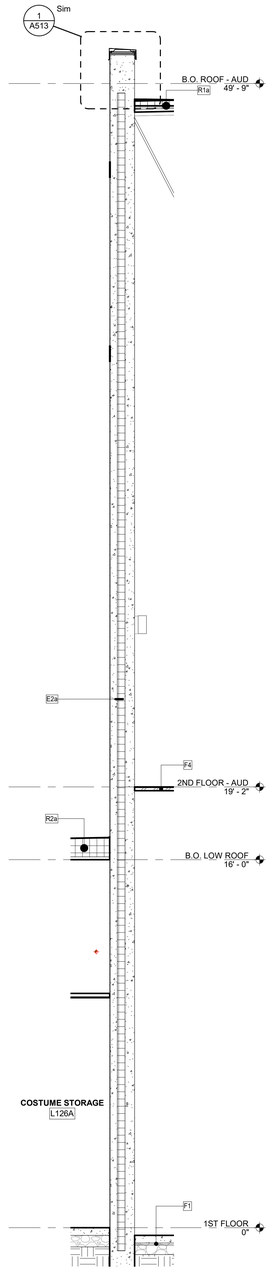

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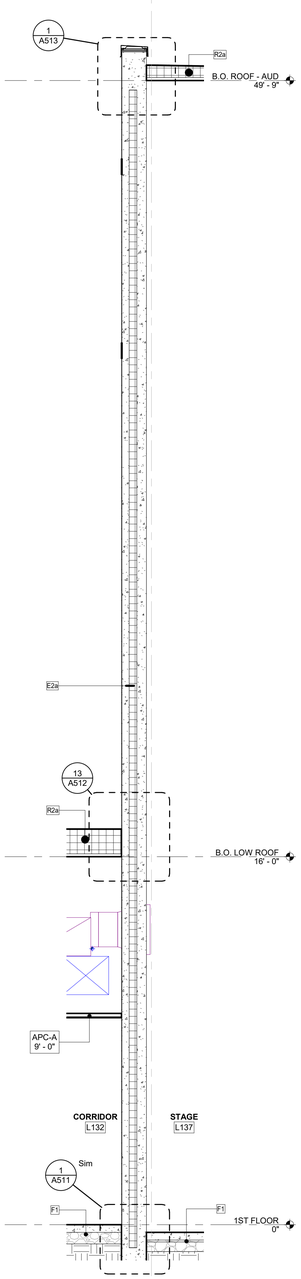

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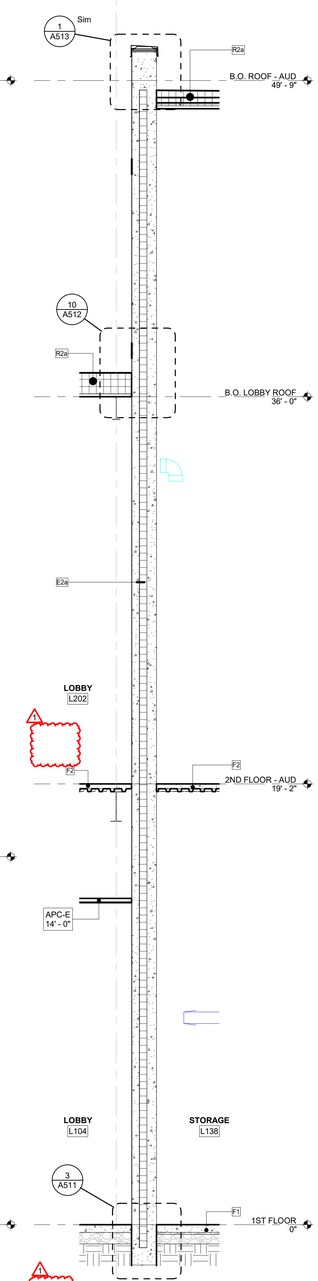

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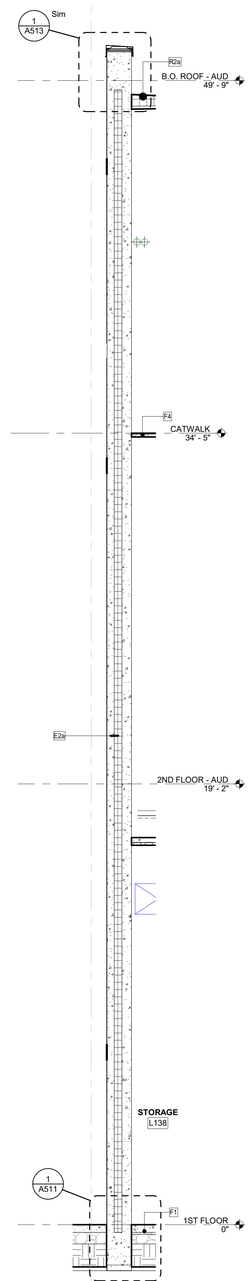

1 WALL SECTION
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LANCER+BEEBE, LLC
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GREENFIELD CENTRAL HIGH SCHOOL
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MARK RANDALL BEEBE
REGISTERED
0700164
STATE OF INDIANA
ARCHITECT

REVISIONS:

#	Date	Desc.
1	04.29.22	BID PKG. #1 ADD. #2

100% CONSTRUCTION DOCUMENTS

PROJECT: #21107
DATE: 04.11.2022
DRAWN BY: KH/BM

WALL SECTIONS

A311

PLOT DATE/TIME 4/29/2022 3:15:57 PM

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6. REFERENCE SHEET A521 FOR MFR. STANDARD DETAILS FOR EXPANSION JOINT ASSEMBLIES.
7. PROVIDE G-60 16 GA CONTINUOUS METAL PLATE BEHIND TRANSITION STRIPS, TERMINATION BARS AND BASE FLASHING WHEN ANCHORING THROUGH GYPSUM SHEATHING.
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8 WALL SECTION
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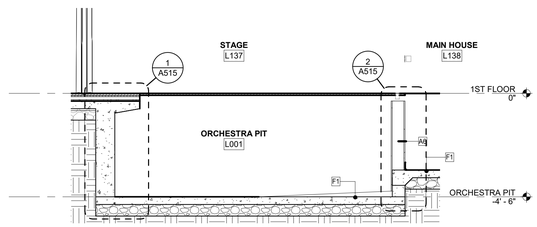

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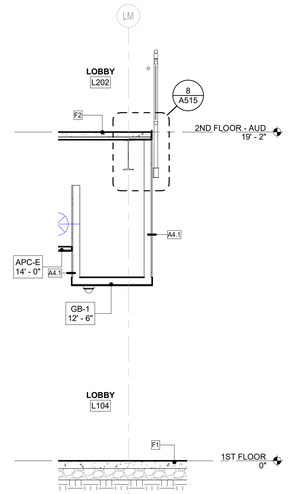

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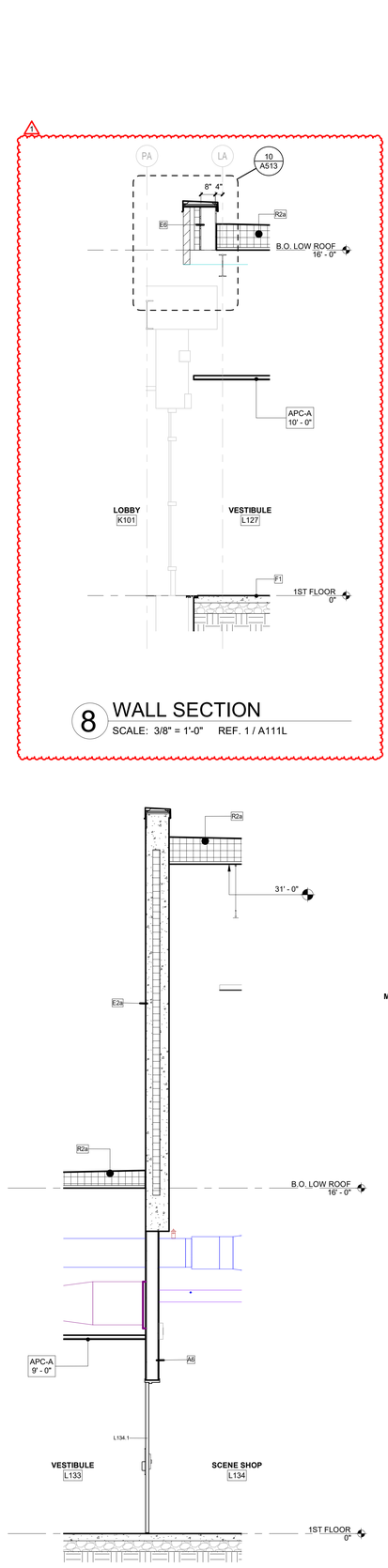

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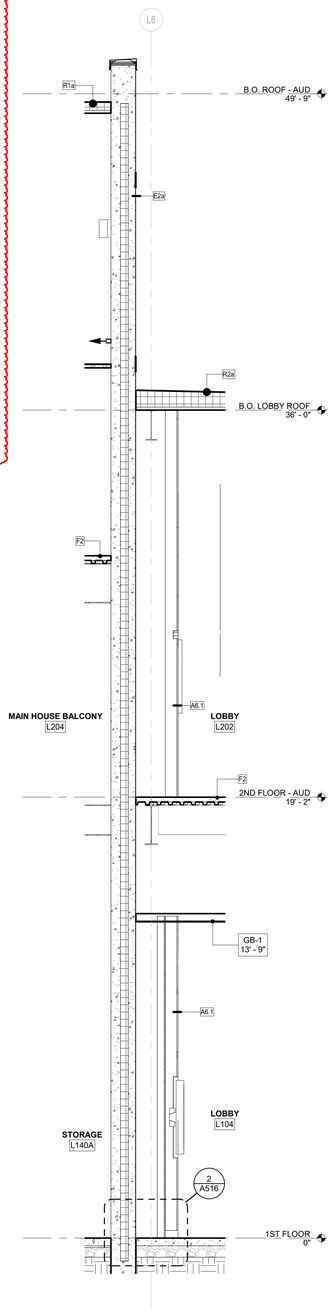

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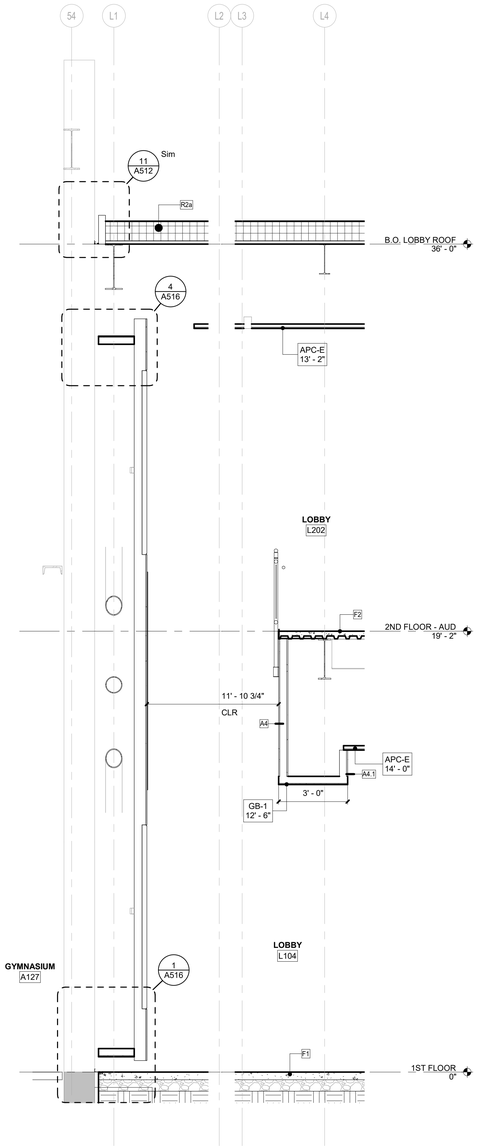

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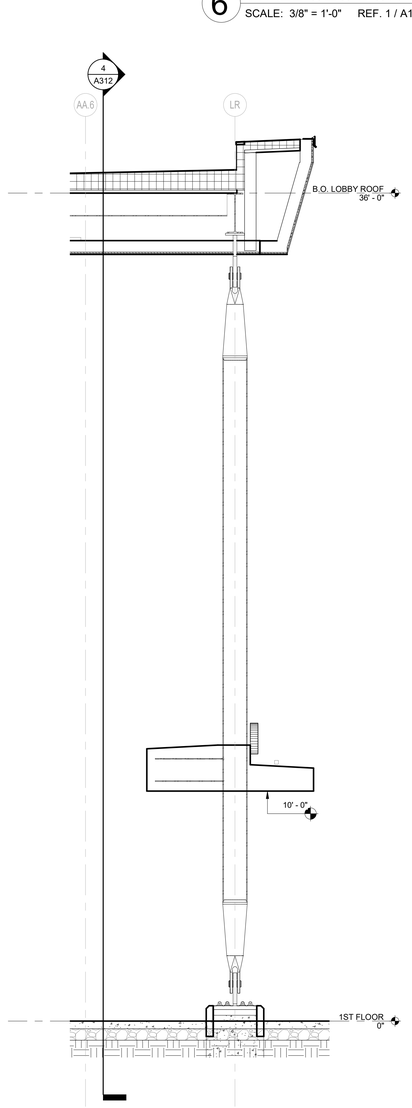

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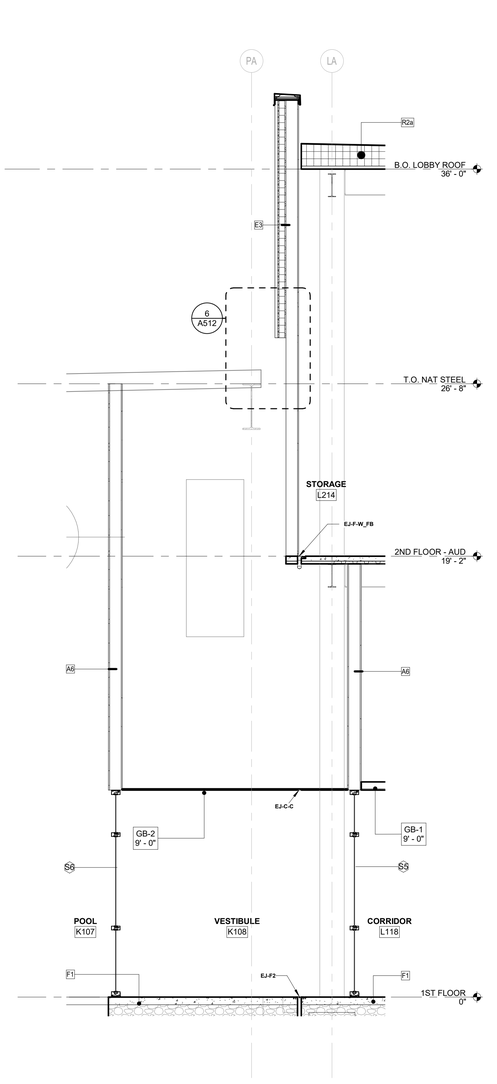

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WALL SECTIONS

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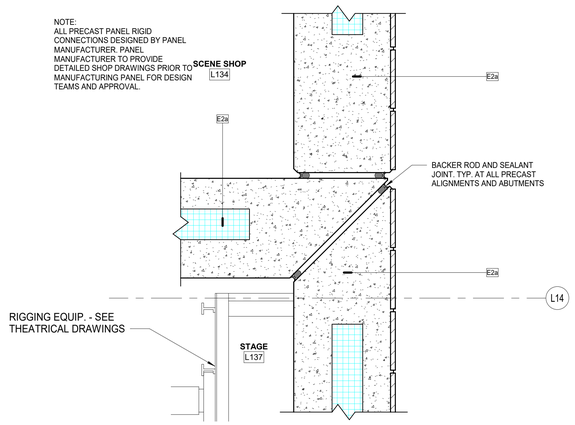

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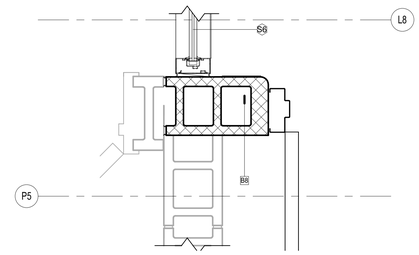

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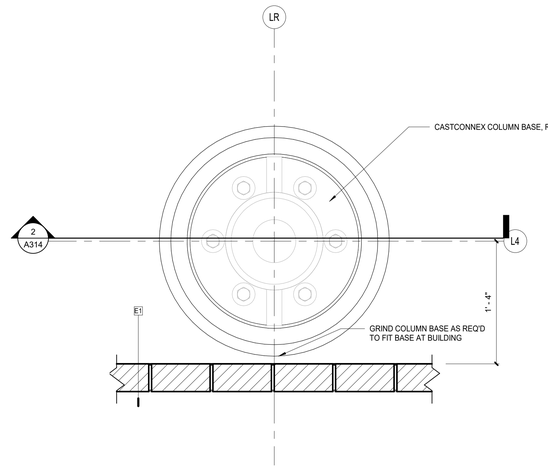

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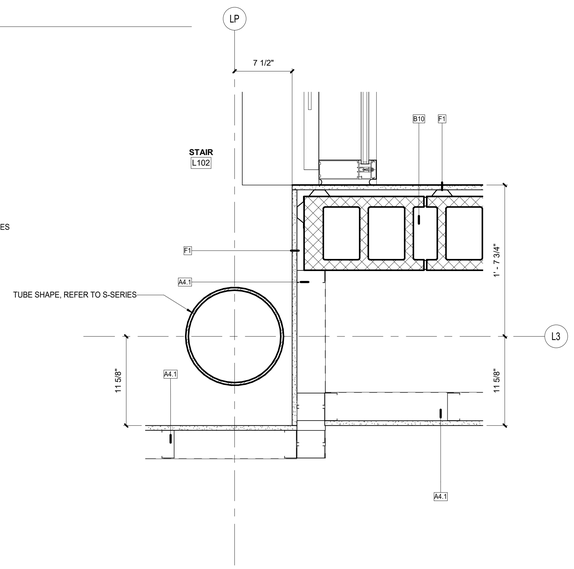

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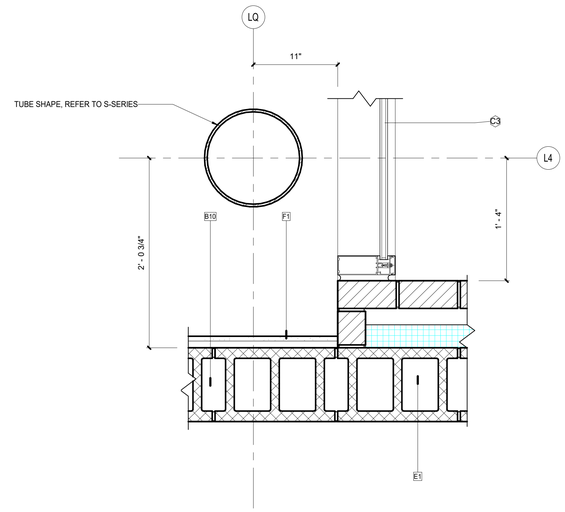

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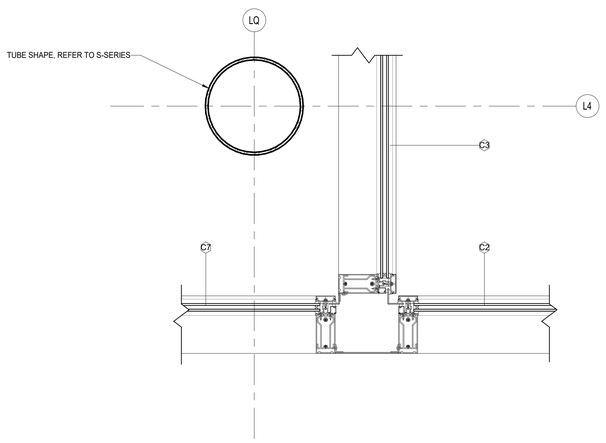

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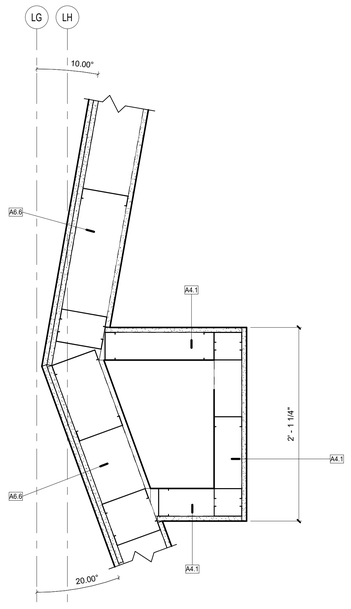
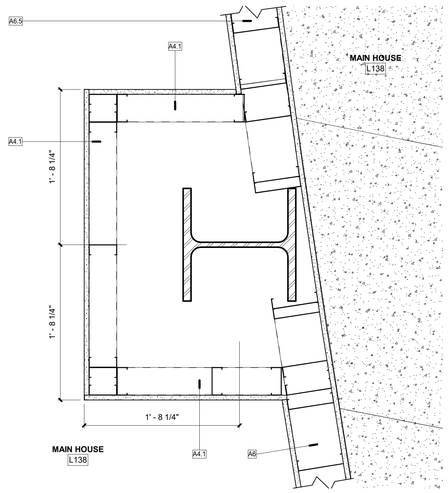


2 PLAN DETAIL
SCALE: 1 1/2" = 1'-0" REF. 1 / A111L



1 PLAN DETAIL
SCALE: 1 1/2" = 1'-0" REF. 1 / A111L

LANCER+BEEBE, LLC
ARCHITECTURE | PLANNING | INTERIORS
220 N. COLLEGE AVE
INDIANAPOLIS, IN 46202

GREENFIELD CENTRAL HIGH SCHOOL
AUDITORIUM RENOVATION & ADDITION
810 N BROADWAY ST.
GREENFIELD, IN 46140

MARK RANDALL BEEBE
REGISTERED
0700164
STATE OF INDIANA
ARCHITECT

REVISIONS:

#	Date	Desc.
1	04.29.22	BID PKG. #1 ADD. #2

100% CONSTRUCTION DOCUMENTS

PROJECT: #21107
DATE: 04.11.2022
DRAWN BY: KH/BM

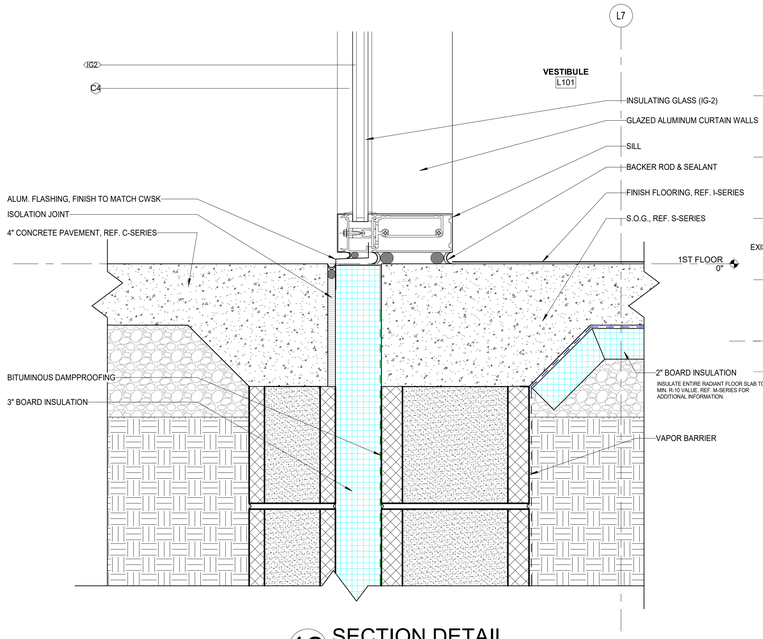
PLAN DETAILS

A502

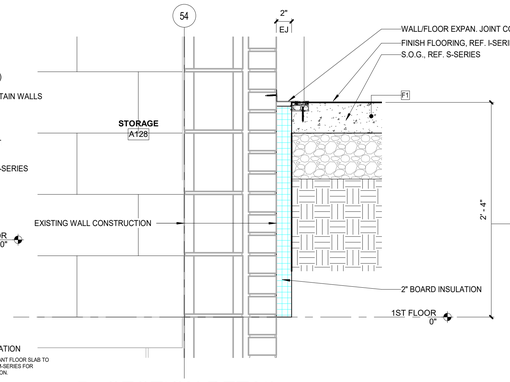
PLOT DATE/TIME: 4/29/2022 3:16:06 PM

GENERAL NOTES - ARCHITECTURAL DETAILS

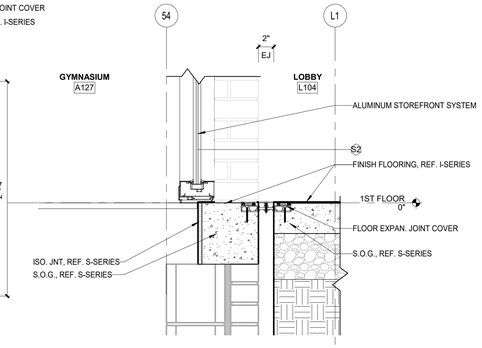
1. REFERENCE SHEETS A002 AND A003 FOR WALL TYPES INDICATED BY WALL TYPE TAGS.
2. REFERENCE A110 SERIES FOR DIMENSION PLANS.
3. REFERENCE SHEET A003 FOR ROOF TYPES.
4. REFERENCE SHEETS A611 AND A612 FOR FRAMING AND GLAZING TYPES.
5. REFERENCE A400 SERIES FOR VERTICAL CIRCULATION DETAILS.
6. REFERENCE SHEET A521 FOR MFR. STANDARD DETAILS FOR EXPANSION JOINT ASSEMBLIES.
7. PROVIDE G-60 16 GA CONTINUOUS METAL PLATE BEHIND TRANSITION STRIPS, TERMINATION BARS AND BASE FLASHING WHEN ANCHORING THROUGH GYPSUM SHEATHING.
8. AIR AND VAPOR BARRIERS INSTALLED ON MASONRY WALLS WHERE INDICATED ON DRAWINGS SHALL BE FLUID APPLIED.



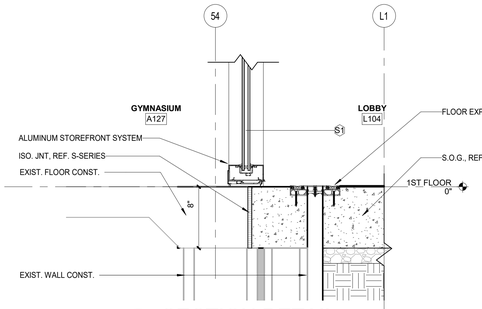
12 SECTION DETAIL
SCALE: 3" = 1'-0" REF. 1 / A312



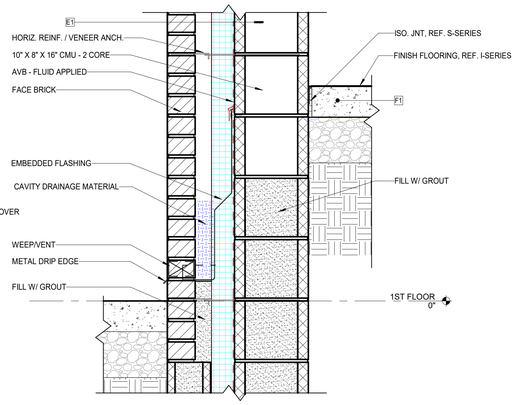
10 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 3 / A313



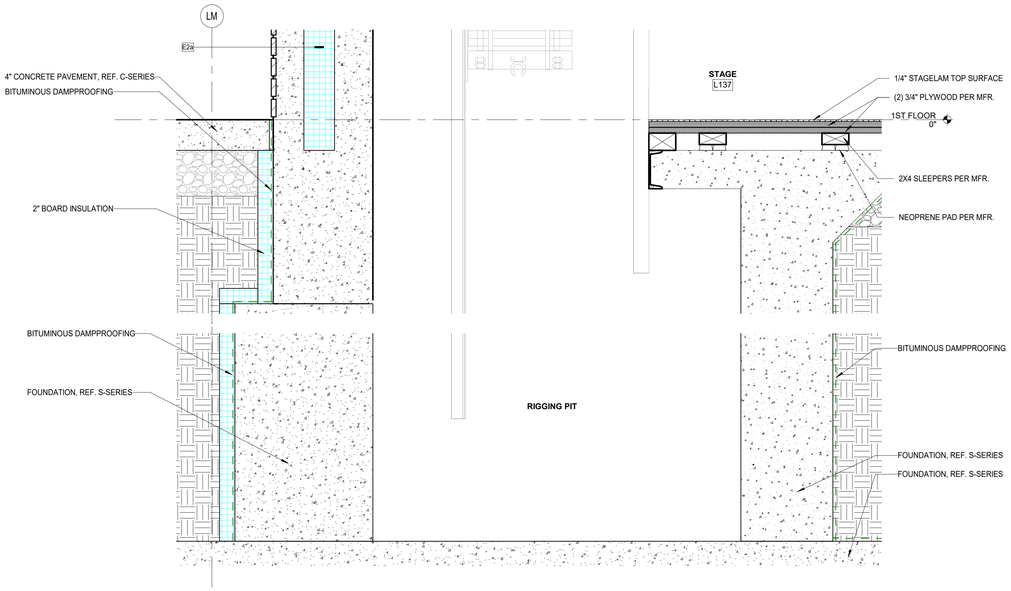
11 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 5 / A313



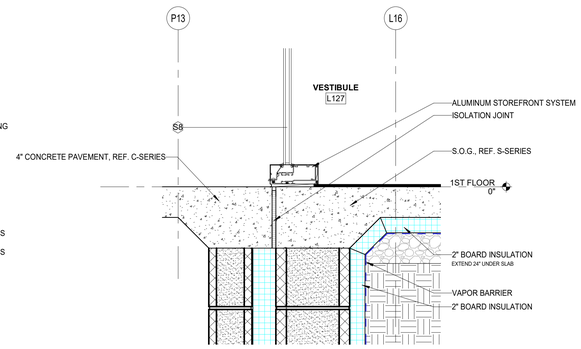
9 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 4 / A313



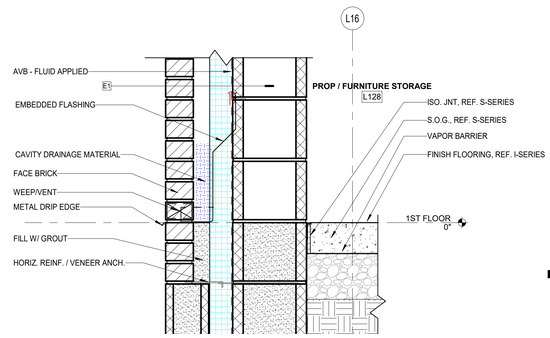
8 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 1 / A313



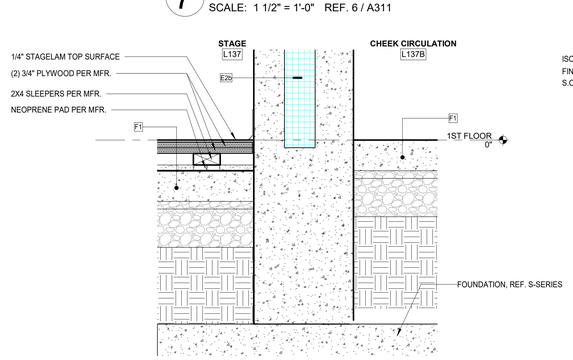
7 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 6 / A311



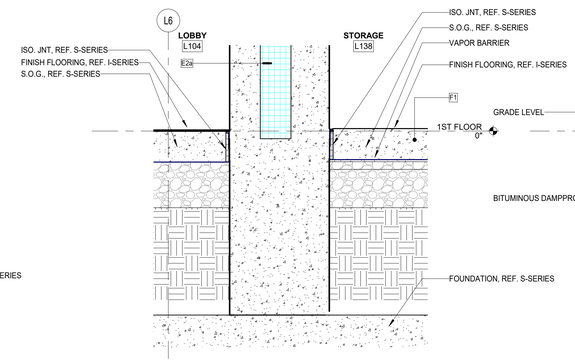
6 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 6 / A312



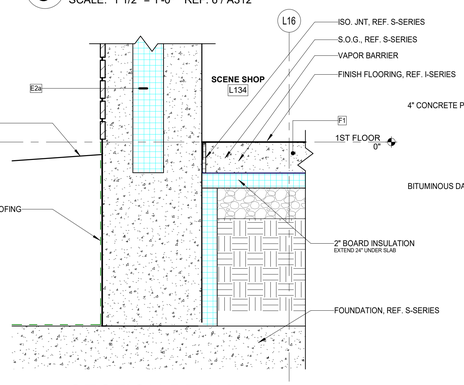
5 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 8 / A311



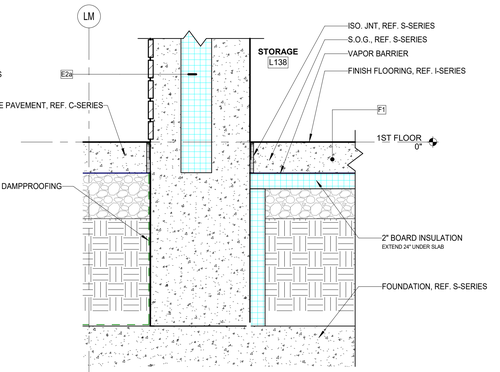
4 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 5 / A311



3 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 2 / A311



2 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 7 / A311



1 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 1 / A311

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100% CONSTRUCTION DOCUMENTS

PROJECT:	#21107
DATE:	04.11.2022
DRAWN BY:	KH/BM

SECTION DETAILS

A511

PLOT DATE/TIME:4/29/2022 3:16:12 PM

GENERAL NOTES - ARCHITECTURAL DETAILS

1. REFERENCE SHEETS A002 AND A003 FOR WALL TYPES INDICATED BY WALL TYPE TAGS.
2. REFERENCE A110 SERIES FOR DIMENSION PLANS.
3. REFERENCE SHEET A003 FOR ROOF TYPES.
4. REFERENCE SHEETS A611 AND A612 FOR FRAMING AND GLAZING TYPES.
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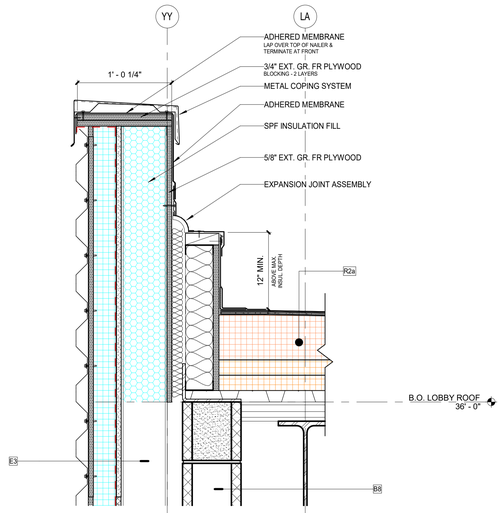
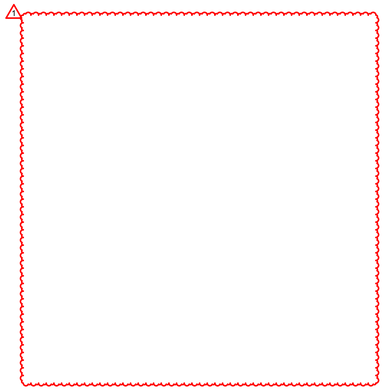
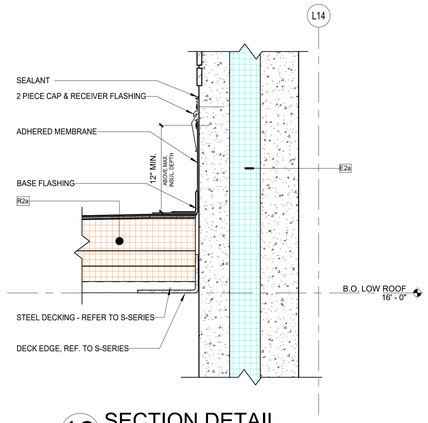
6. REFERENCE SHEET A521 FOR MFR. STANDARD DETAILS FOR EXPANSION JOINT ASSEMBLIES.
7. PROVIDE G-60 16 GA CONTINUOUS METAL PLATE BEHIND TRANSITION STRIPS, TERMINATION BARS AND BASE FLASHING WHEN ANCHORING THROUGH GYPSUM SHEATHING.
8. AIR AND VAPOR BARRIERS INSTALLED ON MASONRY WALLS WHERE INDICATED ON DRAWINGS SHALL BE FLUID APPLIED.

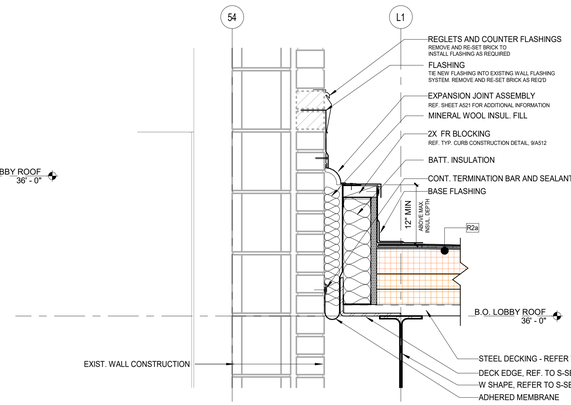


A1 12 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 7 / A313

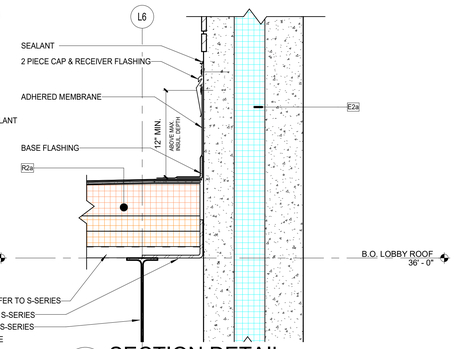




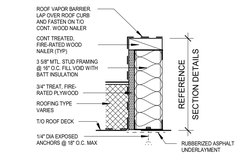
13 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 3 / A311



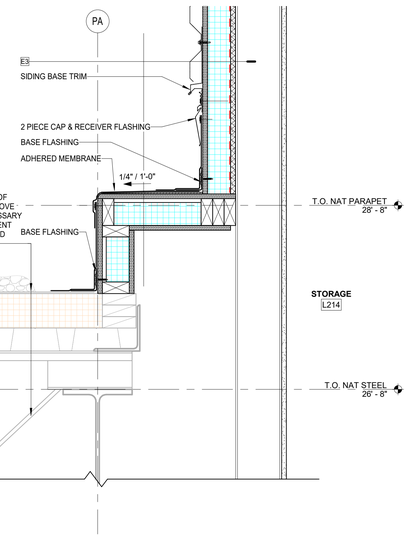
A1 11 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 3 / A313



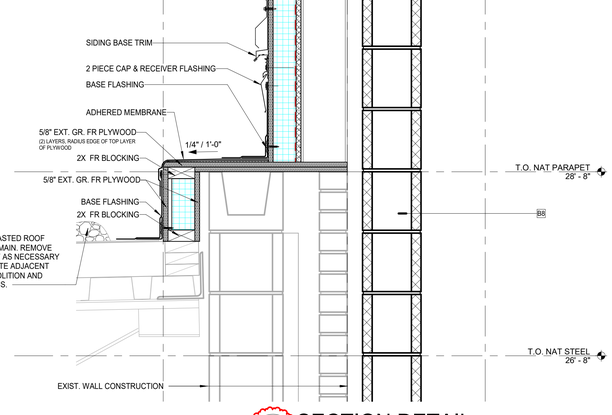
10 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 2 / A311



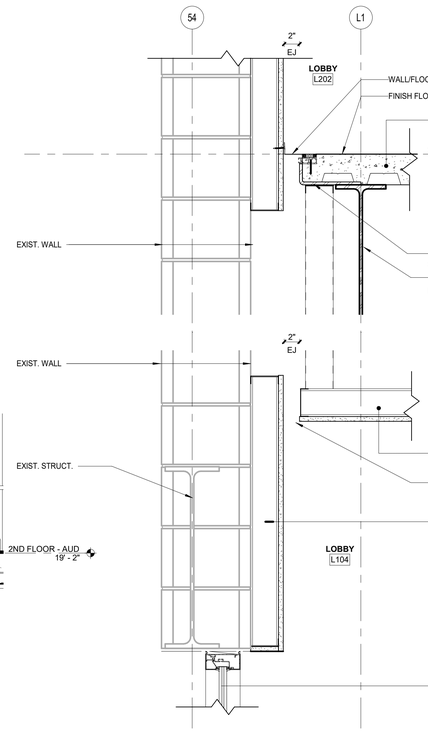
9 TYP. ROOF CURB
SCALE: 1 1/2" = 1'-0"



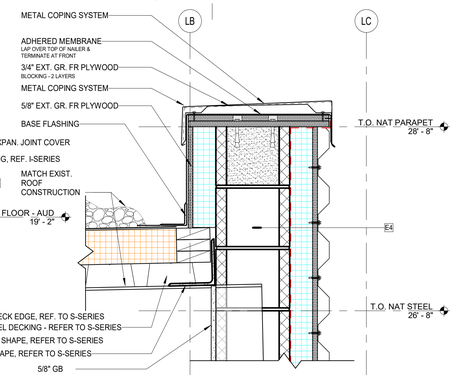
A1 6 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 1 / A314



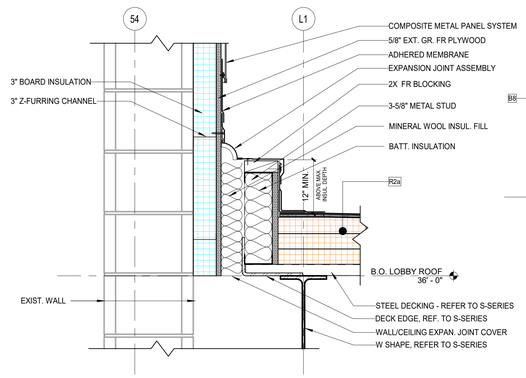
A1 8 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 7 / A313



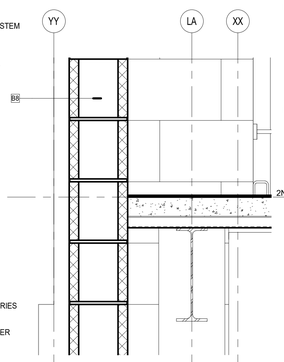
3 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 4 / A313



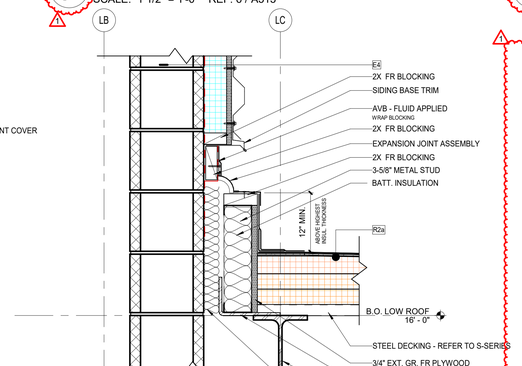
7 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 6 / A313



A1 5 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 4 / A313



4 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 7 / A313



A1 2 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 6 / A313

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GREENFIELD, IN 46140

MARK RANDALL BEEBE REGISTERED 0700164 STATE OF INDIANA ARCHITECT

REVISIONS:

#	Date	Desc.
1	04.29.22	BID PKG. #1 ADD. #2

100% CONSTRUCTION DOCUMENTS

PROJECT: #21107
DATE: 04.11.2022
DRAWN BY: KH/BM

SECTION DETAILS

A512

PLOT DATE/TIME: 4/29/2022 3:16:17 PM

GENERAL NOTES - ARCHITECTURAL DETAILS

1. REFERENCE SHEETS A002 AND A003 FOR WALL TYPES INDICATED BY WALL TYPE TAGS.
2. REFERENCE A110 SERIES FOR DIMENSION PLANS.
3. REFERENCE SHEET A003 FOR ROOF TYPES.
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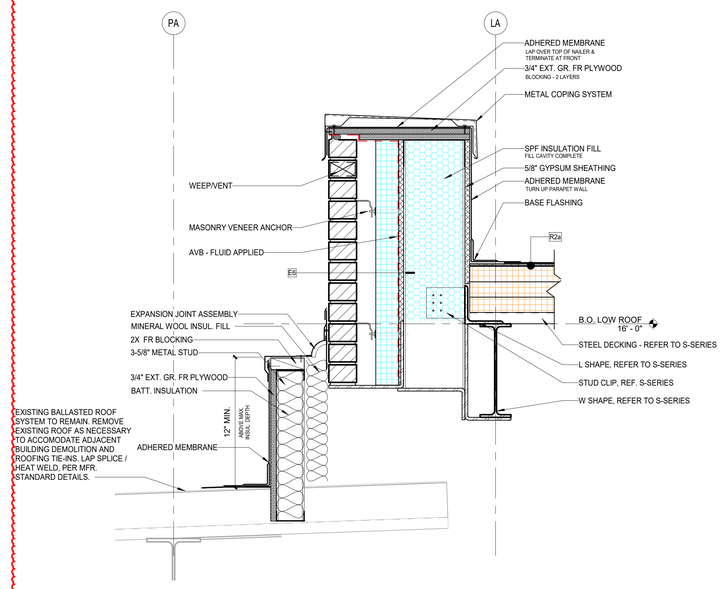
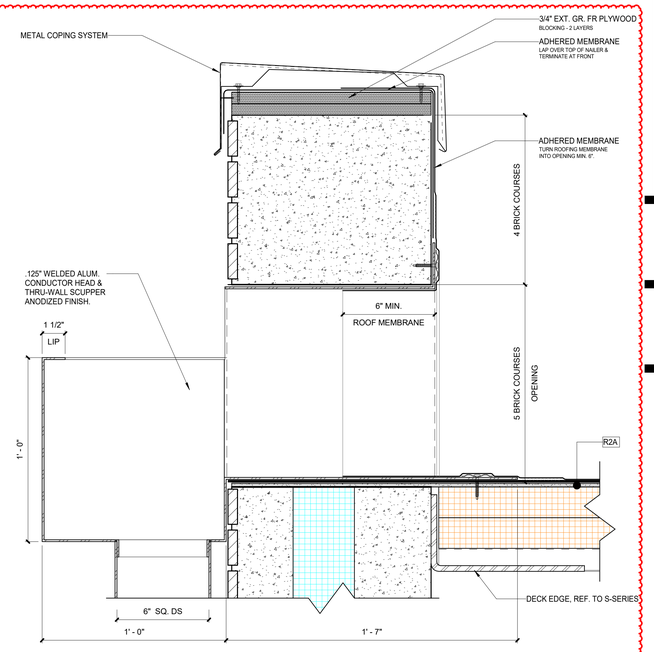
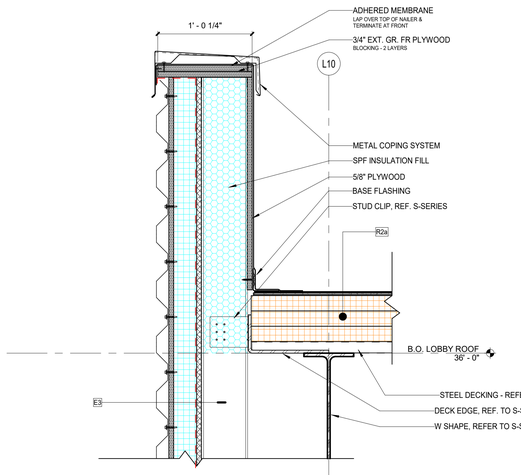


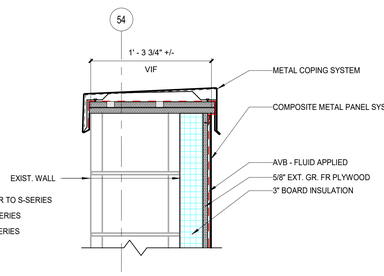
10 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 8 / A314



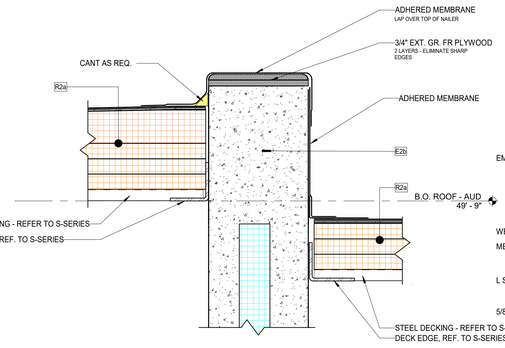
9 TYPICAL SCUPPER @ PRECAST AUD. SIDE WALLS
SCALE: 3" = 1'-0"



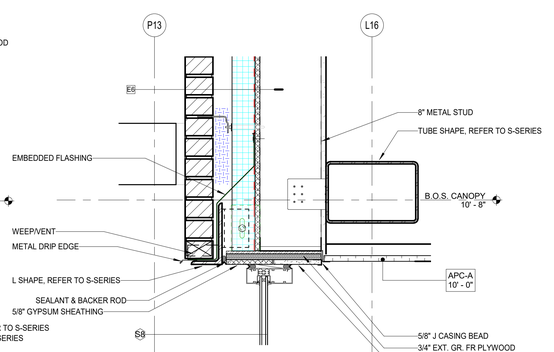
8 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 8 / A313



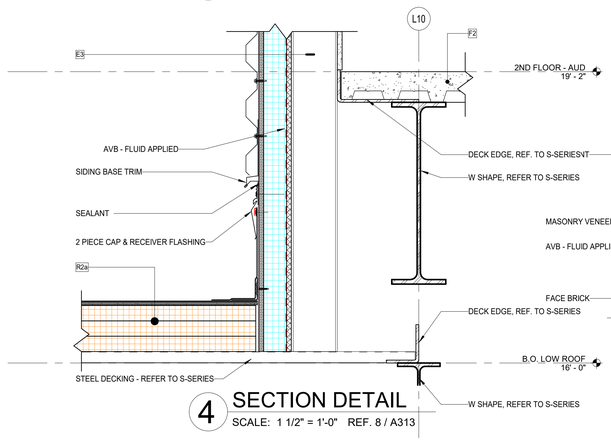
7 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 4 / A313



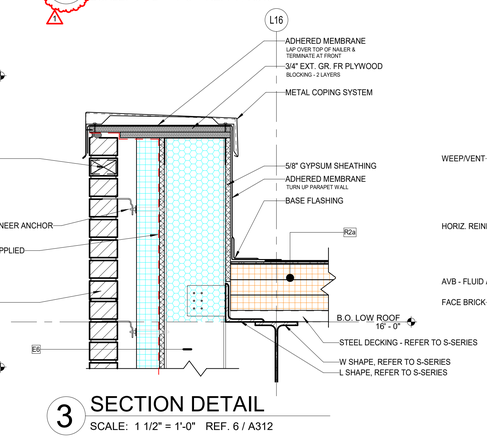
6 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 5 / A311



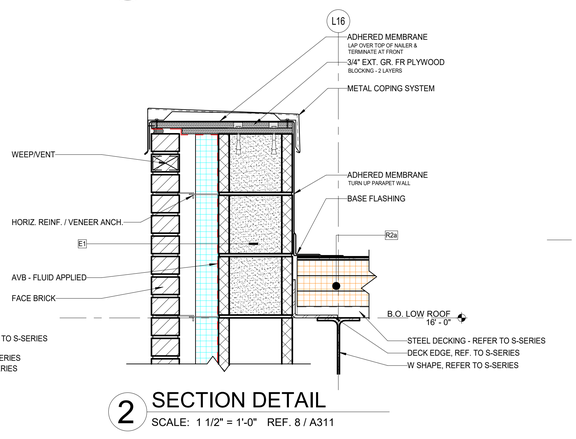
5 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 6 / A312



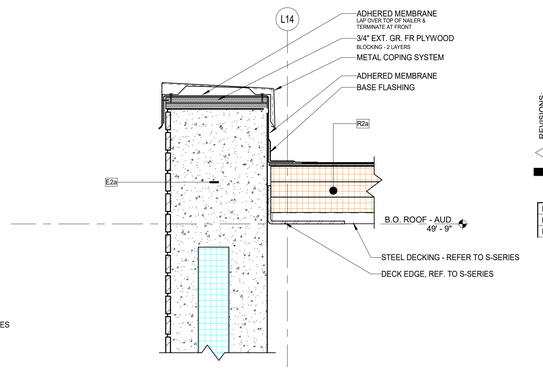
4 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 8 / A313



3 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 6 / A312



2 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 8 / A311



1 SECTION DETAIL
SCALE: 1 1/2" = 1'-0" REF. 1 / A311

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REVISIONS:		
#	Date	Desc.
1	04.29.22	BID PKG. #1 ADD. #2

100% CONSTRUCTION DOCUMENTS

PROJECT:	#21107
DATE:	04.11.2022
DRAWN BY:	KH/BM

SECTION DETAILS

A513

PLOT DATE/TIME: 4/29/2022 1:16:22 PM

GENERAL NOTES

1. The Contractor shall be responsible for complying with all safety precautions and regulations during the work. The Structural Engineer of Record will not advise on, nor issue direction as to safety precautions and programs.
2. The Structural Drawings herein represent the finished structure. The Contractor shall provide all temporary guying and bracing required to erect and hold the structure in proper alignment until all Structural Work and connections have been completed. The investigation, design, safety, adequacy and inspection of erection bracing, shoring, temporary supports, etc. is the sole responsibility of the Contractor.
3. The Structural Engineer of Record (SER) shall not be responsible for the methods, techniques and sequences are not specifically shown, similar details of construction shall be used, subject to approval of the SER.
4. Drawings indicate general and typical details of construction. Where conditions are not specifically shown, similar details of construction shall be used, subject to approval of the Structural Engineer of Record.
5. All structural systems which are to be composed of components to be field erected shall be supervised by the Supplier during manufacturing, delivery, handling, storage, and erection in accordance with the Supplier's instructions and requirements.
6. Loading applied to the structure during the process of construction shall not exceed the safe load-carrying capacity of the structural members. The live loading used in the design of this structure are indicated in the "Design Criteria Notes." Do not apply any construction loads until structural framing is properly connected together and until all temporary bracing is in place.
7. All ASTM and other referenced standards and codes are for the latest editions of these publications, unless otherwise noted.
8. Shop drawings and other items shall be submitted to the Structural Engineer of Record (SER) for review prior to fabrication. All Shop Drawings shall be reviewed by the Contractor before submittal. The SER's review is to be fore conformance with the design concept and general compliance with the relevant Contract Documents. The SER's review does not relieve the Contractor of the sole responsibility to review, check, and coordinate the Shop Drawings prior to submission. The Contractor remains solely responsible for errors and omissions associated with the preparation of Shop Drawings as they pertain to member sizes, details, dimensions, etc.
9. Submit Shop Drawings in the form of blueline/blackline prints (min. 2 sets/ max. 5 sets) and one reproducible blackline or sepia copy. In no case shall reproductions of the Contract Documents be used as shop drawings. As a minimum, submit the following items for review.
   - A. Concrete Mix Design(s).
   - B. Reinforcing Steel Shop Drawings.
   - C. Structural Steel Shop Drawings.
   - D. Steel Joist and Joist Girder Shop Drawings.
   - E. Steel Deck Shop Drawings.
   - F. Cold-Formed Steel Framing Systems.
   - G. Precast Concrete Framing Systems.
10. Resubmitted Shop Drawings: Resubmitted shop drawings are reviewed only for responses to comments made in the previous submittal.
11. When calculations are included in the submittals for components of work designed and certified by a Specialty Structural Engineer (SSE), the review by the Structural Engineer of Record (SER) shall be for conformance with the relevant Contract Documents. The SER's review does not relieve the SSE from responsibility for the design of the system(s) and the coordination with the elements of the structure under the certification of the SER, or other SSE's. The SER's review does not constitute a warranty of the accuracy or completeness of the SSE's design.
12. Contractors shall visit the site prior to bid to ascertain conditions which may adversely affect the work or cost thereof.
13. No structural member may be cut, notched, or otherwise reduced in strength without written direction from the Structural Engineer of Record.
14. When modifications are proposed to structural elements under the design and certification of a Specialty Structural Engineer (SSE), written authorization by the SSE must be obtained and submitted to the Structural Engineer of Record for review, prior to performing the proposed modification.

SPECIALTY STRUCTURAL ENGINEERING (SSE)

1. A Specialty Structural Engineer is defined as a Professional Engineer licensed in the State of Indiana, not the Structural Engineer of Record, who performs Structural Engineering functions necessary for the structure to be completed and who has shown experience and/or training in the specific speciality.
2. It is the Specialty Structural Engineer's responsibility to review the Construction Drawings and Specifications to determine the appropriate scope of engineering.
3. It is the intent of the Drawings and Specifications to provide sufficient information for the Specialty Structural Engineer (SSE) to perform his design and analysis. If the SSE determines there are details, features, or unanticipated project limits which conflict with the engineering requirements as described in the project documents, the SSE shall in a timely manner, contact the Structural Engineer of Record for resolution of conflicts.
4. The Specialty Structural Engineer (SSE) shall forward documents to the Structural Engineer of Record for review. Such documents shall bear the stamp of the SSE and include:
   - A) Drawings introducing engineering input, such as defining the configuration or structural capacity of structural components and/or their assembly into structural systems.
   - B) Calculations.
   - C) Computer printouts which are an acceptable substitute for manual calculations provided they are accompanied by sufficient design assumptions and identified input and output information to permit their proper evaluation. Such information shall bear the stamp of the Specialty Engineer as an indication that said engineer has accepted responsibility for the results.
5. Contractors are referred to the specific technical specification sections and the structural drawings for those elements requiring Specialty Structural Engineering. Examples of components requiring Specialty Structural Engineering include, but are not limited to the following:
   - A) Specialty Foundation Systems.
   - B) Temporary and Permanent Retention Systems.
   - C) Temporary and Permanent Dewatering Systems.
   - D) Underpinning Systems.
   - E) Shoring and Bracing Systems.
   - F) Precast Concrete Framing Systems.
   - G) Structural Steel Connections.
   - H) Steel Joist and Joist Girder Systems.
   - I) Steel Stairs.
   - J) Long Span and Acoustical Steel Decks.
   - K) Cold-Formed Steel Framing.
   - L) Curtain Wall Systems.
6. When modifications are proposed to elements under the design and certification of the Specialty Structural Engineer (SSE), written authorization by the SSE must be obtained and submitted to the Engineer of Record for review, prior to performing the proposed modification.

EXISTING CONSTRUCTION

1. The contractor shall field verify the dimensions, elevations, etc. necessary for the proper construction and alignment of the new portions of the work to the existing work. The Contractor shall make all necessary measurements for fabrication and erection of the structural members. Any discrepancy shall be immediately brought to the attention of the Structural Engineer of Record.
2. Before proceeding with any work within the existing facility, the Contractor shall familiarize himself with existing structural and other conditions. Any shoring shown or noted on the Plans is a partial and schematic representation of that required. It shall be the Contractor's responsibility to provide all necessary bracing, shoring, and other safeguards to maintain all parts of the work in a safe condition during the progress of demolition and construction, and to protect from damage those portions of the existing work which are to remain. Shoring shall remain in place until the structural work is complete, has been inspected by the Testing Agency, and is certified to be in substantial compliance with the Contract Documents.
3. When required by the Specifications or by Plan Note, the Contractor shall submit for the Structural Engineer of Record's review, a "Proposed Shoring Plan," including, but not limited to: plans, sections, details, notes, description of proposed sequence of work, and calculations prepared by, or under the supervision of a Specialty Structural Engineer (SSE). The SSE shall be registered in the State where the project is located.
4. Welding to and within an existing facility presents potential hazards including:
   - A. Fire Hazard - Due to the existing construction and building contents.
   - B. Structural Liquefaction - Due to welding across the full section of the structural members.

   Recommendations to prevent these hazards include:
   - A. Fire Hazard - Protect existing combustibles prior to welding. Keep a separate watchman and several fire extinguishers on hand.
   - B. Structural Liquefaction - weld in small increments. Allow welds to harden before continuing to the next increment.
   - C. Do not leave the site until satisfied that no fire hazard exists.
   - D. Preference should be given to the use of beam clamps, mechanical fasteners, or bolted connections in lieu of welding within existing facilities, whenever possible. Do not field-drill existing structural members without the written permission of the Structural Engineer of Record.

COORDINATION WITH OTHER TRADES

1. The Contractor shall coordinate and check all dimensions relating to Architectural finishes, mechanical equipment and openings, elevator shafts and overrides, etc. and notify the Architect/Engineer of any discrepancies before proceeding with any work in the area under question.
2. The Structural Drawings shall be used in conjunction with the Drawings of all other disciplines and the Specifications. The Contractor shall verify the requirements of other trades as to sleeves, chases, hangers, inserts, anchors, holes, and other items to be placed or set in the Structural Work.
3. There shall be no vertical or horizontal sleeves set, or holes cut or drilled in any beam or column unless it is shown on the Structural Drawings or approved in writing by the Structural Engineer of Record.
4. Mechanical and electrical openings through supported slabs and walls, 8" diameter or larger, not shown on the Structural Drawings must be approved by the Structural Engineer of Record (SER). Openings less than 8" in diameter shall have at least 1'-0" clear between openings, unless approved in writing by the SER.
5. Verify locations and dimensions of mechanical and electrical openings through supported slabs and walls shown on the Structural Drawings with the Mechanical and Electrical Contractors.
6. Do not install conduit in supported slabs, slabs on grade, or concrete walls unless explicitly shown or noted on the Structural Drawings.
7. Do not suspend any items, such as ductwork, mechanical or electrical fixtures, ceilings, etc. from steel roof deck or wood roof sheathing.
8. The Mechanical Contractor shall verify that mechanical units supported by the steel framing are capable of spanning the distance between the supporting members indicated on the Structural Drawings. The Mechanical Contractor shall supply additional support framing as required.
9. If drawings and specifications are in conflict, the most stringent restrictions and requirements shall govern.

DESIGN CRITERIA

1. DESIGN STANDARDS: The intended design standards and/or criteria are as follows:

General	The 2014 Indiana Building Code (2012 International Building Code (IBC) with Indiana Amendments)
Concrete	ACI 318
Masonry	ACI 530
Steel	AISC Manual
Steel Joists/Girders	Steel Joist Institute
Steel Deck	Steel Deck Institute
Cold-Formed Metal	AISI-ASD
Wood Framing	NDS
Wood Trusses	TPI
Glu-Lam Construction	AITC

   All referenced standards and codes, as well as ASTM numbers, are for the editions of these publications referenced in the Building Code listed above, unless otherwise noted.
2. DEAD LOADS: Gravity Dead Loads used in the design of the structure are as computed for the materials of construction incorporated into the building, including but not limited to walls, floors, ceilings, stairways, fixed partitions, finishes, cladding and other similar architectural and structural items, as well as mechanical, electrical and plumbing equipment and fixtures, and material handling and fixed service equipment, including the weight of cranes.
3. LIVE LOADS: Gravity live loads used in the design of the structure meet, or exceed the following table (IBC 2012, 1607.1):

OCCUPANCY OR USE	UNIFORM (PSF)	CONCENTRATED (LB) [Note "a"]
A. Assembly Area & Theaters		
1. Fixed Seats	60	---
2. Lobbies	100	---
3. Movable Seats	100	---
4. Stages/Floors	150	---
5. Platforms (Assembly)	100	---
6. Projection & Control Rooms	50	---
7. Catwalks	40	300
B. Corridors		
1. First Floor	100	---
C. Recreational Uses		
1. Reviewing Stands, Grandstands & Bleachers	100	Note "b"
D. Schools		
1. Corridors	100	
E. Sidewalks, Vehicular Driveways & Yards Subject to Trucking	250 Note "c"	8000 Note"d"
F. Stairs & Exits		
1. All Other	100	300 on A=4in^2

   Note "a": Unless otherwise noted, the indicated concentrated load has been assumed to be uniformly distributed over an area of 30" x 30".
   Note "b": In addition to the vertical live loads, horizontal swaying forces parallel and normal to the length of the seats shall also be considered by the Specialty Structural Engineer, where appropriate. Design in accordance with ICC "Standard on Bleachers, Folding and Telescopic Seating and Grandstands."
   Note "c": Other uniform loads in accordance with an approved method which contains provisions for truck loadings have also be considered where appropriate.
   Note "d": The concentrated wheel load has been applied on an area of 20 sq. in.
4. IMPACT DESIGN: The live loads listed in the table above include allowance for impact. Impact has been considered in the design of the following elements:
   - A. Members supporting elevator loads have been increased by 100% for impact.
   - B. Members supporting machinery and moving loads have been increased as follows to allow for impact:

1. Elevator Machinery	100%
2. Light Machinery, Shaft or Motor-Driven	20%
3. Reciprocating Machinery, or Power-Driven units	20%
4. Hangers for Floors or Balconies	33%

5. PARTITION ALLOWANCE: a uniform partition allowance of 15 PSF has been used to account for the load of all floors where partition locations are subject to change, unless the specified live load exceeds 80 PSF.
6. COLLATERAL LOAD: Unless otherwise noted, a minimum uniform collateral load of 10 PSF has been used to account for ductwork, ceilings, sprinklers, lighting, etc. The collateral load is in addition to the weight of mechanical units, larger piping (greater than 4" diameter) and suspended fixtures or equipment that have been specifically accounted for in the design.
7. COLLATERAL LOAD ABOVE CORRIDORS & MECHANICAL ROOMS: A minimum uniform collateral load of 20 PSF has been used to account for large ductwork, sprinkler mains, concentrations of piping, and electrical distribution above corridors and mechanical rooms. The collateral load is in addition to the weight of mechanical units and larger piping (greater than 4" diameter) and suspended fixtures or equipment that have been specifically accounted for in the design.
8. CONCENTRATED LOADS:
   All single panel points of the lower chord of exposed roof trusses or any point along the primary structural members supporting roofs over manufacturing, commercial storage and warehousing, and commercial garage floors shall be capable of carrying safely a suspended concentrated load of not less than 2000 LBS in addition to dead load.
   All single panel points of the lower chord of exposed roof trusses or any point along the primary structural members supporting roofs over all other occupancies shall be capable of carrying safely a suspended concentrated load of not less than 200 LBS in addition to dead load, unless noted.
9. HANDRAILS AND GUARDS

A. Handrail Assemblies and Guards	50 PLF applied in any direction 200 LB concentrated load applied in any direction (non-concurrent with 50 PLF load)
B. Components, Intermediate Rails, Balusters, Fillers, Etc.	50 LBS horizontally applied normal load on an area not to exceed 1 square foot not superimposed with those of handrail assemblies.

10. ROOF LIVE/SNOW LOADS: Gravity Live Loads used in the design of the roof structure meet or exceed the following table:

A. Snow Load	
Ground Snow Load, Pg	20 PSF
Flat Roof Snow Load, Pf	14 PSF
Low Slope Minimum Snow Load, Pm	20 PSF
Exposure Factor, Ce	1.0
Risk Category (IBC Table 1604.5)	III △1
Snow Importance Factor, Is	1.1
Thermal Factor, Ct	1.0
B. Minimum Roof Live Load	20 PSF
C. Overhang Eaves & Projections	28 PSF

   1. Sloped roof snow loads calculated in accordance with Section 7.4, ASCE 7.
   2. Unbalanced roof snow loads calculated in accordance with Section 7.6, ASCE 7. Specialty Structural Engineers must consider unbalanced snow loads in the design of pre-engineered trusses, frames, skylights, curtain walls, cold-formed metal framing, canopies, etc.
   3. Drift loads calculated in accordance with Section 7.7, ASCE 7.
   4. Roofs used for roof gardens or assembly purposes have been designed for a minimum live load of 100 PSF.
11. LATERAL LOADS: Lateral loads were computed using the following criteria:

A. Wind Load	
Ultimate Design Wind Speed, Vult	120 MPH
Wind Exposure Category	C
Risk Category (IBC Table 1604.5)	III
Internal Pressure Coefficient, GCpi	± 0.18
B. Seismic Load	
Site Classification	D
Risk Category (IBC Table 1604.5)	III
Seismic Importance Factor, Ie	1.25
Mapped Spectral Response Acceleration, Ss	0.145g
Mapped Spectral Response Acceleration, S1	0.081g
Design Spectral Response Acceleration, Sds	0.155g
Design Spectral Response Acceleration, Sd1	0.130g
Seismic Design Category, SDC	B
Response Modification Coefficient, R	3
Analysis Procedure	Equivalent Lateral Force
Base Seismic Force-Resisting System (ASCE 7-10, Table 12.2-1)	Steel systems not specifically detailed for seismic resistance

12. SAFETY FACTORS: This structure has been designed with 'Safety Factors' in accordance with accepted principles of structural engineering. The fundamental nature of the 'Safety Factor' is to compensate for uncertainties in the design, fabrication, and erection of structural building components. It is intended that 'Safety Factors' be used such that the load-carrying capacity of the structure does not fall below the design load and that the building will perform under design load without distress. While the use of 'Safety Factors' implies some excess capacity beyond design load, such excess capacity cannot be adequately predicted and SHALL NOT BE RELIED UPON.
13. UPLIFT DESIGN CRITERIA: Joist and deck connections shall be capable of resisting the following NET wind uplift pressures:

WIND UPLIFT NET PRESSURE TABLE

HEIGHT	FIELD PRESSURE	PERIMETER PRESSURE
≤60'	10 PSF	20 PSF

NOTE: PERIMETER PRESSURE APPLIES BETWEEN ALL EXTERIOR WALLS AND 25' IN FROM THE EXTERIOR WALLS.

FOUNDATIONS

1. Proofroll slab on grade areas with a medium-weight roller or other suitable equipment to check for pockets of soft material hidden beneath a thin crust of better soil. Any unsuitable materials thus exposed should be removed and replaced with compacted, engineered fill as outlined in the specifications. Proofrolling operations shall be monitored by the Geotechnical Testing Agency.
2. All engineered fill beneath slabs and over footings should be compacted to a dry density of at least 93% of the Modified Proctor maximum dry density (ASTM D-1557). All fill which shall be stressed by foundation loads shall be approved granular materials compacted to a dry density of at least 95% (ASTM D-1557). Coordinate all fill and compaction operations with the Specifications and the Subsurface Investigation.
3. Compaction shall be accomplished by placing fill in approximate 8" lifts and mechanically compacting each lift to at least the specified minimum dry density. For large areas of fill, field density tests shall be performed for each 3,000 square feet of building area for each lift as necessary to insure adequate compaction is being achieved.
4. Column footings and wall footings to bear on firm natural soils or well-compacted engineered fill with allowable bearing pressures of 3,000 PSF and 2,400 PSF for column and wall footings respectively, as outlined in the Subsurface Investigation Report.

   It is essential that the foundations be inspected to insure that all loose, soft, or otherwise undesirable material (such as organics, existing uncontrolled fill, etc.) is removed and that the foundations will bear on satisfactory material. The Geotechnical Testing Agency shall inspect the subgrade and perform any necessary tests to insure that the actual bearing capacities meet or exceed the design capacities. The Geotechnical Testing Agency shall verify the bearing capacity at each spread column footing and every 10 feet on center for strip footings prior to placement of concrete.
5. Place footings the same day the excavation is performed. If this is not possible, the footings shall be adequately protected against any detrimental change in condition, such as from disturbance, rain, or freezing.
6. It is the responsibility of the Contractor and each Sub-Contractor to verify the location of all utilities and services shown, or not shown; and establish safe working conditions before commencing work.
7. The Contractor shall layout the entire building and field verify all dimensions prior to excavation.
8. For information regarding subsurface conditions, refer to the Subsurface Investigation & Foundation Recommendation Report prepared by Alt & Witzig Engineering, Inc., A&W Project No. 21IN0660, dated November 10, 2021.

CAST IN PLACE CONCRETE

1. Details of fabrication of reinforcement, handling and placing of the concrete, construction of forms and placement of reinforcement not otherwise covered by the Plans and Specifications, shall comply with the ACI Code requirements of the latest revised date.
2. Cold weather concreting shall be in accordance with ACI 306. Cold weather is defined as a period when for more than 3 successive days the average daily air temperature drops below 40F and stays below 50F. The Contractor shall maintain a copy of this publication on site.
3. Hot weather concreting shall be in accordance with ACI 305. Hot weather is defined as any combination of the following conditions that tends to impair the quality of the freshly mixed or hardened concrete: high ambient temperature, high concrete temperature, low relative humidity, wind speed, or solar radiation The Contractor shall maintain a copy of this publication on site.
4. A certified Testing Agency shall be retained to perform industry standard testing including measurement of slump, air temperature, concrete cylinder testing, etc. to ensure conformance with the Contract Documents. Submit reports to Architect/Engineer.
5. Finishing of Slabs: After screeding, bull floating and floating operations have been completed, apply final finish as indicated below, and as described in the Division 3 Cast In Place Concrete Specification of the Project Manual.

A. Floor Slabs	Hard Trowel Finish
B. Ramps, Stairs, & Sidewalks	Broom Finish
C. Surfaces to Receive Topping Slab	Float Finish
D. Surfaces to receive thick-set mortar beds or similar cementitious materials	Float Finish
E. Driving Surfaces	Rough Swirl Finish

   Sample Finishes: See Specifications for sample and mockup requirements, if any.

   Floor Tolerances: See the Specifications for specified Ff and Fl tolerances. Ff and Fl testing shall be performed by the Testing Agency in accordance with ASTM E-1155. Results, including acceptance or rejection of the work will be provided to the Contractor and the Architect/Engineer within 48 hours after data collection. Remedies for out-of-tolerance work shall be in accordance with the Specifications. When approved by the Structural Engineer of Record, measurement of the gaps beneath a 10-foot straight edge may be used in lieu of Ff and Fl testing. Approval must be obtained in writing prior to the beginning of concrete operations.
6. Finishing of Formed Surfaces: Finish formed surfaces as indicated below, and as described in the Division 3 Cast In Place Concrete Specification of the Project Manual.

A. Sides of Footings & Pile Caps	Rough Form Finish
B. Sides of Grade Beams	Rough Form Finish
C. Surfaces not exposed to public view	Rough Form Finish
D. Surfaces exposed to public view	Smooth Form Finish

7. The Contractor shall consult with the Structural Engineer of Record before starting concrete work to establish a satisfactory placing schedule and to determine the location of construction joints so as to minimize the effects of shrinkage in the floor system.
8. Sawn or tooled control/contraction joints shall be provided in all slabs on grade. For a framed structure, joints shall be located on all column lines. If the column spacing exceeds 20'-0", provide intermediate joints. Exterior slabs, and interior slabs without column shall have joints spaced a maximum of 15'-0" apart. Layout joints so that maximum aspect ratio (ratio of long side to short side) does not exceed 1.5.
9. Where vinyl composition tile, vinyl sheets goods, thin-set epoxy terrazzo, or other similar material is the specified finish floor material, the Contractor shall coordinate the locations of control/contraction and construction joints with the Finish Flooring Contractor. Submit a dimensioned plan showing joint locations and proposed sequence of floor pours.
10. Unless specifically noted on the Plans, composite and non-composite supported slabs on metal deck, and supported cast-in-place concrete slabs do not require sawn control joints.
11. Joints in slabs to receive a finished floor may remain unfilled, unless required by the finish flooring contractor. All exposed slabs shall be filled with sealant specified in Division 7, or as follows: All slabs in industrial, manufacturing, or warehouse applications subject to wheeled traffic shall be filled with specified epoxy resin sealant, all other joints shall be filled with specified elastomeric sealant. Defer filling of joints as long as possible, preferably a minimum of 4 to 6 weeks after the slab has been cured. Prior to filling, remove all debris from the slab joints, the fill in accordance with the manufacturer's recommendations.
12. Refer to the Architectural Drawings for locations and details of reveals (1" maximum depth) in exposed walls.
13. Refer to the Architectural Drawings for chamfer requirements for corners of concrete. Where not indicated, provide 3/4" chamfers on exposed corners of concrete, except those abutting masonry.
14. Refer to the Architectural Drawings for exact locations and dimensions of recessed slabs, ramps, stairs, thickened slabs, etc. Slope slabs to drains where shown on the Architectural and Plumbing Drawings.
15. Sidewalks, drives, exterior retaining walls, and other site concrete are not indicated on the Structural Drawings. Refer to the Site/Civil and Architectural Drawings for locations, dimensions, elevations, jointing, and finish details.

CONCRETE REINFORCING

1. Reinforcement, other than cold drawn wire for spirals and welded wire fabric, shall have deformed surfaces in accordance with ASTM A305.
2. Reinforcing steel shall conform to ASTM A615, Grade 60, unless noted.
3. Welded wire fabric shall conform to ASTM A1064, unless noted.
4. Where hooks are indicated, provide standard hooks per ACI and CRSI for all bars unless other hook dimensions are shown on the plans or details.
5. Reinforcement in footings, walls and beams shall be continuous. Lap bars a minimum of 40 diameters, unless noted otherwise.
6. Reinforcement shall be supported and secured against displacement in accordance with the CRSI 'Manual of Standard Practice'.
7. Details of reinforcing steel fabrication and placement shall conform to ACI 315 'Details and Detailing of Concrete Reinforcement' and ACI 315R 'Manual of Engineering and Placing Drawings for Reinforced Concrete Structures', unless otherwise indicated.
8. Spread reinforcing steel around small openings and sleeves in slabs and walls, where possible, and where bar spacing will not exceed 1.5 times the normal spacing. Discontinue bars at all large openings where necessary, and provide an area of reinforcement, equal to the interrupted reinforcement, in full length bars, distributing one-half each side of the opening. Where shrinkage and temperature reinforcement is interrupted, add (2) #5 x opening dimension + 4'-0" on each side of the opening. Provide #5 x 4'-0" long diagonal bars in both faces, at each corner of openings larger than 12" in any direction.
9. Provide standees for the support of top reinforcement for footings, pile caps, and mats.
10. Provide individual high chairs with support bars, as required for the support of top reinforcement for supported slabs. Do NOT provide standees.
11. Provide snap-on plastic space wheels to maintain required concrete cover for vertical wall reinforcement.
12. Where walls sit on column footings, provide dowels for the wall. Dowels shall be the same size and spacing as the vertical wall reinforcement, unless noted otherwise, with lab splices as shown on the application sections. Install dowels in the footing forms before concrete is placed. Do NOT stick dowels into footings after concrete is placed.
13. Field bending of reinforcing steel is prohibited, unless noted on drawings.
14. Minimum concrete cover over reinforcing steel shall be as follows, unless noted otherwise on plan, section or note:

MINIMUM COVER FOR REINFORCEMENT

	MINIMUM COVER
SUSPENDED SLABS AND JOISTS	
TOP & BOTTOM BARS FOR DRY CONDITIONS:	
#11 BARS & SMALLER	3/4"
#14 & #18 BARS	1 1/2"
FORMED CONCRETE SURFACES EXPOSED TO EARTH, WATER, OR WEATHER, AND OVER OR IN CONTACT WITH SEWAGE AND FOR BOTTOMS BEARING ON WORK MAT, OR SLABS SUPPORTING EARTH COVER:	
#5 BARS & SMALLER	1 1/2"
#6 THROUGH #18 BARS	2"
BEAMS & COLUMNS, FORMED	
FOR DRY CONDITIONS:	
STIRRUPS, SPIRALS & TIES	1 1/2"
PRINCIPAL REINFORCEMENT	2"
EXPOSED TO EARTH, WATER, SEWAGE, OR WEATHER:	
STIRRUPS & TIES	2"
PRINCIPAL REINFORCEMENT	2 1/2"
WALLS	
FOR DRY CONDITIONS:	
#11 BARS & SMALLER	3/4"
#14 & #18 BARS	1 1/2"
FORMED CONCRETE SURFACES EXPOSED TO EARTH, WATER, SEWAGE, WEATHER, OR IN CONTACT WITH GROUND	2"
FOOTINGS & BASE SLABS	
AT FORMED SURFACES & BOTTOMS BEARING ON CONCRETE WORK MAT	2"
AT UNFORMED SURFACES & BOTTOMS IN CONTACT WITH EARTH	3"
TOP OF FOOTINGS	SAME AS SLABS
OVER TOP OF PILES	2"

CONCRETE MIX CLASSES

FOOTINGS, FOUNDATION WALLS, & PIERS	
COMPRESSIVE STRENGTH	4000 PSI
MAXIMUM WATER/CEMENT RATIO	0.45
AIR CONTENT	0 - 3 PERCENT
WATER-REDUCING ADMIXTURE	REQUIRED
SLUMP	5" TO 6 1/2"
INTERIOR CONCRETE SLABS ON GRADE AND ELEVATED SLABS	
COMPRESSIVE STRENGTH	4000 PSI
MINIMUM CEMENTITIOUS MATERIAL CONTENT	517 LB/CU YD
AIR CONTENT	0 - 3 PERCENT
WATER-REDUCING ADMIXTURE	REQUIRED
SLUMP	5" TO 6 1/2"
INCLUDE ADDITIONAL ADMIXTURES PER PLAN NOTES	
EXTERIOR CONCRETE SUBJECT TO FREEZE-THAW	
COMPRESSIVE STRENGTH	4000 PSI
MINIMUM CEMENTITIOUS MATERIAL CONTENT	564 LB/CU YD
AIR CONTENT	6 ± 1 PERCENT
WATER-REDUCING ADMIXTURE	REQUIRED
SLUMP	5" TO 6 1/2"
COARSE AGGREGATE	CRUSHED STONE
INCREASE COMPRESSIVE STRENGTH TO 4500 PSI FOR EXTERIOR REINFORCED CONCRETE SUBJECT TO THE USE OF DE-ICERS.	
LEAN CONCRETE FILL	
COMPRESSIVE STRENGTH	2000 PSI
MAXIMUM WATER/CEMENT RATIO	0.65
AIR CONTENT	OPTIONAL
WATER-REDUCING ADMIXTURE	NOT REQUIRED
SLUMP	4" TO 7"

1. SLUMP:

MIXES CONTAINING TYPE A WRDA	5" MAXIMUM
MIXES CONTAINING MID-RANGE WRDA	5 - 6 1/2"
MIXES CONTAINING HIGH-RANGE WRDA	5 - 8"

2. SPECIFIED MINIMUM CEMENTITIOUS MATERIAL CONTENTS ARE BASED ON THE USE OF WATER REDUCING ADMIXTURES.
3. INCLUDE AN AIR-ENTRAINING ADMIXTURE FOR ALL CONCRETE EXPOSED TO FREEZING AND THAWING IN SERVICE AND FOR ALL CONCRETE EXPOSED TO COLD WEATHER DURING CONSTRUCTION, BEFORE ATTAINING ITS SPECIFIED DESIGN COMPRESSIVE STRENGTH. REF. ACI 306 FOR DEFINITION OF COLD WEATHER.
4. CLASS C FLY ASH MAY BE USED AS A CEMENT SUBSTITUTE WITH A MAXIMUM 20% SUBSTITUTION RATE ON A POUND-PER-POUND BASIS.
5. SLAG CEMENT MAY BE USED AS A SUBSTITUTE FOR PORTLAND CEMENT WITH A MAXIMUM 50% SUBSTITUTION RATE ON A POUND-PER-POUND BASIS WITH THE EXCEPTION OF CLASS E CONCRETE, WHICH SHALL BE LIMITED TO 30%.
6. WHEN SLAB CEMENT AND FLY ASH ARE USED IN THE SAME CONCRETE MIX, THE MAXIMUM SUBSTITUTION RATES SHALL COMPLY WITH THE FOLLOWING:

   PORTLAND CEMENT/SLAG/FLY ASH RATIO:

CLASS E EXTERIOR CONCRETE	70% / 20% / 10%
ALL OTHER CLASSES	50% / 30% / 20%

7. FOR CONCRETE TO BE CAST DURING COLD WEATHER, THE MAXIMUM SUBSTITUTION RATE FOR SLAG CEMENT SHALL BE 30%. IF SLAG CEMENT AND FLY ASH ARE USED IN THE SAME MIX, THE MAXIMUM SUBSTITUTION RATES SHALL COMPLY WITH A RATIO OF PORTLAND CEMENT/SLAG/FLY ASH OF 70% / 20% / 10%.
8. PROPORTION CONCRETE MIXES TO PROVIDE WORKABILITY AND CONSISTENCY TO PERMIT CONCRETE TO BE WORKED READILY INTO THE CORNERS AND ANGLES OF THE FORMS AND AROUND REINFORCEMENT BY THE METHODS OF PLACEMENT AND CONSOLIDATION TO BE EMPLOYED, WITHOUT SEGREGATION AND EXCESSIVE BLEEDING.
9. ADJUSTMENTS TO THE APPROVED MIX DESIGNS MAY BE REQUESTED BY THE CONTRACTOR WHEN JOB CONDITIONS, WEATHER, TEST RESULTS, OR OTHER CIRCUMSTANCES WARRANT. THESE REVISED MIX DESIGNS SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR APPROVAL PRIOR TO USE.

POST-INSTALLED DOWELS & ANCHOR BOLTS/RODS

1. All reinforcing steel and threaded rod anchors to be installed in a 2-part chemical anchoring system shall be treated as follows:
   - A. Drill holes larger than bar or rod to be embedded. Coordinate hole diameter with Manufacturer's recommendations.
   - B. Holes must be cleaned and prepared in accordance with Manufacturer's recommendations.
   - C. When reinforcing steel is encountered during drilling for installation of anchors; stop drilling, use a sensor to locate the reinforcing in the surrounding area and install anchor(s) as close as possible to the original location. Contact the Structural Engineer of Record (SER) for direction when the revised location is more than 2" from the original location, or when the original function of the anchorage is significantly altered. When in doubt, contact the SER for direction.
   - D. Drill the hole a minimum of 15 bar diameters or as shown on the plans.
   - E. Use a 2-part adhesive anchoring system, Hilti HY-200, or approved equal.
   - F. For anchorage into hollow substrate, use Hilti HY-270, or approved equal.
   - G. Reinforcing steel dowels shall be ASTM A615, Grade 60, unless noted.
   - H. Anchor rods shall be Hilti HAS-V-36, unless noted. Provide finish as noted on the Drawings. If not noted, provide hot-dip galvanized finish for interior applications. Provide stainless steel finish for all exterior applications, unless noted.
2. When column anchor bolts have been omitted, or damaged by construction operations, the Contractor must obtain the written approval of the Structural Engineer of Record prior to repair or replacement.
   - A. As a precaution, the affected column must be guyed and braced after repair for the balance of the erection period.
   - B. As an alternate to guying and bracing, the Contractor may at his option, employ a testing agency to perform a tensile pull test to confirm the strength for the repaired or replaced anchor bolt. The tensile proof load must exceed 1.33 x the design load of the original anchor without causing distress of the anchor bolt or the surrounding concrete. Reference the following table for the minimum proof loads:

3/4" diameter:	12.8 kips
7/8" diameter:	17.4 kips
1" diameter:	22.7 kips
1 1/8" diameter:	28.8 kips
1 1/4" diameter:	35.6 kips

     Note: Values listed above are for ASTM F-1554, Grade 36 material. When higher grade or strength materials are specified, refer to the AISC Steel Design Guide 1, Table 3.1 for minimum allowable loads to be multiplied by 1.33.
   - C. When affected anchor bolts are part of a fixed moment resisting column base, such as those in moment-resisting space frames, canopies, or fixed-base installations, the repaired anchor bolts must be proof-loaded, or the affected column footing and/or pier replaced in its entirety.
   - D. When affected anchor bolts are part of a braced frame the affected column footing and/or pier must be replaced in its entirety.
   - E. Prior to erection, the controlling Contractor must provide written notification to the Steel Erector if there has been a repair, replacement or modification of the anchor bolts for that column.

REINFORCED MASONRY NOTES

1. All construction of reinforced masonry walls to be in accordance with the Building Code Requirements for Concrete Masonry Structures (ACI 530) and Commentary.
   - A) f'm = 2000 PSI
   - B) Maximum height of masonry lift: 5'-0"
   - C) Maximum height of grout lift: 5'-0"
   - D) See Specifications for additional masonry wall information.
2. CONCRETE BLOCK: Minimum compressive test strength on the net cross-sectional area: 2800 PSI.
3. MORTAR: Type S required.
4. GROUT: ASTM C476, 2500 PSI with a slump of 8" min. and 11" max.
5. REINFORCING: fy = 60000 PSI with a min. lap of 48 bar diameters.

LINTEL SCHEDULE

1. Where lintels are not specifically shown or noted on the Structural or Architectural Drawings, provide the following lintels over all openings and recesses in both interior and exterior non-load-bearing walls.
   - A) Brick:

Masonry Opening	Angle Size
Up to 5'-0"	L4x4x5/16
Over 5'-0" & up to 7'-0"	L6x4x5/16
Over 7'-0"	L7x4x3/8

     All angles are LLV (long leg vertical), unless noted otherwise. Provide 1" of bearing per foot of span each end with minimum 8".
   - B) Block: For openings up to 8'-0" long exposed in the finished room, use lintel block filled with grout. Grout all exposed joints and reinforce as follows:
     1) For 6" thick block: 1 - #5 bar
     2) For 8" thick block: 2 - #5 bars
     3) For 10" thick block: 2 - #6 bars
     4) For 12" thick block: 2 - #6 bars
   - C) Block: For openings over 8'-0" & up to 12'-0" long exposed in the finished room, use lintel block filled with grout. Grout all exposed joints and reinforce per the "Long Masonry Lintel Detail" on the Typical Masonry Detail Drawing.

STRUCTURAL STEEL NOTES

1. Structural steel construction shall conform to the American Institute of Steel Construction "Specification for Structural Steel Buildings".
2. All structural wide flange members shall be ASTM A992, Fy=50 ksi
3. All plates, channels, bars, angles, and rods shall be ASTM A36, unless noted.
4. All rectangular structural tube members shall be ASTM A500, Grade C, Fy = 50 ksi unless noted.
5. All round structural tube members shall be ASTM A500, Grade C, Fy = 46 ksi unless noted.
6. All structural pipe members shall be ASTM A53,Grade B, Fy=35 ksi unless noted.
7. Details for design, fabrication and erection of all structural steel shall be in accordance with the latest AISC Standards, unless otherwise noted or specified.
8. Provide temporary erection guying and bracing as required.
9. Unless otherwise shown or noted on the Drawings, provide 8" minimum bearing each end for all loose lintels and beams.
10. For loose lintels, masonry shelf angles and other such items generally not shown on the Structural Drawings, refer to the Architectural Drawings. See general notes on lintels this sheet for sizes, reinforcing, etc.
11. Steel columns below grade shall be encased in a minimum of 4" concrete or painted with 2 coats of asphaltum paint, unless otherwise shown.
12. Fabricate simple span beams not specifically noted to receive camber so that after erection, any minor camber due to rolling or shop assembly be upward.
13. Refer to the Division 5 Structural Steel Specification of the Project Manual for structural steel surface preparations and prime painting requirements.
14. The Erector shall shim between parallel roof beams and joists with differential mill and induced cambers for level deck bearing.
15. Provide cap plates/end plates to close off exposed, open ends of all tubular members, unless noted. Seal weld with partial penetration square groove welds for watertight condition.

STEEL CONNECTION NOTES

1. Typical beam-to-beam and beam-to-column connections shall be bearing type using A325 bolts, unless noted otherwise.
2. Shop connections unless otherwise shown, may be either bolted or welded. All field connections shall be bolted unless otherwise shown on the Structural Drawings.
3. Connections shall be designed by the Steel Fabricator to support the reactions shown on the framing plan(s). Simple span connections without reactions listed on the Structural Drawings shall be designed by the Steel Fabricator in accordance with Table 3-6 of the AISC "Manual of Steel Construction, 14th Edition". For composite beams where reactions are not indicated, design connections for 75% of the Maximum Total Uniform Load ASD value for the applicable beam size and span given in Table 3-6. For non-composite beams, design connections for 50% of the tabulated ASD value.
4. Submit calculations for connections not detailed on the Structural Drawings and not covered by the AISC Tables, including but not limited to:
   - A) Column Splices.
   - B) Moment Connections.
   - C) Bracing Connections including Collectors and Drag Struts.
   - D) Skewed Shear Connections.
   - E) Girder and Truss Splices.
   - F) Truss-to-Column and Truss-to-Truss Connections.
   - G) Truss Web-to-Chord and Web-to-Gusset Connections.
   - H) Compression Ring/Tension Ring, and Raker Beam Connections.
5. All beam-to-beam connections shall be double angle, unless shown or noted otherwise.
6. All beam-to-column connections shall be at the column centerline, unless noted otherwise. Shear tab connections to tubes are permitted unless otherwise noted or detailed.
7. Typical beam-to-beam, and beam-to-column field-bolted connections may be tightened to the snug-tight condition, unless otherwise shown or noted.
8. Bolted connections in moment frames, bracing connections, hangers and stub columns, crane connections, and those designated PT (pretensioned) on the Drawings shall be pretensioned joints utilizing tension-control (TC) bolts or direct tension indicators. Holes for PT bolts shall be 1/16" larger than the bolt diameter. All pretensioned joints must be inspected by the Testing Agency.
9. Connect bracing members for two components of stress unless otherwise approved by the Structural Engineer of Record. Provide a minimum 2-bolt or welded field connection.
10. Locate centerlines of all vertical bracing members on column centerlines in vertical plane and on column and beam centerlines in horizontal plane, unless otherwise shown on the Structural Drawings.
11. All welding shall be in conformance with AWS D1.1, using E70XX electrodes, unless shown or noted otherwise. Welding, both shop and field, shall be performed by welders certified for the weld types and positions involved according to the current edition of AWS D1.1. Perform all AESS welds with care to provide a clean, uniform appearance.
12. Backup bars required for welded connections shall be continuous.
13. Holes in steel shall be drilled or punched. All slotted holes shall be provided with smooth edges. Burning of holes in structural steel shall not be allowed without approval of the Structural Engineer of Record.
14. The minimum thickness of all connection material shall be 5/16" unless noted.
15. Continuous bent plate and angle closures, roof edges, diaphragm chords, etc. around perimeter of the floor and roof, as well as around openings shall be welded with a minimum 1/4" fillet weld x 3" long at 12" o.c., top & bottom, unless noted otherwise. Butt weld joints in continuous diaphragm chord for continuity. For continuous perimeter angles and bent plates perpendicular to and connected to the top chords of joists, provide a minimum 3" of 1/4" weld at each joist. Continuous angle and bent plate closures may be shop-applied to the supporting structural members only when requested and approved by Structural Engineer of Record.
16. Where steel beams are called to have wood nailers supporting wood floor or roof framing, provide 1/2" diameter carriage bolts spaced at 24" on center and staggered each side of the beam web, unless noted otherwise. Carriage bolts may be over-tightened to compress the rounded head in the nailer to facilitate installation of continuous band/rim joists, rafters, trusses, etc.
17. A qualified independent Testing Agency shall be retained to perform inspection and testing of structural steel field weldaments as follows:

WELD INSPECTION SCHEDULE

WELD TYPE	VT	MT	UT	PT	CRT	COMMENTS
FILLET (SINGLE PASS)	25%	-	-	-	-	ROOT PASS AND FINISHED WELD
FILLET (MULTIPLE PASS)	50%	25%	-	-	-	
FLARE BEVEL/ FLARE V	25%	-	-	-	-	
GROOVE (PARTIAL PENETRATION)	100%	-	100%	-	-	REFERENCE NOTE 'E' BELOW
GROOVE (FULL PENETRATION)	100%	-	100%	-	-	ALL FULL PENETRATION WELDS

   - A) Test procedures:
     VT = Visual Test (inspection)
     MT = Magnetic Particle Test: ASTM E109, cracks or incomplete fusion or penetration not acceptable.
     UT = Ultrasonic Test: ASTM E164.
     PT = Penetrant Test: ASTM E165.
     RT = Radiographic Test: ASTM E94 and ASTM E142, min. quality level 2-21.
   - B) Acceptance standards in AWS D1.1 shall be followed for each test procedure.
   - C) Test procedures may be substituted to meet feasibility requirements of test based upon weld geometry or other factors with the approval of the Structural Engineer of Record.
   - D) Samples shall occur at random locations; additional tests may be required at locations noted on the Drawings.
   - E) Groove welds include square, bevel, V, U, and J grooves including single and double pass types.
   - F) Partial penetration square groove welds at end seal plates of tubular members do not require inspection.
   - G) Weld Procedure Specifications (WPS) shall be produced and maintained in accordance with AWS D1.1. The independent Testing Agency shall have access to all WPS's during the course of testing and inspection.
   - H) For highly-restrained welded joints, especially in thick plates and/or heavy structural shapes, details the welds so that shrinkage occurs as much as possible in the direction the steel was rolled. Refer to the AISC Manual for preferred welded-joint arrangements that reduce the possibility for lamellar tearing. Members scheduled to receive highly-restrained connections shall be tested by the independent Testing Agency by Ultrasonic Testing prior to commencing welding.
   - I) In addition to inspection requirements for fillet welds in Table above, 100% of field welding of diagonal bracing members to gusset plates shall be visually inspected (VT).

STEEL STAIRS

1. Refer to the Design Criteria notes for live load and handrail requirements.
2. All stair designs shall be provided by the Stair Manufacturer/Fabricator's Specialty Structural Engineer and shall be stamped by a Professional Engineer registered in the State of Indiana. Stair designs shall be in accordance with all applicable code provisions of the IBC.
3. The Stair Manufacturer/Fabricator's Specialty Structural Engineer shall provide the Structural Engineer of Record with drawings showing location, direction and magnitudes of all stair load reactions on the building structure for approval, prior to fabrication.
4. The Stair Manufacturer/Fabricator shall coordinate the transition between the supported structural floor slab and the stair structure with the Structural Steel Fabricator, prior to fabrication.
5. Refer to the Architectural Drawings for stair width, rise, run, tread and riser geometry, handrail and guardrail design, shaft wall construction, etc.

STEEL JOIST NOTES

1. All steel joists shall be designed, fabricated, and erected in accordance with SJI Standard Specifications.
2. Joist bridging (if shown) is schematically indicated. Provide all bridging necessary to conform to SJI Specifications.
3. The ends of all bridging lines terminating at walls or beams shall be anchored to the wall or beam.
4. Joist bridging and connections shall be completely installed prior to placing any construction loads on the joists. Construction loading shall not exceed the joist design load.
5. All roof joists shall be capable of resisting the net uplift a noted on the Structural Drawings (min. 15 psf net). Provide an additional row of continuous horizontal bottom chord bridging at the first panel point location at each end of all roof joists.
6. Special joists (SP) shall be designed for the load designations specified on the Structural Drawings. Designs shall properly account for the distribution of concentrated loads, live loads, and for the effect of openings. Designs are to meet the requirements of SJI.
7. Joists shall meet the following deflection criteria per SJI. Maximum live load deflection shall not exceed:

A) Roofs without suspended ceilings:	L/240
B) Roof with suspended ceilings:	L/360
C) Floors:	L/360

8. The Joist Manufacturer shall submit calculations for all special joists to Structural Engineer of Record for record purposes prior to fabrication. These calculations shall bear the seal and signature of a Professional Engineer registered in the State of Indiana.
9. Joists on column centerlines shall have extended bottom chord connections for erection stability, unless otherwise noted. Do not connect bottom chord extensions, unless otherwise noted or shown.
10. Joists on, or near column centerlines shall have field-bolted connections for erection stability, unless otherwise noted.
11. The Joist Manufacturer shall coordinate with the Structural Steel Fabricator for the design of all connections to support columns, beams, bearing seats, etc. prior to submittal of shop drawings.
12. Where a joist is part of a moment-resisting frame, delay the connection of the bottom chord to the column until all dead loads have been placed. All field-bolted and field-welded connections in moment-resisting frames shall be inspected per AWS and AISC requirements.
13. The Joist Manufacturer shall furnish evidence that the joist meets or exceeds the specified minimum moment of inertia (Ix) listed on the Plans. Where a minimum Ix value is not specified, the Ix value can be that required to meet the specified loading and deflection criteria.
14. All steel joists shall be furnished with standard SJI camber, unless noted otherwise.
15. All items suspended from joists such as catwalks, basketball goals, operable partitions, etc. should be installed after all dead loads of roofing, flooring, ceilings, etc. are installed.
16. All joists shall be shop primed in accordance with SJI requirements, unless note otherwise. Color to match structural steel primer, unless approved in writing.
17. Provide sloped bearing ends where joist slope exceeds 1/4" per foot.
18. Do not field cut or alter joists without the written approval of the Joist Manufacturer.

STEEL DECK NOTES

1. All steel deck material, fabrication and installation shall conform to the Steel Deck Institute "SDI SHORT FORM SPECIFICATIONS" and "SDI CODE OF STANDARD PRACTICE," current edition, unless noted.
2. Provide members for deck support at all deck span changes. Provide L3x3x3/16 deck support at all columns where required.
3. All deck shall be provided in a minimum of 3-span lengths where possible.
4. All welding of steel deck shall be in conformance with AWS Specification D1.3. Provide welding washers for all floor decks less than 22 gauge in thickness.
5. Mechanical fasteners may be used in lieu of welding, providing fasteners meet, or exceed the strength of specified welds. Submit fastener design data to the Structural Engineer of Record for review.
6. Substitution of fiber secondary reinforcement for welded wire fabric on supported slabs is prohibited.
7. Do not suspend any items, such as ductwork, mechanical and electrical fixtures, ceilings, etc. from steel deck.
8. Roof deck sidelaps shall be attached at ends of cantilevers and at a maximum spacing 12" o.c. from cantilevered roof deck ends. The roof deck must be completely fastened to the supports and at the sidelaps before any load is applied to the cantilever.
9. Submit shop drawings for review of general conformance to design concept in accordance with Specifications in the Project Manual. Erection drawings shall show type of deck, shop finish, accessories, method of attachment, edge details, deck openings and reinforcement, and sequence of installation.
10. Installation holes shall be sealed with a closure plate 2 gauges thicker than deck and mechanically fastened to deck. Steel deck holes visible from below will be rejected. Deck units that are bent, warped, or damaged in any way which would impair the strength and appearance of the deck shall be removed from the site.
11. Where gauge metal pourstops are indicated, supply pourstops designed to meet, or exceed the gauges listed in the SDI Pourstop Selection Table (min. 18 ga.) as required for slab depth, concrete weight, and cantilever distance, unless noted otherwise.
12. The Erector shall shim between parallel roof beams and joists with differential mill and induced cambers for level deck bearing.

COLD-FORMED (LIGHT GAUGE) METAL FRAMING NOTES

1. All cold-formed steel framing members, their design, fabrication, and erection shall conform to the "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" of the latest edition of the AISI.
2. All framing members shall be formed from steel conforming to ASTM A653, with a minimum yield strength as follows:

A) 12, 14 & 16 gauge members:	Fy=50ksi
B) 18, 20 gauge members:	Fy=33ksi

3. All framing members shall be galvanized with a G60 coating meeting the requirements of ASTM A653, unless otherwise indicated.
4. Members shall be the Manufacturer's standard 'C'-Shaped studs/joists of the size, flange width, and gauge indicated. All members shall have a minimum flange lip return of 1/2" and satisfy the minimum properties in accordance with the Steel Stud Manufacturers Association (SSMA).
5. The gauge of all tracks shall match the gauge of the associated stud or joist, unless otherwise noted.
6. All welding shall be in accordance with AWS Specification D1.3. No welding of members less than 14 gauge in thickness is permitted without the approval of the SER. All welding shall be performed by certified welders. All welds shall be touched up with zinc rich paint in accordance with ASTM A780.
7. Provide bridging for all load-bearing studs at a maximum spacing of 48" on center.
8. Provide bridging for all non load-bearing curtain wall studs at a maximum spacing of 54" o.c. Locate one row of bridging within 18" of the top track when a single deep-leg deflection track is utilized.
9. Provide bridging for joists and rafters at midspan and at a maximum spacing of 6'-0" o.c., unless noted otherwise. All bridging shall be installed prior to the application of any loading. Connect bridging to each member by clip angles, or other approved method per the Manufacturer's requirements.
10. Provide web stiffeners at joist and rafter bearings in accordance with the Manufacturer's requirements.
11. All axially-loaded studs shall have full bearing against the track web, prior to stud and track alignment. Splices in axially loaded studs are not permitted.
12. Provide the Manufacturer's standard track, clip angles, bracing, reinforcement, fasteners, and accessories as recommended by the Manufacturer for the application indicated and as needed to provide a complete framing system. Unless otherwise indicated, install the metal framing system in accordance with the Manufacturer's shop drawings, written instructions and recommendations.
13. Install supplementary framing, blocking, and bracing in metal framing system wherever walls or partitions are indicated to support fixtures, equipment, services, casework, heavy trim and furnishings, and similar work requiring attachment to the wall or partition. Where type of supplementary support is not otherwise indicated, comply with the stud manufacturer's recommendations and industry standards in each case, considering weight or loading resulting from the item supported.
14. All field-cutting of studs must be done by sawing or shearing. Torch-cutting of cold-formed members is not allowed.
15. No notching or coping of studs is allowed, unless explicitly shown on the design or shop drawings. All field-cut holes must be reinforced.
16. The Framing Contractor is to ensure punch out alignment when assembling lateral bracing/bridging and field-cutting studs to length. Lateral bracing/bridging must be installed at the time the wall is erected.
17. Temporary bracing shall be provided and remain in place until work is completely stabilized.
18. Use a minimum of three studs at the corners of all exterior walls.
19. Use a minimum of three studs at the intersections and corners of all load-bearing walls.
20. All headers and built-up beams must be constructed of UNPUNCHED material only. Install insulation in built-up exterior framing members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.
21. Shop drawings: Show layout, spacings, sizes, thicknesses, types of cold-formed metal framing, and fastening and anchorage details, including mechanical fasteners. Show reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.
22. For cold-formed metal framing indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer (SSE) responsible for their preparation.
23. Structural Performance: Provide cold-formed metal framing capable of withstanding design loads within limits and under conditions indicated.
   - A) Design Loads: Reference the Design Criteria Notes.
   - B) Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
     1. Wall Framing: Horizontal deflection of 1/240 of the wall height for walls with flexible finishes, e.g. metal siding, wood siding, EIFS, etc.
     2. Wall Framing: Horizontal deflection of 1/360 of the wall height for walls with cementitious finishes, e.g. cement plaster.
     3. Wall Framing: Horizontal deflection of 1/600 of the wall height for walls with masonry veneer finishes.
     4. Floor Joist Framing: Vertical deflection of 1/480 of the span under live load. Limit deflection under total load (dead + live) to 1/360 of the span.
     5. Roof Framing: Vertical deflection of 1/360 of the span under live/snow load. Limit deflection under total load (dead + live/snow) to 1/240 of the span.
24. Design framing systems to provide for movement of framing members without damage or overstressing, sheathing failure, undue strain on fasteners and anchors, or other detrimental effects when subject to an ambient temperature change of not less than 120 degrees F.
25. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows: Upward and downward movement of 3/4 inch.
26. Design exterior non load-bearing curtain wall framing to accommodate horizontal deflection without regard for contribution or sheathing materials.

PRECAST / PRESTRESSED CONCRETE NOTES

1. The design of precast columns, beams, double tees, walls, slabs, embeds, inserts, connections, etc. to be by the Precast Manufacturer's qualified Professional Engineer (SSE). The precast structure shall be designed to support the construction shown on the Structural and Architectural Drawings and to support the loads indicated on the Structural Loading Plans.
2. The layout and arrangement of all precast framing is schematic in nature and intended to convey the anticipated scope of the precast structure. The final layout and arrangement, spacing, size and depth of members, etc. shall be determined by the Precast Manufacturer in consultation with their Specialty Structural Engineer. The framing information shown is not meant to be restrictive, nor to prevent the Precast Manufacturer from suggesting potential cost savings or value engineering alternatives. Maximum depths listed on the framing plans shall not be exceeded, unless determined insufficient to support the specified loads and/or meet the specified deflection limits. The Precast Manufacturer shall list any changes to the depths and/or arrangement of framing members in their bids.
3. The Precast Manufacturer shall submit calculations and shop drawings, bearing the seal and signature of a professional engineer (SSE) registered in the State of Indiana, for all precast members, inserts, bearing pads, openings and anchors. Refer to the Specialty Structural Engineer (SSE) notes for additional requirements.
4. The Precast Manufacturer shall be a PCI-Certified Plant and shall maintain detailed fabrication and quality control procedures.
5. All precast concrete shall have a minimum 28 day compressive strength of 5000 PSI. Minimum compressive strength at transfer of prestressing force shall be 3500 PSI. Concrete permanently exposed to weather shall be air- entrained to 5% (+/-1%) with an admixture conforming to ASTM C260.
6. The precast structure must be temporarily braced against lateral loading, unbalanced gravity load and eccentricity due to incomplete structure until bracing elements (i.e shear walls, frames, etc.) and tying elements (cast in place topping slabs and tie beams, beam and double tee erection connections, etc.) are complete and have attained their design strength.
7. The precast members shall bear on appropriately designed bearing pads or strips as supplied by the Precast Manufacturer. Precast members shall have embedded steel bearing plates sufficiently reinforced and anchored for bearing, shear-friction, and direct tension (due to temperature and creep shortening) requirements.
8. The precast double tees shall be a minimum of 2 inches thick and shall have adequate reinforcing to support the specified uniform and concentrated loads in composite action with the cast in place topping slab.
9. The Precast Manufacturer shall provide minimum clear cover to reinforcing in accordance with ACI 318.
10. All weld plates, coil inserts, anchor bolts/rods, etc. as required for the support of, or connection to the precast structure, identified on the Precast shop drawings to be installed by other trades, shall be designed and furnished by the Precast Manufacturer. The installation of embeds and construction of cast in place, structural steel, and masonry support for precast elements shall be performed in accordance with Erection Drawings and Details furnished by the Precast Manufacturer. Unless noted otherwise, all connections exposed to the weather shall be hot-dip galvanized in accordance with ASTM A153. All other connections shall receive a shop coat of zinc rich paint.
11. Small openings for the mechanical, plumbing and electrical penetrations may be field cut/core-drilled through the flanges of double tees only, in accordance with the Precast Mfr's. recommendations. No stems of double tees, inverted tee girders, columns, walls may be cut, unless approved by the Precast Manufacturer and the Sructural Engineer of Record. Coordinate all openings not shown on the Structural Drawings with the respective trades prior to preparation of Shop Drawings. The Precast Manufacturer shall provide additional reinforcement as required.
12. In no case are any prestressing strands to be cut. No post-installed anchors may be installed near the bottom of double tee stems, inverted tee girders, rectangular beams, slabs, etc. or any area where prestressing strands are located. Coordinate all anchorage to and suspension from precast members with the Precast Manufacturer prior to construction.
13. All concrete topping shall have a minimum 28 day compressive strength of 4000 psi, unless otherwise required by the Precast Manufacturer. Concrete toppings shall have the following maximum aggregate size.

A. 3" nominal thickness	3/4"
B. 2" nominal thickness	1/2"
C. 1" nominal thickness	3/8"
D. Less than 1" thickness	Gypcrete 2000 Gypsum Floor Underlayment or other non-structural, self-leveling topping

   The Contractor shall consider the effects of camber and tolerance on the minimum topping thickness and limit the size of large aggregate accordingly. The Contractor shall field measure/survey top of precast surfaces prior to casting the topping to verify topping thickness and control flatness tolerances.
14. Diaphragm Notes:
   - A) Provide diaphragm reinforcing in the size, number, and location(s) shown on the Framing Plans.
   - B) Fabricate reinforcing in the longest lengths practical for placement.
   - C Lap splices in diaphragm reinforcing a minimum of 48 bar diameters.
   - D Furnish 90 degree hooks at all inside corners.
   - E) Extend reinforcing a minimum of 6'-0" past intersecting perpendicular reinforcing at all outside corners.
   - F) Support diaphragm reinforcing on chairs/bolsters. Maintain diaphragm reinforcing as close to centered in the topping slab as possible while maintaining specified minimum coverages. Adjust height of chairs/bolsters as required to account for camber in precast members.
   - G) For topping slabs reinforced with welded wire fabric, lap w.w.f. with diaphragm reinforcing.
   - H) At topping slabs reinforced with rebar, extend perpendicular reinforcing bars over diaphragm reinforcing.
   - I) At steps in topping slabs, fabricate diaphragm reinforcing with slopes/bends, or provide additional diaphragm continuity reinforcing at steps in topping slabs.
   - J) Provide #4 x 5'-0" long diagonal bars at corners of openings in topping slabs and at all columns that penetrate the topping.
15. Unless otherwise noted, the Contractor shall set screeds for topping slabs based on the nominal topping thickness measured at end bearings, not at the center of the cambered element. Where actual camber exceeds the tolerances for camber specified in the Project Manual, contact the Structural Engineer of Record for direction before proceeding with the pour.
16. For Podium/Platform precast construction supporting additional floors of wood and/or light gauge framing, the precast and topping floor system shall achieve a 3-hour fire rating. Profiles of precast double tees must provide sufficient cover to achieve the 3-hour fire rating.

BAR GRATING

1. Comply with applicable provisions and recommendations of the NAAMM Metal Bar Grating Manuals designated ANSI/NAAMM MBG 531 for Steel, Stainless Steel and Aluminum Gratings and Stair Treads.
2. The steel used in the bearing bars shall be of rectangular section and conform to ASTM A569 Hot Rolled Carbon Steel Sheet and Strip and ASTM A36 for structural steel bars. The cross bars shall be ASTM A510 Carbon Steel Rods and Coarse Round Wire.
3. The Contractor shall submit shop drawings for fabrication and erection of the work including plans, elevations, sections and details of the work.
4. The Contractor shall submit the manufacturer's specifications, load tables, anchor details and standard installation details.
5. The Contractor shall take field dimensions to verify "as-built" conditions to ensure proper fit of grating.
6. Unless otherwise noted, bar grating shall be 19W4 grating with rectangular bars of an appropriate depth and thickness for the required load on 1 3/16" centers. Cross bars shall be twisted wire rod at 4" centers, resistance welded to the bearing bars. When installed, grating cross bars shall be in alignment.
7. Where grating is subject to public pedestrian travel, especially narrow heels or wheelchairs, provide 11W4 close-mesh bar grating meeting the requirements of the Americans with Disabilities Act (ADA).
8. The bearing bars shall have a smooth top surface unless a serrated surface is noted on the Architectural Drawings or Specifications.
9. Unless otherwise noted, bar grating in the exterior environment, or interior areas subject to frequent wetting or exposure to corrosive chemicals shall be galvanized. All other interior applications to receive the Manufacturer's standard shop coat of black paint. The finish coating, paint or galvanizing shall be applied after all of the required fabrication is complete.
10. All cutouts to clear obstructions shall have a recommended clearance of 1 inch. Pipe penetrations of 4" or less shall be cut in the field.
11. All edges shall be banded, unless noted otherwise.
12. Bar grating shall be fastened to the supporting structure as follows:
   - A) For permanent applications: Provide 3/16" fillet welds x 3/4" long located at intermediate supports in the middle of the panels and at the four bearing bar ends, 6" from each side of the panel.
   - B) For installations subject to removal: Provide welded lugs with tapped threads to receive minimum 1/4" diameter machine bolts with washers. Locate lugs & fasteners as described for welds above. When approved by the Architect/Structural Engineer of Record, removable Type H-3 Saddle Clips or Type H-1 Anchor Clips may be used. Submit proposed fasteners for review.

△1 FINISH FLOORS AND SLABS

1. Comply with recommendations of ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Perform this work in a manner which will provide floor flatness F(f) and floor levelness F(l) criteria specified.
2. Deposit and consolidate concrete floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
   - A. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement, other embedded items and into corners.
   - B. Maintain reinforcement in position on chairs during concrete placement.
   - C. Bring slab surfaces to correct elevation with a straightedge and strike off.
   - D. Slope slab surfaces uniformly to drains where required.
   - E. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plan, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations. Provide wokr procedures required to meet F(f) and F(l) requirements and to meet requirements for applied floor finishes specified in Division 9.
3. Unless otherwise specified in the Contract Documents, the minimum F(f) and F(l) numbers shall be met:
   - A. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes. Apply scratch finish to surfaces to receive bonded concrete floor topping and other bonded cementitious floor finishes.
     1. Specified overall values of flatness, F(f) 20; and levelness F(l) 15; with minimum local values of flatness F(f) 15; and levelness, F(l) 10.
     2. Option: Finish and measure surface so gap at any point between concrete surface and an unleveled freestanding 10 foot long straightedge, resting on two high spots and placed anywhere on the surface, does not exceed 1/4".
   - B. 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 restraightening until surface is left with a uniform, smooth, granular texture. Apply float finish to monolithic concrete floor and slab surfaces to receive trowel finish, and to floor and slab surfaces to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or terrazzo, ceramic tile, and quarry tile set over a cleavage membrane. Uniformly slope surfaces to drains, unless otherwise indicated.
     1. Specified overall values of flatness, F(f) 25; and levelness, F(l) 20; with minimum local values of flatness F(f) 18; and levelness, F(l) 15.
     2. Option: Finish and measure surface so gap at any point between concrete surface and an unleveled freestanding 10 foot long straightedge, resting on two high spots and placed anywhere on the surface, does not exceed 3/16".
   - C. Trowel Finish: After applying flood finish, apply first trowel finish and consolidate concrete by power driven trowel or by hand trowel if area is small or inaccessible to power driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth surface defects that would telegraph through applied coatings or floor coverings. Uniformly slope surfaces to drains, unless otherwise indicated. Apply a trowel finish to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, thin-set ceramic or quarry tile, paint, or other thin film finish coating system. Finish surfaces to following tolerances, measured within 24 hours according to ASTM E1155 for a randomly trafficed floor surface:
     1. Specified overall values of flatness, F(f) 35; and levelness, F(l) 25; with minimum local values of flatness F(f) 25; and levelness, F(l) 18.
     2. Option for small areas: Finish and measure surface so gap at any point between concrete surface and an unleveled freestanding 10 foot long straightedge, resting on two high spots and placed anywhere on the surface, does not exceed 1/8".
     3. Athletic floors, Cafeterias, Large-Group Instruction areas and similar areas: Specified overall values of flatness, F(f) 45; and levelness, F(l) 35; with minimum local values of flatness F(f) 35; and levelness, F(l) 25. Grind high areas and fill low areas as required to produce a surface acceptable to the installer of the specified finish floor system. Provide screeds not exceeding 20 feet on center, vibrating screed to strike-off, highway straightedge to close and straighten, machine float, restraighten with highway straightedge or "cross rod," and machine trowel three times, in accordance with ACI referenced recommendations. For floors to receive fluid-applied athletic floors, assume a minimum of 10% of the length of sawn control joints will require grinding to address curling.
4. For suspended concrete slabs on metal deck, additional special requirements apply:
   - A. For estimating and bidding purposes, assume and additional 1/2" thickness of concrete will be necessary for all suspended (supported) elevated concrete slabs on metal deck to compensate for deflection of floor structure and deck. Suspended slabs on deck shall meet the following: Specified overall value of flatness, F(f) 30; with minimum local value of flatness F(f) 20. The use of a laser screed is highly recommended. Monitor the deflection of the structrue during early pours and adjust concrete placement and finishing procedures accordingly.

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△ REVISIONS:

#	Date	Desc.
1	04.29.22	BID PKG. #1 ADD #2

100% CONSTRUCTION DOCUMENTS

PROJECT: #21107
DATE: 04.11.2022
DRAWN BY: DJL

STRUCTURAL NOTES

S001

⚠ REINFORCED MASONRY WALL SCHEDULE

WALL MARK	UNIT	VERTICAL REINFORCING	HORIZONTAL BOND BEAMS		NOTES/REMARKS
			SIZE	ELEV. T/BOND BEAM	
RMW8	8"	#5 @ 32"	8" WIDE X 8" HIGH	SPACE AT MAX. 8'-0" O.C.	REF. S500 FOR TYPICAL DETAILS
RMW10	10"	#6 @ 24"	10" WIDE X 8" HIGH	SPACE AT MAX. 8'-0" O.C.	REF. S500 FOR TYPICAL DETAILS

⚠ CONCRETE PIER SCHEDULE

PIER MARK	PIER SIZE		PIER REINFORCING			
			VERTICALS	TIES-SIZE & SPA.[3]	DETAIL	CRITICAL HEIGHT
P18	1' - 6"	1' - 6"	(4) #6	#4 @ 12" O.C.	A	N/A
P24	2' - 0"	2' - 0"	(8) #6	#4 @ 12" O.C.	B	≤ 2' - 8"
			(4) #8	#4 @ 12" O.C.	A	> 2' - 8"
P28x62	2' - 4"	6' - 2"	(16) #9	#4 @ 12" O.C.	E	N/A
P32	2' - 8"	2' - 8"	(12) #6	#4 @ 12" O.C.	C	≤ 2' - 8"
			(8) #8	#4 @ 12" O.C.	B	> 2' - 8"
P22C	1'-10" DIA		(8) #6	#4 @ 12" O.C.	D	N/A

1. PROVIDE MIN. 1 ½" CLEAR TO PIER TIES.

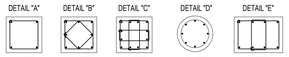
2. 'CRITICAL HEIGHT' DENOTES THE HEIGHT ABOVE WHICH LARGER DIAMETER VERTICALS WITH FEWER TIES MAY BE USED. REF. FOUNDATION PLAN(S) FOR TOP OF PIER & FOOTING ELEVS.

3. REF. 'TYPICAL CONCRETE PIER REINFORCING' ON FOUNDATION DETAIL SHEET FOR FURTHER INFORMATION ON TIE SPACING.

4. VERTICAL DOWELS ARE TO FUNCTION AS PIER VERTICALS FOR PIERS LESS THAN OR EQUAL TO 5' - 0" HIGH. PROVIDE SEPARATE DOWELS & VERTICALS FOR PIERS GREATER THAN OR EQUAL TO 5' - 0" HIGH, UNLESS APPROVED.

5. CONTACT THE STRUCTURAL ENGINEER FOR DIRECTION IF COLUMN ANCHOR RODS FOUL WITH PIER TIES OR VERTICALS.

6. MIN. HEIGHT OF PIERS: #6 VERTICALS = 2' - 0", #7 VERTICALS = 2' - 8".



⚠ CONCRETE WALLS SCHEDULE

WALL MARK	OUTSIDE (EARTH) FACE REINF.			INSIDE (EXPOSED) FACE REINF.		
	VERTICAL	HORIZ.	DOWELS	VERTICAL	HORIZ.	DOWELS
CW6	-------	-------	-------	#5 @ 12" CENTER IN WALL	#5 @ 10" CENTER IN WALL	TO MATCH VERT'S.
CW8	-------	-------	-------	#5 @ 12" CENTER IN WALL	#5 @ 10" CENTER IN WALL	TO MATCH VERT'S.
CW10	#5 @ 12"	#5 @ 12"	TO MATCH VERT'S.	#5 @ 12"	#5 @ 12"	TO MATCH VERT'S.
CW12	#5 @ 12"	#5 @ 12"	TO MATCH VERT'S.	#5 @ 12"	#5 @ 12"	TO MATCH VERT'S.
CW18	#6 @ 12"	#6 @ 12"	TO MATCH VERT'S.	#6 @ 12"	#6 @ 12"	TO MATCH VERT'S.

1. PROVIDE #3 SPACER TIES @ 48" O.C. EACH WAY FOR ALL WALLS W/ (2) GRIDS OF REINFORCING.

⚠ WALL FOOTING SCHEDULE

FTG. MARK	FOOTING SIZE		FOOTING REINFORCING	
	WIDTH	DEPTH	LONGITUDINAL	TRANSVERSE
WF24	2'-0"	1'-2"	(3) #5 x CONTINUOUS	#4 x 1'-6" @ 32" O.C.
WF36	3'-0"	1'-2"	(3) #5 x CONTINUOUS	#4 x 2'-6" @ 24" O.C.
WF42	3'-6"	1'-3"	(4) #5 x CONTINUOUS	#5 x 3'-0" @ 12" O.C.
WF48	4'-0"	1'-3"	(4) #5 x CONTINUOUS	#5 x 3'-6" @ 12" O.C.
WF60	5'-0"	2'-6"	(6) #7 x CONTINUOUS T&B w/ STD 180° HOOKS	#7 x 4'-6" @ 10" O.C. T&B w/ STD 180° HOOKS
WF72	6'-0"	2'-6"	(7) #7 x CONTINUOUS T&B w/ STD 180° HOOKS	#7 x 4'-6" @ 10" O.C. T&B w/ STD 180° HOOKS
WF126	10'-6"	2'-6"	(12) #7 x CONTINUOUS T&B w/ STD 180° HOOKS	#7 x 4'-6" @ 10" O.C. T&B w/ STD 180° HOOKS

1. CENTER FOOTINGS BENEATH WALLS, U.N.O.

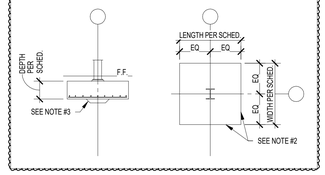
⚠ COLUMN FOOTING SCHEDULE

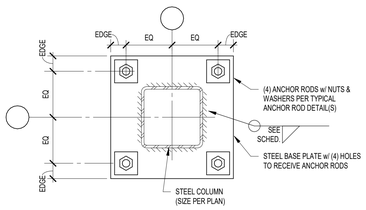
FOOTING MARK	FOOTING SIZE			REINFORCING (EACH WAY)
	WIDTH	x LENGTH	x DEPTH	
F4.0	4'-0"	4'-0"	1'-2"	(4) #5 x 3'-6"
F4.0T	4'-0"	4'-0"	2'-6"	(4) #5 x 3'-6"
F4.0V[4]	4'-0"	4'-0"	V/F	(4) #5 x 3'-6"
F5.0	5'-0"	5'-0"	1'-2"	(5) #5 x 4'-6"
F5.0T	5'-0"	5'-0"	2'-6"	(5) #5 x 4'-6" T&B
F5.0TV[4]	5'-0"	5'-0"	V/F	(5) #5 x 4'-6" T&B
F5.0V[4]	5'-0"	5'-0"	V/F	(5) #5 x 4'-6" T&B
F6.0	6'-0"	6'-0"	1'-2"	(7) #5 x 5'-6"
F6.0T	6'-0"	6'-0"	2'-6"	(7) #5 x 5'-6" T&B
F6.0x4.0V	6'-0"	4'-0"	V/F	(7) #5 x 5'-6" T&B
F7.0	7'-0"	7'-0"	1'-5"	(7) #6 x 6'-6"
F7.0T	7'-0"	7'-0"	2'-6"	(7) #6 x 6'-6" T&B
F7.0x4.0V	7'-0"	4'-0"	V/F	(7) #6 x 6'-6" T&B
F8.0x5.5V	8'-0"	5'-0"	V/F	(6) #6 x 7'-6" T&B & (9) #6 x 7'-6" T&B
F10.0	10'-0"	10'-0"	2'-6"	(11) #7 x 9'-6" T&B
F11.0	11'-0"	11'-0"	2'-2"	(12) #7 x 10'-6" T&B
M1S	PER PLAN	PER PLAN	1'-3"	#5 BARS @ 12" O.C.

NOTES:

1. CENTER FOOTINGS BENEATH COLUMNS, U.N.O.
2. ALL FOOTINGS MUST BE BOARD-FORMED, UNLESS APPROVED.
3. INCREASE FOOTING DEPTH WHERE REQ'D TO ENCASE COLUMN ANCHOR RODS
4. FOOTING MARKS WITH "V" SUFFIX HAVE GEOMETRY (W, H, T) THAT NEEDS TO BE COORDINATED WITH EXISTING CONDITIONS

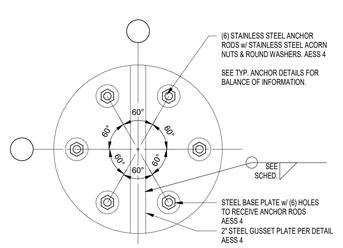
NOTE: WF STEEL COLUMN SHOWN, TUBES, PIPES, C.I.P. CONCRETE, PRECAST & MASONRY COLUMNS SIM.





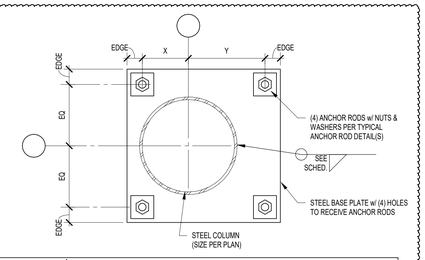
⚠ COLUMN BASE PLATE SCHEDULE

COLUMN SIZE	BASE PLATE SIZE	EQ	EDGE	ANCHOR ROD DIA	MAX. HOLE
HSS5.563	3/4" X 1'-2" X 1'-2" WELD = 5/16"	5 1/2"	1 1/2"	3/4"	1 5/16"
HSS6x6 & HSS6.625	3/4" X 1'-2" X 1'-2" WELD = 5/16"	5 1/2"	1 1/2"	3/4"	1 5/16"
HSS8x8 & HSS8.625	1" X 1'-4" X 1'-4" WELD = 5/16"	6"	2"	1 1/4"	2 1/16"
HSS10x10	1 1/4" X 1'-6" X 1'-6" WELD = 3/8"	7"	2"	1 1/4"	2 1/16"
HSS12.75	1 1/4" X 1'-8" X 1'-8" WELD = 3/8"	8"	2"	1 1/4"	2 1/16"
W14	2 1/4" X 2'-4" X 2'-4" WELD = 3/8"	11 1/2"	2 1/2"	1 1/2"	2 5/16"
W21	1 1/4" X 2'-0" X 1'-4" WELD = 3/8"	10" & 6"	2"	1 1/4"	2 1/16"



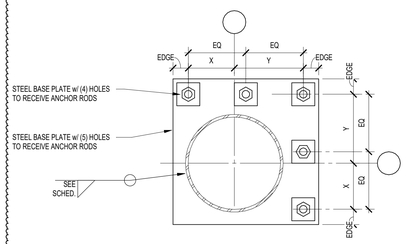
⚠ COLUMN BASE PLATE SCHEDULE - ROUND

COLUMN SIZE	BASE PLATE SIZE	EQ	EDGE	ANCHOR ROD DIA	MAX. HOLE
HSS12.75 & CAST CONNEX	1 1/4" X 1'-10" DIA WELD = 3/8"	N/A	3"	1 1/4"	1 13/16"



⚠ EDGE OFFSET COLUMN BASE PLATE SCHEDULE

COLUMN GRIDS	COLUMN SIZE	BASE PLATE SIZE	EQ	EDGE	X	y	ANCHOR ROD DIA.	MAX. HOLE
L1-LP, L1-LR L10-LA	HSS12.75	1 1/4" X 1'-8" X 1'-8" WELD = 3/8"	8"	2"	6"	10"	1 1/4"	1 13/16"
L7-LM	HSS12.75	1 1/4" X 1'-8" X 1'-8" WELD = 3/8"	8"	2"	4"	12"	1 1/4"	1 13/16"



⚠ CORNER OFFSET COLUMN BASE PLATE SCHEDULE

COLUMN GRIDS	COLUMN SIZE	BASE PLATE SIZE	EQ	EDGE	X	y	ANCHOR ROD DIA.	MAX. HOLE
L10-LC	HSS12.75	1 1/4" X 1'-8" X 1'-8" WELD = 3/8"	8"	2"	6"	10"	1 1/4"	1 13/16"
L6-LM	HSS12.75	1 1/4" X 1'-8" X 1'-8" WELD = 3/8"	8"	2"	4"	12"	1 1/4"	1 13/16"

ARCHITECTURALLY EXPOSED STRUCTURAL STEEL (AESS) - KEY

ID	CATEGORY	AESS 4	AESS 3	AESS 2	AESS 1
	CHARACTERISTICS	AISC CODE OF STANDARD PRACTICE SECTION 10 FOR AESS			
1.1	SURFACE PREPARATION TO SSPC-SP-6	X	X	X	X
1.2	SHARP EDGES GROUND SMOOTH	X	X	X	X
1.3	CONTINUOUS WELD APPEARANCE	X	X	X	X
1.4	STANDARD STRUCTURAL BOLTS	X	X	X	X
1.5	WELD SPATTERS REMOVED	X	X	X	X
2.1	VISUAL SAMPLES	X	X		
2.2	ONE-HALF STANDARD FABRICATION TOLERANCES	X	X	X	
2.3	FABRICATION MARKS NOT APPARENT	X	X	X	
2.4	WELDS UNIFORM AND SMOOTH	X	X	X	
3.1	MILL MARKS REMOVED	X	X		
3.2	BUTT AND PLUG WELDS GROUND SMOOTH AND FILLED	X	X		
3.3	HSS WELD SEAM ORIENTED FOR REDUCED VISIBILITY	X	X		
3.4	CROSS SECTIONAL ABUTTING SURFACE ALIGNED	X	X		
3.5	JOINT GAP TOLERANCES MINIMIZED	X	X		
3.6	ALL WELDED CONNECTIONS	OPTIONAL	OPTIONAL		
4.1	HSS SEAM NOT APPARENT	X			
4.2	WELDS CONTOURED AND BLENDED	X			
4.3	SURFACES FILED AND SANDED	X			
4.4	WELD SHOW-THROUGH MINIMIZED	X			

NOTES:

1.1 PRIOR TO BLAST CLEANING, GREASE AND OIL ARE REMOVED BY SOLVENT CLEANING TO MEET SSPC-SP1.
1.2 ROUGH SURFACES ARE DEBURRED AND GROUND SMOOTH. SHARP EDGES RESULTING FROM FLAME CUTTING, GRINDING AND ESPECIALLY SHEARING ARE SOFTENED.
1.3 INTERMITTENT WELDS ARE MADE CONTINUOUS, EITHER WITH ADDITIONAL WELDING, CAULKING OR BODY FILLER. FOR CORROSIVE ENVIRONMENTS, ALL JOINTS ARE SEAL WELDED. SEAMS OF HOLLOW STRUCTURAL SECTIONS ARE ACCEPTABLE AS PRODUCED.
1.4 ALL BOLT HEADS IN CONNECTIONS ARE ON THE SAME SIDE, AS SPECIFIED, AND CONSISTENT FROM ONE CONNECTION TO ANOTHER.
1.5 WELD SPATTER, SLIVERS, SURFACE DISCONTINUITIES ARE REMOVED. WELD PROJECTION UP TO 1/16 IN. (2 MM) IS ACCEPTABLE FOR BUTT AND PLUG WELDED JOINTS.
2.1 VISUAL SAMPLES ARE EITHER A 3-D RENDERING, A PHYSICAL SAMPLE, A FIRST-OFF INSPECTION, A SCALED MOCK-UP OR A FULL-SCALE MOCK-UP, AS SPECIFIED IN THE CONTRACT DOCUMENTS.
2.2 THESE TOLERANCES ARE ONE-HALF OF THOSE FOR STANDARD STRUCTURAL STEEL AS SPECIFIED IN THIS CODE.
2.3 MEMBERS MARKINGS DURING THE FABRICATION AND ERECTION PROCESSES ARE NOT VISIBLE.
3.1 ALL MILL MARKS ARE NOT VISIBLE IN THE FINISHED PRODUCT.
3.2 CAULKING OR BODY FILLER IS ACCEPTABLE.
3.3 SEAMS ARE ORIENTED AWAY FROM VIEW OR AS INDICATED IN THE CONTRACT DOCUMENTS.
3.4 THE MATCHING OF ABUTTING CROSS SECTIONS IS REQUIRED.
3.5 THIS CHARACTERISTIC IS SIMILAR TO 2.2 ABOVE. A CLEAR DISTANCE BETWEEN ABUTTING MEMBERS OF 1/8 IN. (3 MM) IS REQUIRED.
3.6 HIDDEN BOLTS MAY BE CONSIDERED.
4.1 HSS SEAMS ARE TREATED SO THEY ARE NOT APPARENT.
4.2 IN ADDITION TO A CONTOURED AND BLENDED APPEARANCE, WELDED TRANSITIONS BETWEEN MEMBERS ALSO ARE CONTOURED AND BLENDED.
4.3 THE STEEL SURFACE IMPERFECTIONS ARE FILLED AND SANDED.
4.4 WELD SHOW-THROUGH ON THE BACK SIDE OF A WELDED ELEMENT CAN BE MINIMIZED BY HAND GRINDING THE BACK SIDE SUR-FACE. THE DEGREE OF WELD-THROUGH IS A FUNCTION OF WELD SIZE AND MATERIAL.

DEFINITIONS:

1. 'FABRICATION TOLERANCE': Fabricate steel to one-half the normal tolerances as specified in the AISC "CODE OF STANDARD PRACTICE", Section 10.
2. 'WELDS GROUND SMOOTH': Fabricator (or Erector for field welds) shall grind welds of AESS smooth. For groove welds, the welds shall be made flush to the surfaces each side and be within +1/16", -0" of plate thickness.
3. 'CONTOURING & BLENDING OF WELDS': Where fillet welds are indicated to be ground-contoured or blended, oversize welds as required and grind to provide a smooth transition and to match profile on approved mockup.
4. 'CONTINUOUS WELDS': Where welding is noted on the Drawings, provide continuous welds of a uniform size and profile.
5. 'MINIMIZE WELD SHOW THROUGH': At locations where welding on the far side of an exposed connection occurs, grind distortion and marking of the steel to a smooth profile with adjacent material.
6. 'COPING AND BLOCKING TOLERANCE': Maintain a uniform gap of 1/8" +/- 1/32" at all copes and blocks.
7. 'JOINT GAP TOLERANCE': Maintain a uniform gap of 1/8" +/- 1/32" at all joint gaps.
8. 'PIECE MARKS HIDDEN': Fabricate such that piece marks are fully hidden from view in the final structure or made with such media to permit full removal after erection.
9. 'MILL MARK REMOVAL': Fabricator shall deliver steel with no mill marks (stenciled, stamped, raised, etc.) in exposed locations. Mill marks shall be omitted by cutting of mill material to appropriate lengths where possible. Where not possible, the Fabricator can fill and/or grind to a surface finish consistent with the approved mockup.
10. 'GRINDING OF SHEARED EDGES': Fabricator shall grind all edges of sheared, punched, or flame-cut steel to match the approved mockup.
11. 'ROLLED MEMBERS': Members specified to be rolled to a final curved shape shall be fully shaped in the shop and tied during shipping to prevent stress relieving. Distortion of the web or stem, and of the outstanding flanges or legs of angles shall be visibly acceptable to the Architect from a distance of 20 feet under any lighting condition determined by the Architect. Tolerances for the vertical and horizontal walls of rectangular HSS members after rolling shall be the specified dimension of +/- 1/2".
12. 'SEAL WELD TO CLOSE OPEN GAPS': Seal weld open ends of round and rectangular hollow structural sections with 3/8" closure plates. Provide continuous sealed welds at angle-to-gusset plate connections and similar locations where AESS is exposed to weather.
13. 'BOLT HEAD ORIENTATION': All bolt heads shall be oriented as indicated on the Drawings. Where bolt head alignment is specified, the orientation shall be noted for each connection on the Fabricator's Erection Drawings. Where not noted, the bolt heads in a given connection shall be oriented to one side.
14. 'REMOVAL OF FIELD-WELDING AIDS': Run-out tabs, erection bolts, temporary seats, and other steel members added to connections to allow for alignment, fit-up, and welding in the field shall be removed from the structure. Field groove welds shall be selected to eliminate the need for backup bars or to permit their removal after welding. Welds at run-out tabs shall be removed to match adjacent surfaces and ground smooth. Holes for erection bolts shall be plug-welded and ground smooth.
15. 'FILLING OF WELD ACCESS HOLES': Where holes must be cut in the web at the intersection with flanges on W-Shapes and structural tees to permit field welding of the flanges, they shall be filled. Filling shall be executed with proper procedures to minimize restraint and address thermal stresses in Group 4 and 5 Shapes.

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REVISIONS:

#	Date	Desc.
1	04.29.22	BID PKG. #1 ADD #2

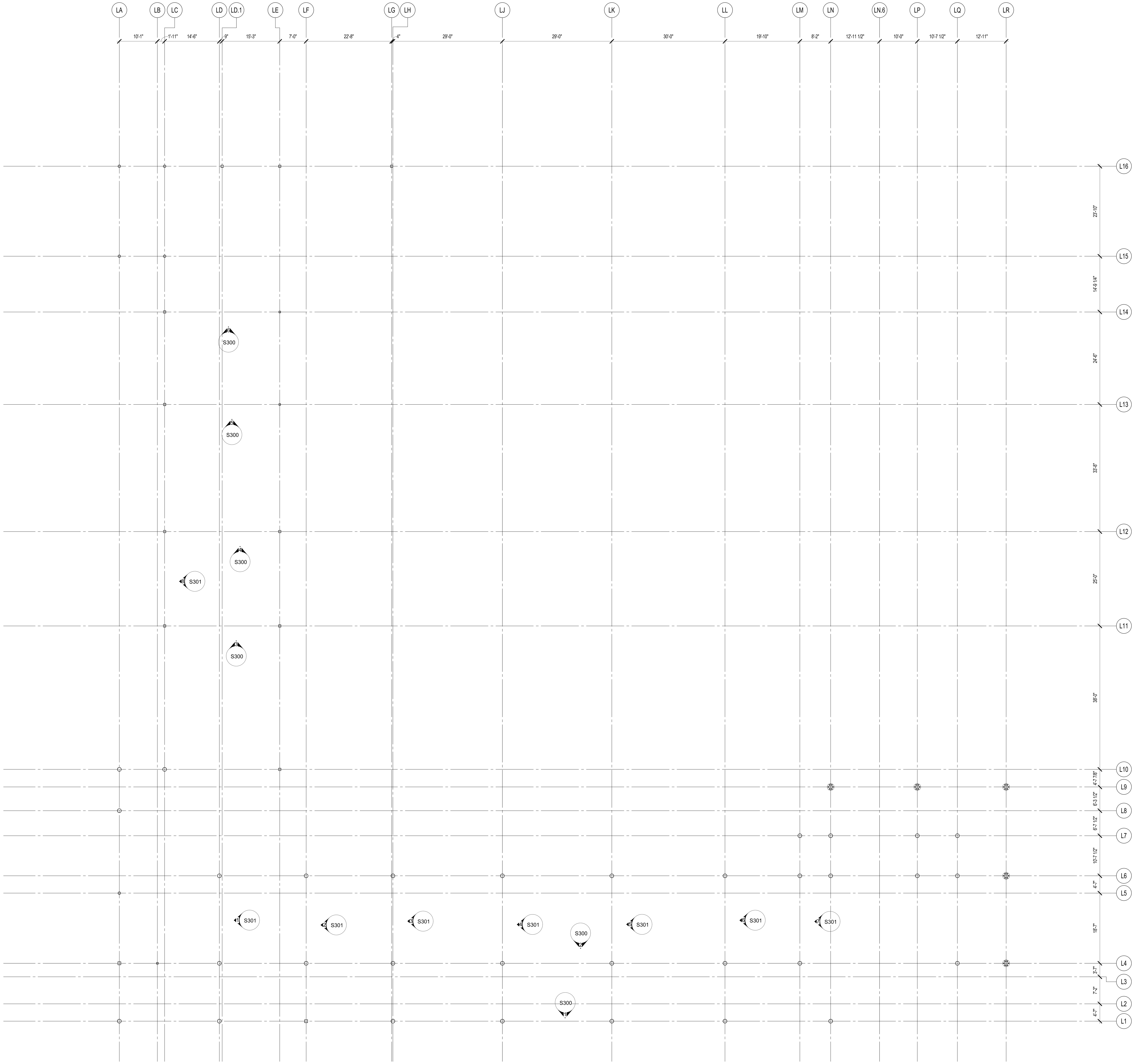
100% CONSTRUCTION DOCUMENTS

PROJECT: #21107
DATE: 04.11.2022
DRAWN BY: DJL

SCHEDULES

S002

PLOT DATE/TIME: 4/29/2022 11:16:49 AM



1 GRID AND BRACE PLAN - UNIT L
3/32" = 1'-0"

⚠ GRID AND BRACE PLAN NOTES

1. REF. S001 & S002 FOR STRUCTURAL NOTES, DESIGN DATA & SCHEDULES.
2. ALL CONTRACTORS ARE REQUIRED TO COORDINATE THEIR WORK WITH ALL DISCIPLINES TO AVOID CONFLICTS. THE MECHANICAL, ELECTRICAL, AND PLUMBING ASPECTS ARE NOT IN THE SCOPE OF THESE DRAWINGS. THEREFORE, ALL REQUIRED MATERIALS AND WORK MAY NOT BE INDICATED.
3. ALL EX. CONSTRUCTION SHOWN IN PLAN AND/OR SECTION WAS DERIVED FROM EXISTING DRAWINGS AND MUST BE FIELD VERIFIED. IF ANY DISCREPANCIES ARE DISCOVERED BETWEEN INFO. SHOWN ON THE DRAWINGS AND ACTUAL CONDITIONS IMMEDIATELY CONTACT ARCHITECT/ENGINEER FOR DIRECTION BEFORE PROCEEDING WITH THE WORK.
4. GRIDS SHOULD BE LAID OUT AND HELD OFF OF EXISTING AS SHOWN ON PLANS. GRID DIMENSIONS MAY NEED TO BE VERIFIED AND ADJUSTED DUE TO EXISTING CONDITIONS.
5. GRID ELEVATIONS CAN BE FOUND ON S300 AND S301

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PE10606154
STATE OF INDIANA
PROFESSIONAL ENGINEER

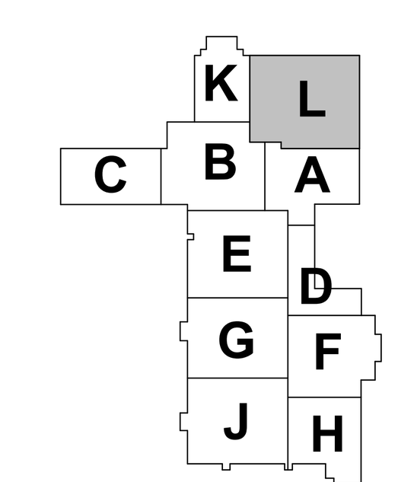
REVISIONS:

#	Date	Desc.
1	04.29.22	BID PKG. #1 ADD.#2

100% CONSTRUCTION DOCUMENTS

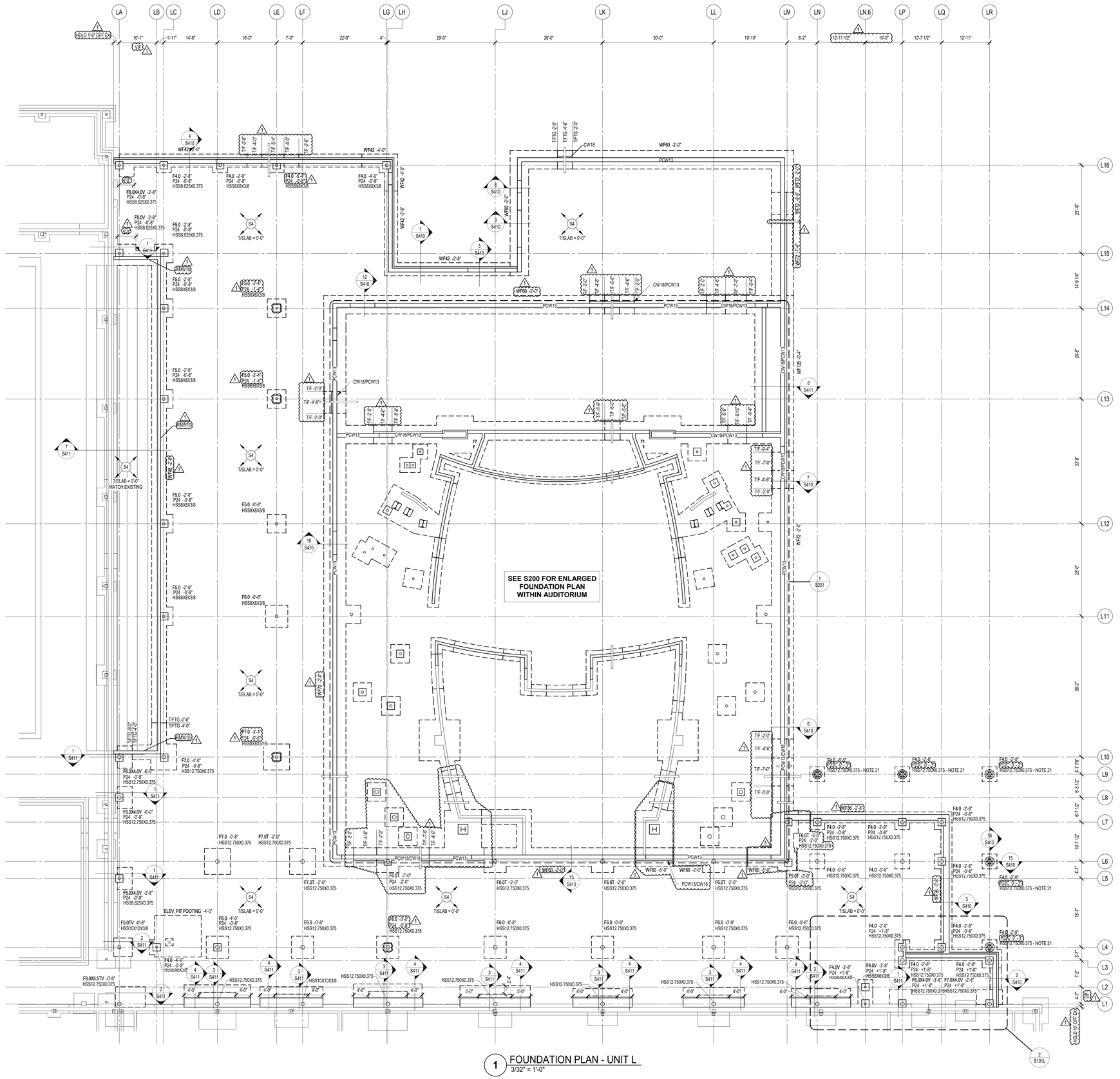
PROJECT: #21107
DATE: 04.11.2022
DRAWN BY: DJL

GRID AND
BRACE PLAN

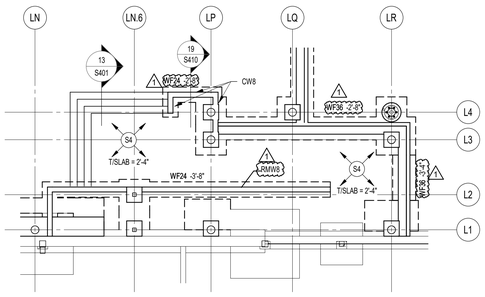


N
TRUE NORTH

S100L



1 FOUNDATION PLAN - UNIT L
3/32" = 1'-0"



2 ENLARGED FOUNDATION PLAN - UNIT L
1/8" = 1'-0"

FOUNDATION PLAN NOTES

1. REF S001-S002 FOR STRUCTURAL NOTES, DESIGN DATA & SCHEDULES.
2. ALL CONTRACTORS ARE REQUIRED TO COORDINATE THEIR WORK WITH ALL DISCIPLINES TO AVOID CONFLICTS. THE MECHANICAL, ELECTRICAL, AND PLUMBING ASPECTS ARE NOT IN THE SCOPE OF THESE DRAWINGS. THEREFORE, ALL REQUIRED MATERIALS AND WORK MAY NOT BE INDICATED.
3. COORDINATE EXACT SIZE & LOCATION OF ALL MECHANICAL OPENINGS IN FOUNDATION WALLS WITH THE MECHANICAL, ELECTRICAL & PLUMBING CONTRACTORS.
4. ALL ELEVATIONS ARE REFERENCED FROM THE FIRST FLOOR FINISH FLOOR ELEVATION 0'-0" (U.S.G.S.DATUM) REF. CIVIL DWGS.
5. REF. ARCH. DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND IMMEDIATELY NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
6. REF S400 & S401 FOR TYPICAL FOUNDATION DETAILS.
7. NOTE: PERIMETER WALL AND COLUMN FOOTINGS SHALL BE LOWERED AND/OR SLEEVED TO PASS BELOW PLUMBING LINES (I.E. SANITARY & STORM SEWERS, WATER LINES, ETC.) SHOWN ON THE PLUMBING DRAWINGS. PROVIDE FOOTING STEPS AS REQUIRED PER THE TYPICAL DETAILS ON S400.
8. ALL SLAB RECESSES SHALL BE LOCATED PER THE ARCHITECTURAL DRAWINGS. COORDINATE DEPTHS OF ALL SLAB RECESSES WITH THE ARCHITECTURAL DRAWINGS AND/OR THE FLOORING SUPPLIER.
9. COORDINATE REINFORCING DOWELS FOR CMU VERTICAL REINFORCING WITH REINF. NOTED ON PLANS & SECTIONS.
10. GROUT ALL CORES OF CMU BELOW FINISH FLOOR SOLID.
11. COLUMN FOOTINGS, TRENCH FOOTINGS AND WALL FOOTINGS SHALL BEAR ON APPROVED SOIL. UNDERCUT AS REQ'D TO SUITABLE BEARING MATERIAL AS DETERMINED BY THE GEOTECHNICAL TESTING AGENCY. REF. TYPICAL FOOTING UNDERCUT DETAIL ON S200. UNDERCUTTING TO SUITABLE BRG. MATERIAL IS NOT REQUIRED FOR GRADE BEAMS. REFERENCE ELEVATIONS IN PARENTHESES (-XX'-X") FOR APPROXIMATE ELEVATION TO SUITABLE BEARING STRATA TO BE USE FOR BIDDING PURPOSES.
12. COLUMN FOOTINGS SUPPORTING MORE THAN ONE COLUMN SHALL BE CENTERED AT THE MIDPOINT BETWEEN THE COLUMNS, UNLESS NOTED OTHERWISE ON PLAN.
13. (NOT USED)
14. PROVIDE CONTINUOUS 4" H. x W. VARIES CONCRETE CURB ON ACOUSTIC ISOLATION SLABS IN MECHANICAL ROOMS. CURBS TO SURROUND ALL PENETRATIONS THRU SLAB INCLUDING COLUMNS, PIPES, SUMP PITS, ETC.
15. ALL EX. CONSTRUCTION SHOWN IN PLAN AND/OR SECTION WAS DERIVED FROM EXISTING DRAWINGS AND MUST BE FIELD VERIFIED. IF ANY DISCREPANCIES ARE DISCOVERED BETWEEN INFO. SHOWN ON THE DRAWINGS AND ACTUAL CONDITIONS IMMEDIATELY CONTACT ARCHITECT/ENGINEER FOR DIRECTION BEFORE PROCEEDING WITH THE WORK.
16. PROVIDE THICKENED SLAB UNDER ALL INTERIOR CMU WALLS WITHOUT FOOTINGS. SEE S401 FOR THICKENED SLAB DETAIL. LAYOUT THICKENED SLABS FROM DIMENSIONS ON THE ARCHITECT FLOOR PLANS.
17. PROVIDE CONTROL/CONTRACTION JOINTS IN SLABS ON GRADE (REF. THE TYPICAL DETAILS ON SHEET S401). ALL JOINTS IN SLABS TO RECEIVE THIN OR THICK-SET TERRAZZO, CERAMIC OR PORCELAIN TILE, VINYL-COMPOSITION TILE (VCT) OR VINYL SHEET GOODS, EPOXY OR SIMILAR THIN-FILM FINISH FLOORING SHALL BE CAREFULLY COORDINATED WITH THE FLOORING CONTRACTOR. THE CONTRACTOR SHALL SUBMIT SLAB JOINT LAYOUT TO ARCHITECT/ENGINEER FOR REVIEW PRIOR TO PLACING SLABS.
18. WHERE PIERS OCCUR WITHIN A LARGER ARCH. PILASTER OR COLUMN ENCLOSURE (FOR EG. PIA's WITHIN 40' SQUARE CANOPY PILASTERS) PROVIDE PIER REINF. CAGE CENTERED ON THE GRID INTERSECTION. FORM OVERALL PIER TO PROFILE OF THE ARCHITECTURAL PILASTER OR COLUMN ENCLOSURE. LAYOUT PILASTERS FROM DIMENSIONS ON THE ARCHITECTURAL PLANS & DETAILS.
19. FOR ARCHITECTURAL PILASTERS NOT SUPPORTING STEEL COLUMNS, CONSTRUCT AS FULLY-GROUTED MASONRY PIERS OR CAST-IN-PLACE CONCRETE PIERS REINF'D W/ #5 VERTICAL REINFORCING AT 12" O.C. ALL FACES, AT CONTRACTOR'S OPTION.
20. (NOT USED)
21. PROVIDE CASTCONNEX ART-12.75 + UPC-8.625 / ART-324 + UPC-219 AT TOP AND BOTTOM OF COLUMN.
22. PLAN LEGEND:

F.F.	DENOTES FINISH FLOOR
T/'X'	DENOTES TOP OF FTG., GRADE BEAM, SLAB, PIER, ETC.
B/'X'	DENOTES BOTTOM OF FTG., GRADE BEAM, ETC.
C.J.	DENOTES SLAB ON GRADE CONTROL/CONTRACTION JOINT
WF30 -20'-0"	DENOTES WALL FOOTING MARK & TOP OF FOOTING ELEVATION (SEE WALL FOOTING SCHEDULE)
PC24x24	DENOTES PRECAST CONCRETE COLUMN SIZE, IN INCHES
N/A	NOT USED
CW16	DENOTES C.I.P. CONCRETE WALL MARK (SEE SCHEDULE)
PCW13	DENOTES PRECAST CONCRETE WALL MARK AND NOMINAL THICKNESS
S4	DENOTES 4" CONC. SLAB-ON-GRADE w/ FIBERFORCE 300 @ 1.5 LB/C.Y. (OR APPROVED EQUAL) & E5 SYSTEM BY SPECIFICATION PRODUCTS, INC. CONSISTING OF: E5 INTERNAL CURE ADMIXTURE @ 4 OZ/CWT & E5 CATALYST SPRAYED ON BETWEEN 800-1,000 SF/GAL OVER 15-MIL CLASS A VAPOR BARRIER OVER 6" COMPACTED GRANULAR FILL (INDOT No. 53)
S5	DENOTES 5" CONC. SLAB-ON-GRADE w/ FIBERFORCE 300 @ 1.5 LB/C.Y. (OR APPROVED EQUAL) & E5 SYSTEM BY SPECIFICATION PRODUCTS, INC. CONSISTING OF: E5 INTERNAL CURE ADMIXTURE @ 4 OZ/CWT & E5 CATALYST SPRAYED ON BETWEEN 800-1,000 SF/GAL OVER 15-MIL CLASS A VAPOR BARRIER OVER 6" COMPACTED GRANULAR FILL (INDOT No. 53)
	DENOTES UTILITY PIPE/CONDUIT TO RUN THROUGH FOUNDATION WALL. NOT ALL MAY BE SHOWN ON THIS DRAWING.
T/F -2'-0" T/F -4'-0" T/F -5'-0"	DENOTES WALL FOOTING WITH STEPS, REF. TYP. DETAIL ON S200. FOOTING STEPS SHOWN ON PLAN REQUIRE COORDINATION BETWEEN TRADES AND MAY REQUIRE ADJUSTMENT.
DENOTES COLUMN SIZE (REF. FRAMING PLANS FOR STUB COLS.NOT ON FDNS.)	DENOTES COLUMN FOOTING MARK & TOP OF FTG. ELEVATION (SEE FTG. SCHED.)
F5.0 -4'-8" P24 -0'-8"	DENOTES PIER MARK & TOP OF PIER ELEVATION (SEE PIER SCHED.)
	COLUMN FOOTING
	CONCRETE PIER
	STEEL COLUMN

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PROJECT: #21107
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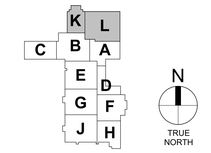
FOUNDATION PLAN - UNIT L

S101L



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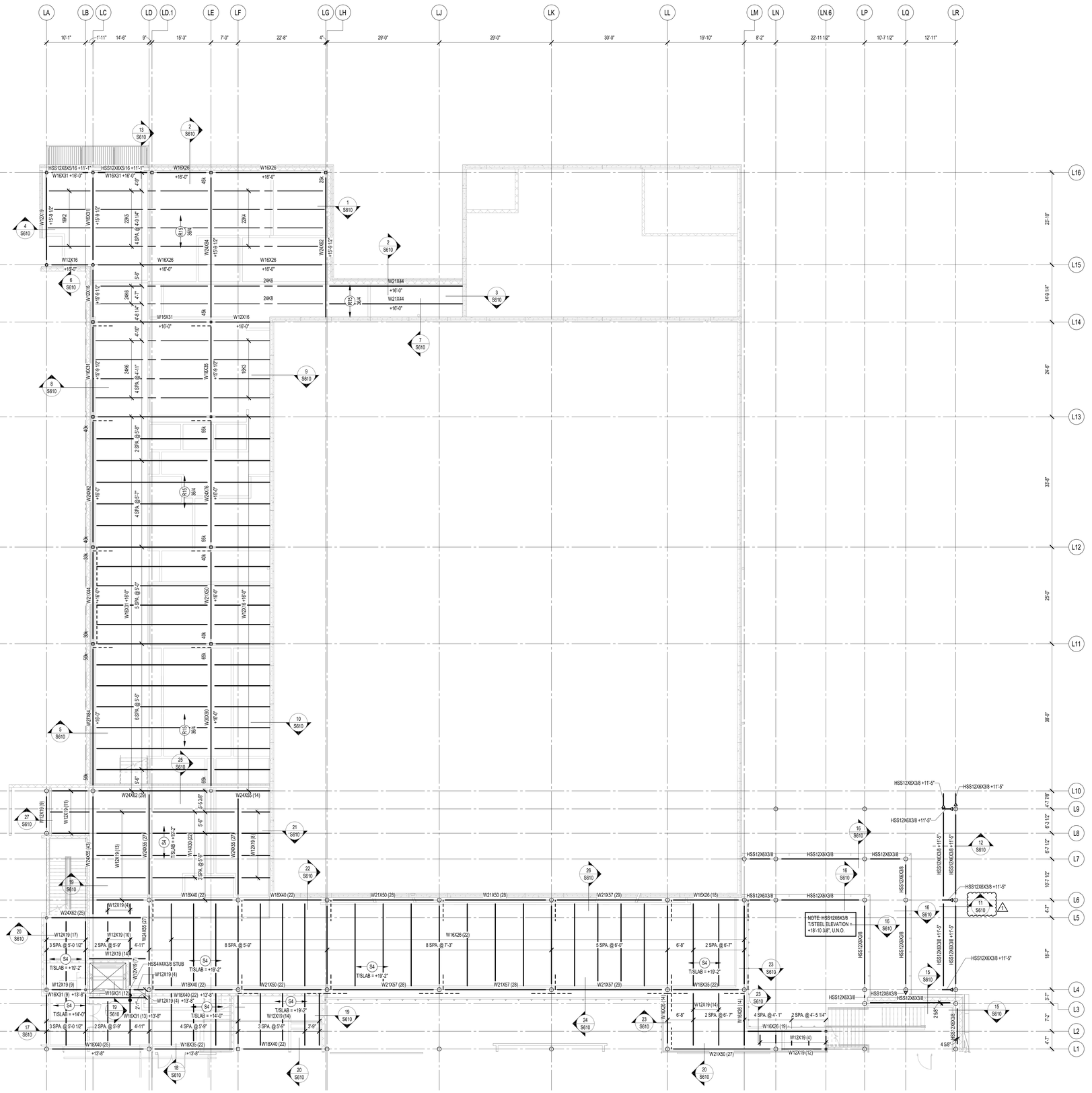

1 LOW ROOF AND FLOOR FRAMING PLAN - UNIT L

3/32" = 1'-0"

NOTE: T/STEEL = +18'-10" U.N.O.

1 FRAMING PLAN NOTES

1. REF. S001 & S002 FOR STRUCTURAL NOTES, DESIGN DATA, SCHEDULES & LEGENDS.
2. REF. S500 FOR TYPICAL MASONRY DETAILS AND S600-602 FOR TYPICAL FRAMING DETAILS.
3. ALL CONTRACTORS ARE REQUIRED TO COORDINATE THEIR WORK WITH ALL DISCIPLINES TO AVOID CONFLICTS. THE MECHANICAL, ELECTRICAL, AND PLUMBING ASPECTS ARE NOT IN THE SCOPE OF THESE DRAWINGS. THEREFORE, ALL REQUIRED MATERIALS AND WORK MAY NOT BE INDICATED.
4. ALL ELEVATIONS ARE REFERENCED FROM THE FIRST FLOOR FIN. FLOOR ELEVATION +0'-0". COORD. USGS ELEVATION WITH CIVIL DWGS.
5. SEE FOUNDATION PLANS FOR SIZES OF STEEL COLUMNS SUPPORTED ON FOUNDATIONS.
6. NOT USED
7. NOT USED
8. INSTALL CONTINUOUS BENT PLATE/ANGLE POUR STOPS AT ALL ELEVATED SLAB-ON-DECK PERIMETER EDGES AND AROUND ALL INTERIOR FLOOR OPENINGS (BOTH SHOWN AND NOT SHOWN). SEE DETAIL 5/S601.
9. INSTALL CONTINUOUS ANGLES AT ALL PERIMETER ROOF EDGES. SEE DETAIL 12/S601 FOR ATTACHEMENT TO BEAM/JOIST AND FOR ALL CONDITIONS NO SPECIFICALLY DEFINED IN FRAMING SECTIONS.
10. INSTALL CONTINUOUS CONCRETE CURBS PER DETAIL 14/S601 AROUND THE PERIMETER OF ALL MECHANICAL ROOMS AND AROUND FLOOR PENETRATIONS BOTH SHOWN AND NOT SHOWN INCLUDING STEEL COLUMN PENETRATIONS.
11. ALL WALLS SHALL BE LAID OUT FROM THE ARCHITECTURAL DRAWINGS.
12. REF. ARCH. DRAWINGS. FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND IMMEDIATELY NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
13. COORDINATE EXACT SIZE & LOCATION OF ANY MECHANICAL OPENINGS IN FLOOR SLAB, ROOF DECK, OR WALLS WITH THE MEP CONTRACTOR(S). LOCATION & SIZE OF ALL DUCT OPENINGS, GRILLES, ETC. SHALL BE VERIFIED PRIOR TO CONSTRUCTION.
14. ALL ELEVATIONS SHOWN ON PLAN INDICATE TOP OF STEEL BEAM UNLESS NOTED OTHERWISE.
15. PROVIDE CHANNEL FRAMES AT ALL SUPPORTED SLAB OPENINGS PER TYPICAL DETAIL ON SXXX. COORDINATE EXACT NUMBER, LOCATIONS & DIMENSIONS WITH THE APPROPRIATE CONTRACTORS & THE ARCH. & MEP DRAWINGS.
16. PROVIDE FRAMES AT ALL ROOF DRAINS, ROOF HATCHES & OTHER ROOF OPENINGS PER TYPICAL DETAILS ON S600. COORD. EXACT NUMBER, LOCATIONS & DIMENSIONS WITH THE APPROPRIATE CONTRACTORS & THE ARCH. & MEP DWGS.
17. PROVIDE CMU REINFORCING AS NOTED ON PLANS. IF NOT SHOWN ON PLANS OR DETAILS, MINIMUM CMU WALL REINFORCING TO BE #5 VERTS @ 48" O.C. PROVIDE OPEN-CORE BOND BEAMS AT TOPS OF WALLS, AT CHANGES IN CMU THICKNESS, AND WHERE INDICATED ON PLANS & SECTIONS (10'-0" O.C. MAX VERTICAL SPACING). PROVIDE 1/2 OF INTERRUPTED VERTICALS AT JAMBS OF OPENINGS AND PROVIDE ADDITIONAL VERT'S. AT ENDS OF WALLS.
18. ALL MASONRY BOND BEAMS, OTHER THAN BOND BEAM LINTELS OVER OPENINGS, SHALL BE "OPEN-CORE" BOND BEAMS TO ALLOW VERTICAL REINFORCING TO PASS THROUGH, UNLESS NOTED OTHERWISE.
19. REF. ARCH. DWGS. FOR MASONRY CONTROL & EXPANSION JOINT LOCATIONS.
20. ALL HORIZONTAL AND DIAGONAL BRIDGING FOR STEEL JOISTS SHALL BE DESIGNED, LOCATED & PROVIDED BY THE JOIST SUPPLIER PER SJI SPECIFICATIONS.
21. FOR ESTIMATING AND BIDDING PURPOSES ONLY, ASSUME AN ADDITIONAL 1/2" THICKNESS OF CONCRETE WILL BE NECESSARY FOR ALL ELEVATED SLABS ON METAL DECK. THE INTENT OF THIS REQUIREMENT IS TO ACCOUNT FOR ANTICIPATED DEAD LOAD DEFLECTIONS IN THE SUPPORTING STRUCTURE. THE FINISHED SLAB SHALL MEET THE FLATNESS REQUIREMENTS DEFINED IN THE SPECIFICATION.
22. PLAN LEGEND:

F.F.	DENOTES FIN. FLOOR
T/'X'	DENOTES TOP OF STEEL, SLAB, ETC.
B/'X'	DENOTES BOTTOM OF LINTEL, ETC.
E.O.S. (or EOS)	DENOTES EDGE OF SLAB (MEASURED FROM BEAM C.L.) SEE TYPICAL DETAIL A/S-410
E.O.D. (or EOD)	DENOTES EDGE OF DECK (MEASURED FROM BEAM C.L.) NOTE: PERIMETER ROOF ANGLE/BENT PL NOT REQUIRED
E.O.L. (or EOL)	DENOTES EDGE OF ANGLE (MEASURED FROM BEAM C.L.) SEE TYPICAL DETAIL B/S-410
←S4→	DENOTES 1½", 20 GA. GALVANIZED COMPOSITE DECK w/ 2½" NW CONC SLAB w/ 6x6-W1.4xW1.4 WWF, TOTAL 't' = 4" & E5 SYSTEM BY SPECIFICATION PRODUCTS, INC. CONSISTING OF: E5 INTERNAL CURE ADMIXTURE @ 4 OZ/CWT & E5 CATALYST SPRAYED ON BETWEEN 800-1,000 SF/GAL
←R15→	DENOTES 1½", 20 GA. PRIME-PAINTED WIDE RIB STEEL ROOF DECK. SEE S600 FOR MORE INFORMATION.
←A20→	DENOTES 2", 20 GA. ACOUSTICAL GALVANIZED & PRIME-PAINTED DOVETAIL RIB STEEL ROOF DECK. SEE S600 FOR MORE INFORMATION
←G1→	DENOTES McNICHOLS GHB-150 BAR GRATING WITH 7/16" PLYWOOD/OSB OVER TOP.
←P4→	NOT USED
▷—	DENOTES HSS BEAM-TO-COLUMN/BEAM MOMENT CONNECTION. REF. DETAIL 11/S610.
▶—	DENOTES BOLTED MOMENT CONNECTION. REF. DETAIL 1/S620.
●—	DENOTES BEAM-THRU-BEAM MOMENT CONNECTION. REF. DETAIL 9/S601.
— — —	DENOTES BRACED FRAME OR KICKER LOCATION
⊠	DENOTES APPROX. LOCATION OF OPENING IN DECK/SLAB. REF. DETAILS ON S600 FOR TYPICAL OPENING FRAMES. FOR MULTIPLE CLOSELY SPACED OPENINGS, TREAT AS ONE LARGE OPENING.

23. WIDE-FLANGE BEAM & GIRDER NOTATION:

BEAM REACTIONS SHOWN IN KIPS TO BE USED FOR DESIGN OF SHEAR CONNECTION BY STEEL FABRICATOR'S SSE (ALLOWABLE STRESS DESIGN / LOADS UNFACTORED).

REF. THE STEEL CONNECTION NOTES ON S001 FOR DESIGN OF CONNECTIONS AT BEAMS & GIRDERS WITH NO REACTION SHOWN.

TYPICAL COMPOSITE BEAM DIAGRAM

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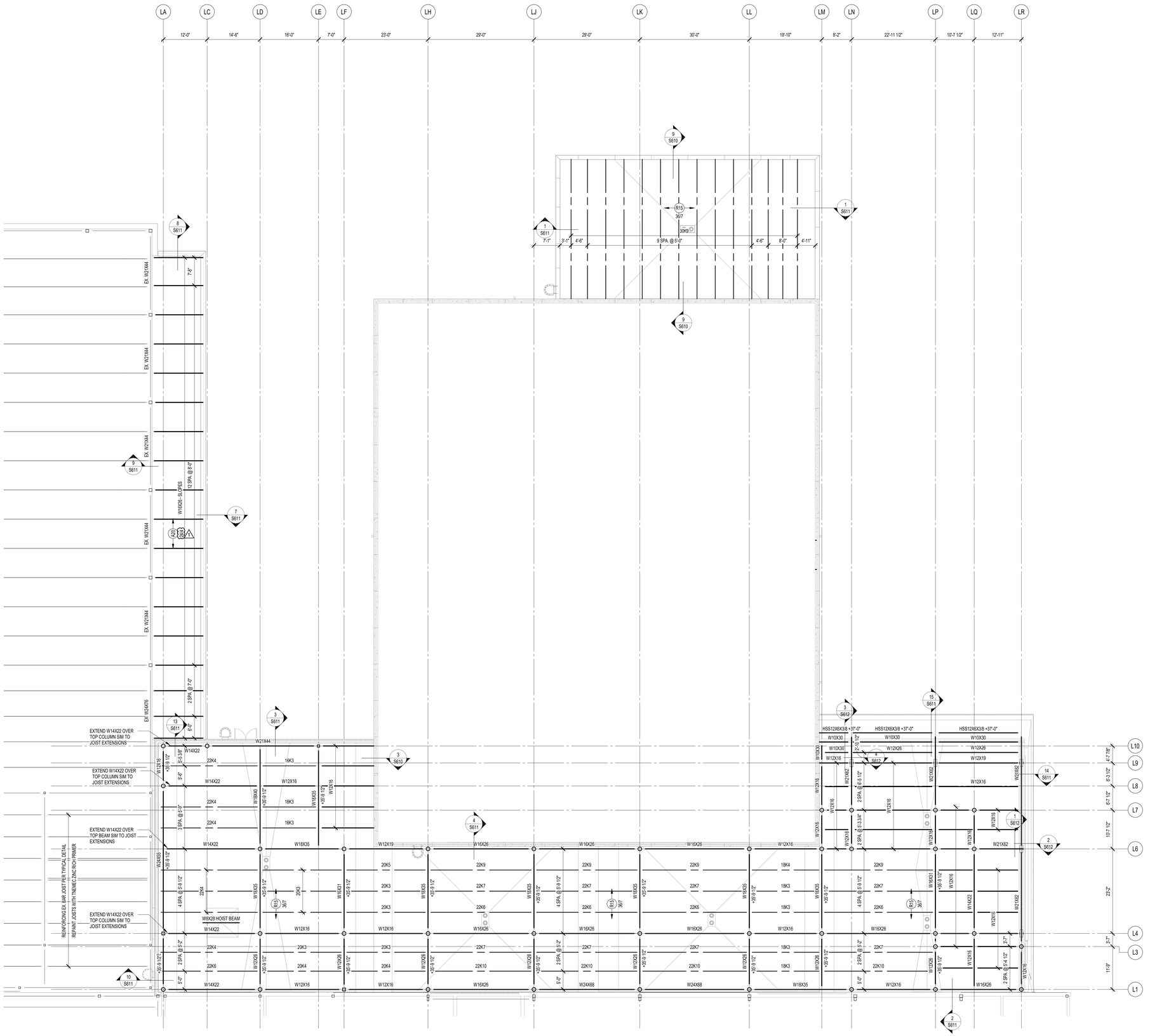
LOW ROOF AND FLOOR FRAMING PLAN - UNIT L

N
TRUE NORTH

S102L

PLOT DATE/TIME:4/29/2022 11:17:04 AM



1 MID ROOFS FRAMING PLAN - UNIT L
3/32" = 1'-0"

NOTE: T/STEEL = +36'-0" U.N.O.

⚠ FRAMING PLAN NOTES

1. REF. S001 & S002 FOR STRUCTURAL NOTES, DESIGN DATA, SCHEDULES & LEGENDS.
2. REF. S500 FOR TYPICAL MASONRY DETAILS AND S600-S602 FOR TYPICAL FRAMING DETAILS.
3. ALL CONTRACTORS ARE REQUIRED TO COORDINATE THEIR WORK WITH ALL DISCIPLINES TO AVOID CONFLICTS. THE MECHANICAL, ELECTRICAL, AND PLUMBING ASPECTS ARE NOT IN THE SCOPE OF THESE DRAWINGS. THEREFORE, ALL REQUIRED MATERIALS AND WORK MAY NOT BE INDICATED.
4. ALL ELEVATIONS ARE REFERENCED FROM THE FIRST FLOOR FIN. FLOOR ELEVATION +0'-0". COORD. USGS ELEVATION WITH CIVIL DWGS.
5. SEE FOUNDATION PLANS FOR SIZES OF STEEL COLUMNS SUPPORTED ON FOUNDATIONS.
6. (NOT USED)
7. (NOT USED)
8. INSTALL CONTINUOUS BENT PLATE/ANGLE POUR STOPS AT ALL ELEVATED SLAB-ON-DECK PERIMETER EDGES AND AROUND ALL INTERIOR FLOOR OPENINGS (BOTH SHOWN AND NOT SHOWN). SEE DETAIL 6/S601.
9. INSTALL CONTINUOUS ANGLES AT ALL PERIMETER ROOF EDGES. SEE DETAIL 12/S601 FOR ATTACHEMENT TO BEAM 2/S601 AND FOR ALL CONDITIONS NO SPECIFICALLY DEFINED IN FRAMING SECTIONS.
10. INSTALL CONTINUOUS CONCRETE CURBS PER DETAIL 12/S601 AROUND THE PERIMETER OF ALL MECHANICAL ROOMS AND AROUND FLOOR PENETRATIONS BOTH SHOWN AND NOT SHOWN INCLUDING STEEL COLUMN PENETRATIONS.
11. ALL WALLS SHALL BE LAID OUT FROM THE ARCHITECTURAL DRAWINGS.
12. REF. ARCH. DRAWINGS. FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND IMMEDIATELY NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
13. COORDINATE EXACT SIZE & LOCATION OF ANY MECHANICAL OPENINGS IN FLOOR SLAB, ROOF DECK, OR WALLS WITH THE MEP CONTRACTOR(S). LOCATION & SIZE OF ALL DUCT OPENINGS, GRILLES, ETC. SHALL BE VERIFIED PRIOR TO CONSTRUCTION.
14. ALL ELEVATIONS SHOWN ON PLAN INDICATE TOP OF STEEL BEAM UNLESS NOTED OTHERWISE.
15. PROVIDE CHANNEL FRAMES AT ALL SUPPORTED SLAB OPENINGS PER TYPICAL DETAIL ON SXXX. COORDINATE EXACT NUMBER, LOCATIONS & DIMENSIONS WITH THE APPROPRIATE CONTRACTORS & THE ARCH. & MEP DRAWINGS.
16. PROVIDE FRAMES AT ALL ROOF DRAINS, ROOF HATCHES & OTHER ROOF OPENINGS PER TYPICAL DETAILS ON SXXX. COORD. EXACT NUMBER, LOCATIONS & DIMENSIONS WITH THE APPROPRIATE CONTRACTORS & THE ARCH. & MEP DWGS.
17. PROVIDE CMU REINFORCING AS NOTED ON PLANS. IF NOT SHOWN ON PLANS OR DETAILS, MINIMUM CMU WALL REINFORCING TO BE #5 VERTS @ 48" O.C. PROVIDE OPEN-CORE BOND BEAMS AT TOPS OF WALLS, AT CHANGES IN CMU THICKNESS, AND WHERE INDICATED ON PLANS & SECTIONS (10'-0" O.C. MAX VERTICAL SPACING). PROVIDE 1/2 OF INTERRUPTED VERTICALS AT JAMBS OF OPENINGS AND PROVIDE ADDITIONAL VERT'S. AT ENDS OF WALLS.
18. ALL MASONRY BOND BEAMS, OTHER THAN BOND BEAM LINTELS OVER OPENINGS, SHALL BE "OPEN-CORE" BOND BEAMS TO ALLOW VERTICAL REINFORCING TO PASS THROUGH, UNLESS NOTED OTHERWISE.
19. REF. ARCH. DWGS. FOR MASONRY CONTROL & EXPANSION JOINT LOCATIONS.
20. ALL HORIZONTAL AND DIAGONAL BRIDGING FOR STEEL JOISTS SHALL BE DESIGNED, LOCATED & PROVIDED BY THE JOIST SUPPLIER PER SJI SPECIFICATIONS.
21. FOR ESTIMATING AND BIDDING PURPOSES ONLY, ASSUME AN ADDITIONAL 1/2" THICKNESS OF CONCRETE WILL BE NECESSARY FOR ALL ELEVATED SLABS ON METAL DECK. THE INTENT OF THIS REQUIREMENT IS TO ACCOUNT FOR ANTICIPATED DEAD LOAD DEFLECTIONS IN THE SUPPORTING STRUCTURE. THE FINISHED SLAB SHALL MEET THE FLATNESS REQUIREMENTS DEFINED IN THE SPECIFICATION.
22. PLAN LEGEND:

F.F.	DENOTES FIN. FLOOR
T/X'	DENOTES TOP OF STEEL, SLAB, ETC.
B/X'	DENOTES BOTTOM OF LINTEL, ETC.
E.O.S. (or EOS)	DENOTES EDGE OF SLAB (MEASURED FROM BEAM C.L.) SEE TYPICAL DETAIL A/S-410
E.O.D. (or EOD)	DENOTES EDGE OF DECK (MEASURED FROM BEAM C.L.) NOTE: PERIMETER ROOF ANGLE/BENT PL NOT REQUIRED
E.O.L. (or EOL)	DENOTES EDGE OF ANGLE (MEASURED FROM BEAM C.L.) SEE TYPICAL DETAIL B/S-410

- S4 — DENOTES 1½", 20 GA. GALVANIZED COMPOSITE DECK w/ 2½" NW CONC SLAB w/ 6x6-W1.4xW1.4 WWF, TOTAL T = 4" & ES-SYSTEM BY SPECIFICATION PRODUCTS, INC. CONSISTING OF: ES INTERNAL CURE ADMIXTURE @ 4 OZ/CWT & ES CATALYST SPRAYED ON BETWEEN 800-1,000 SF/GAL
- R15 — DENOTES 1½" 20GA PRIME-PAINTED WIDE RIB STEEL ROOF DECK SEE S601 FOR MORE INFORMATION
- A20 — DENOTES 2", 20 GA. ACOUSTICAL (SEE S601 FOR) PRIME-PAINTED DOVETAIL RIB STEEL ROOF DECK. SEE S601 FOR MORE INFORMATION
- G11 — DENOTES McNICHOLS GHB-150 BAR GRATING WITH 7/16" PLYWOOD/OSB OVER TOP.
- P4 — NOT USED
- DENOTES HSS BEAM-TO-COLUMN/BEAM MOMENT CONNECTION. REF. DETAIL 11/S610.
- DENOTES BOLTED MOMENT CONNECTION. REF. DETAIL 1/S620.
- DENOTES BEAM-THRU-BEAM MOMENT CONNECTION. REF. DETAIL 9/S601
- DENOTES BRACED FRAME OR KICKER LOCATION
- DENOTES APPROX. LOCATION OF OPENING IN DECK/SLAB. REF. DETAILS ON S6XX FOR TYPICAL OPENING FRAMES. FOR MULTIPLE CLOSELY SPACED OPENINGS, TREAT AS ONE LARGE OPENING.

23. WIDE-FLANGE BEAM & GIRDER NOTATION:

BEAM REACTIONS SHOWN IN KIPS TO BE USED FOR DESIGN OF SHEAR CONNECTION BY STEEL FABRICATOR'S SSE (ALLOWABLE STRESS DESIGN / LOADS UNFACTORED).

REF. THE STEEL CONNECTION NOTES ON S001 FOR DESIGN OF CONNECTIONS AT BEAMS & GIRDERS WITH NO REACTION SHOWN.

TYPICAL COMPOSITE BEAM DIAGRAM

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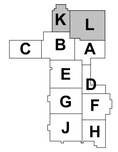
SCOTT A. CLUNE
REGISTERED
PE10606154
STATE OF
INDIANA
PROFESSIONAL ENGINEER

REVISIONS:		
#	Date	Desc.
1	04.29.22	BID PKG. #1 ADD #2

100% CONSTRUCTION DOCUMENTS

PROJECT: #21107
DATE: 04.11.2022
DRAWN BY: DJL

MID ROOFS FRAMING PLAN - UNIT L



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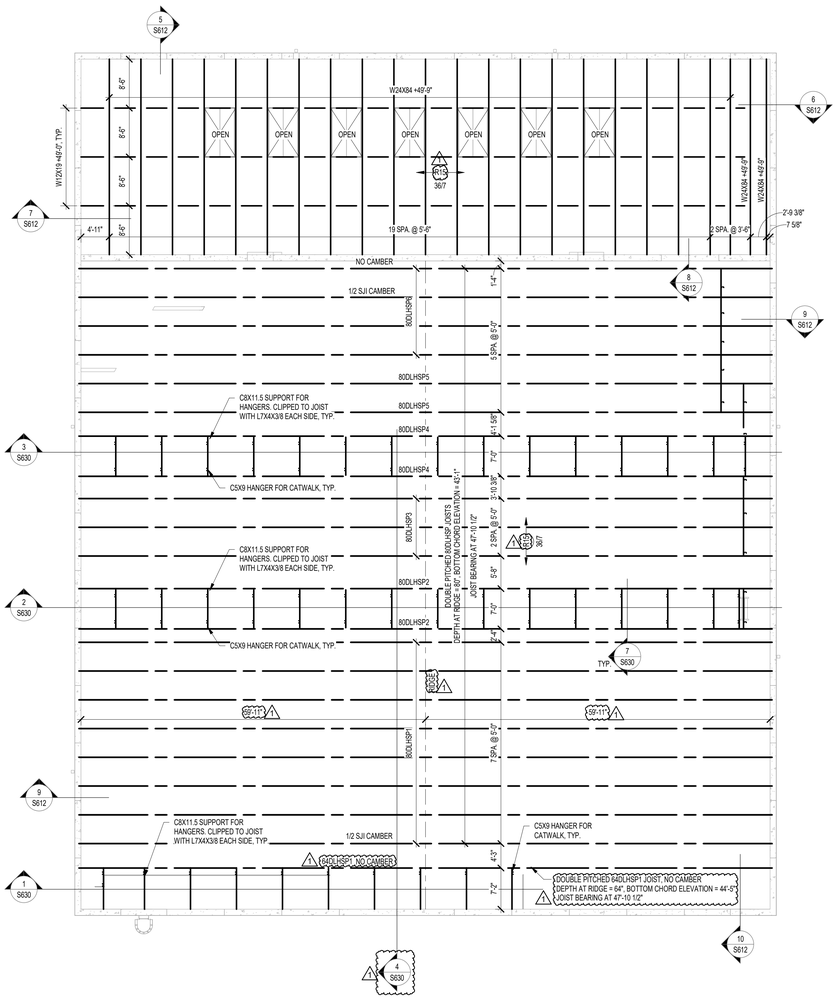


1 HIGH ROOF FRAMING PLAN - UNIT L
3/32" = 1'-0"

⚠ FRAMING PLAN NOTES

1. REF. S001 & S002 FOR STRUCTURAL NOTES, DESIGN DATA, SCHEDULES & LEGENDS.
2. REF. S500 FOR TYPICAL MASONRY DETAILS AND S600-S602 FOR TYPICAL FRAMING DETAILS.
3. ALL CONTRACTORS ARE REQUIRED TO COORDINATE THEIR WORK WITH ALL DISCIPLINES TO AVOID CONFLICTS. THE MECHANICAL, ELECTRICAL, AND PLUMBING ASPECTS ARE NOT IN THE SCOPE OF THESE DRAWINGS. THEREFORE, ALL REQUIRED MATERIALS AND WORK MAY NOT BE INDICATED.
4. ALL ELEVATIONS ARE REFERENCED FROM THE FIRST FLOOR FIN. FLOOR ELEVATION +0'-0". COORD. USGS ELEVATION WITH CIVIL DWGS.
5. SEE FOUNDATION PLANS FOR SIZES OF STEEL COLUMNS SUPPORTED ON FOUNDATIONS.
6. NOT USED
7. NOT USED
8. INSTALL CONTINUOUS BENT PLATE/ANGLE POUR STOPS AT ALL ELEVATED SLAB-ON-DECK PERIMETER EDGES AND AROUND ALL INTERIOR FLOOR OPENINGS (BOTH SHOWN AND NOT SHOWN). SEE DETAIL 6/S601
9. INSTALL CONTINUOUS ANGLES AT ALL PERIMETER ROOF EDGES. SEE DETAIL 2/S601 FOR ATTACHEMENT TO BEAM 4/S601 AND FOR ALL CONDITIONS NO SPECIFICALLY DEFINED IN FRAMING SECTIONS.
10. INSTALL CONTINUOUS CONCRETE CURBS PER DETAIL 12/S301 AROUND THE PERIMETER OF ALL MECHANICAL ROOMS AND AROUND FLOOR PENETRATIONS BOTH SHOWN AND NOT SHOWN INCLUDING STEEL COLUMN PENETRATIONS.
11. ALL WALLS SHALL BE LAID OUT FROM THE ARCHITECTURAL DRAWINGS.
12. REF. ARCH. DRAWINGS. FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND IMMEDIATELY NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
13. COORDINATE EXACT SIZE & LOCATION OF ANY MECHANICAL OPENINGS IN FLOOR SLAB, ROOF DECK, OR WALLS WITH THE MEP CONTRACTOR(S). LOCATION & SIZE OF ALL DUCT OPENINGS, GRILLES, ETC. SHALL BE VERIFIED PRIOR TO CONSTRUCTION.
14. ALL ELEVATIONS SHOWN ON PLAN INDICATE TOP OF STEEL BEAM UNLESS NOTED OTHERWISE.
15. PROVIDE CHANNEL FRAMES AT ALL SUPPORTED SLAB OPENINGS PER TYPICAL DETAIL ON SXXX. COORDINATE EXACT NUMBER, LOCATIONS & DIMENSIONS WITH THE APPROPRIATE CONTRACTORS & THE ARCH. & MEP DRAWINGS.
16. PROVIDE FRAMES AT ALL ROOF DRAINS, ROOF HATCHES & OTHER ROOF OPENINGS PER TYPICAL DETAILS ON SXXX. COORD. EXACT NUMBER, LOCATIONS & DIMENSIONS WITH THE APPROPRIATE CONTRACTORS & THE ARCH. & MEP DWGS.
17. PROVIDE CMU REINFORCING AS NOTED ON PLANS. IF NOT SHOWN ON PLANS OR DETAILS, MINIMUM CMU WALL REINFORCING TO BE #5 VERTS @ 48" O.C. PROVIDE OPEN-CORE BOND BEAMS AT TOPS OF WALLS, AT CHANGES IN CMU THICKNESS, AND WHERE INDICATED ON PLANS & SECTIONS (10'-0" O.C. MAX VERTICAL SPACING). PROVIDE 1/2 OF INTERRUPTED VERTICALS AT JAMBS OF OPENINGS AND PROVIDE ADDITIONAL VERT'S. AT ENDS OF WALLS.
18. ALL MASONRY BOND BEAMS, OTHER THAN BOND BEAM LINTELS OVER OPENINGS, SHALL BE "OPEN-CORE" BOND BEAMS TO ALLOW VERTICAL REINFORCING TO PASS THROUGH, UNLESS NOTED OTHERWISE.
19. REF. ARCH. DWGS. FOR MASONRY CONTROL & EXPANSION JOINT LOCATIONS.
20. ALL HORIZONTAL AND DIAGONAL BRIDGING FOR STEEL JOISTS SHALL BE DESIGNED, LOCATED & PROVIDED BY THE JOIST SUPPLIER PER SJI SPECIFICATIONS.
21. FOR ESTIMATING AND BIDDING PURPOSES ONLY, ASSUME AN ADDITIONAL 1/2" THICKNESS OF CONCRETE WILL BE NECESSARY FOR ALL ELEVATED SLABS ON METAL DECK. THE INTENT OF THIS REQUIREMENT IS TO ACCOUNT FOR ANTICIPATED DEAD LOAD DEFLECTIONS IN THE SUPPORTING STRUCTURE. THE FINISHED SLAB SHALL MEET THE FLATNESS REQUIREMENTS DEFINED IN THE SPECIFICATION.
22. PLAN LEGEND:

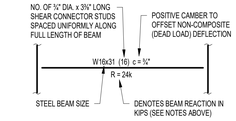
F.F.	DENOTES FIN. FLOOR
T/X'	DENOTES TOP OF STEEL, SLAB, ETC.
B/X'	DENOTES BOTTOM OF LINTEL, ETC.
E.O.S. (or EOS)	DENOTES EDGE OF SLAB (MEASURED FROM BEAM C.L.) SEE TYPICAL DETAIL A/S-410
E.O.D. (or EOD)	DENOTES EDGE OF DECK (MEASURED FROM BEAM C.L.) NOTE: PERIMETER ROOF ANGLE/BENT PL NOT REQUIRED
E.O.L. (or EOL)	DENOTES EDGE OF ANGLE (MEASURED FROM BEAM C.L.) SEE TYPICAL DETAIL B/S-410

- S4 → DENOTES 1½", 20 GA. GALVANIZED COMPOSITE DECK w/ 2½" NW CONC SLAB w/ 6x6-W1.4xW1.4 WWF, TOTAL T = 4" & ES-SYSTEM BY SPECIFICATION PRODUCTS, INC. CONSISTING OF: ES INTERNAL CURE ADMIXTURE @ 4 OZ/CWT & ES CATALYST SPRAYED ON BETWEEN 800-1,000 SF/GAL
- R15 → DENOTES 1½" 15/30D PRIME-PAINTED WIDE RIB STEEL ROOF DECK. SEE S601 FOR MORE INFORMATION
- A200 → DENOTES 2", 20 GA. ACOUSTICAL 2.0 VERSADEK PRIME-PAINTED DOVETAIL RIB STEEL ROOF DECK. SEE S601 FOR MORE INFORMATION
- G1 → DENOTES McNICHOLS GHB-150 BAR GRATING WITH 7/16" PLYWOOD/OSB OVER TOP.
- P4 → NOT USED
- DENOTES HSS BEAM-TO-COLUMN/BEAM MOMENT CONNECTION. REF. DETAIL 11/S610.
- DENOTES BOLTED MOMENT CONNECTION. REF. DETAIL 1/S620.
- DENOTES BEAM-THRU-BEAM MOMENT CONNECTION. REF. DETAIL 9/S601
- DENOTES BRACED FRAME OR KICKER LOCATION
- DENOTES APPROX. LOCATION OF OPENING IN DECK/SLAB. REF. DETAILS ON S630 FOR TYPICAL OPENING FRAMES. FOR MULTIPLE CLOSELY SPACED OPENINGS, TREAT AS ONE LARGE OPENING.

23. WIDE-FLANGE BEAM & GIRDER NOTATION:

BEAM REACTIONS SHOWN IN KIPS TO BE USED FOR DESIGN OF SHEAR CONNECTION BY STEEL FABRICATOR'S SSE (ALLOWABLE STRESS DESIGN / LOADS UNFACTORED).

REF. THE STEEL CONNECTION NOTES ON S001 FOR DESIGN OF CONNECTIONS AT BEAMS & GIRDERS WITH NO REACTION SHOWN.



TYPICAL COMPOSITE BEAM DIAGRAM

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SCOTT A. CLUPE REGISTERED PROFESSIONAL ENGINEER PE10606154 STATE OF INDIANA 04.29.22

REVISIONS:

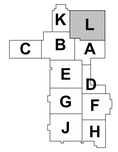
#	Date	Descr.
1	04.29.22	BID PKG. #1 ADD #2

100% CONSTRUCTION DOCUMENTS

PROJECT: #21107
DATE: 04.11.2022
DRAWN BY: DJL

HIGH ROOF FRAMING PLAN - UNIT L

S104L



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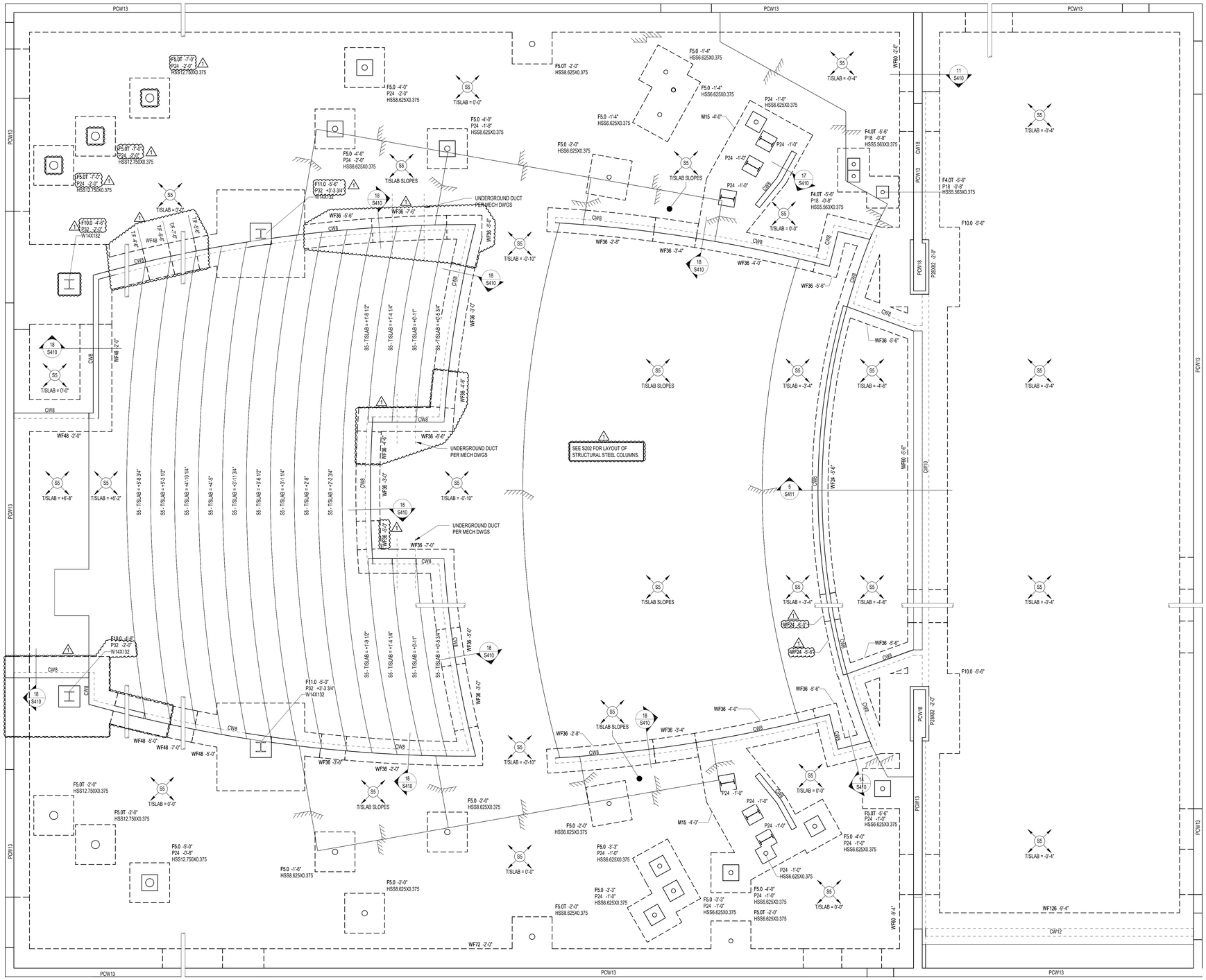

1 ENLARGED AUDITORIUM FOUNDATION PLAN
3/16" = 1'-0"

⚠ FOUNDATION PLAN NOTES

1. REF S001 & S002 FOR STRUCTURAL NOTES, DESIGN DATA & SCHEDULES.
2. ALL CONTRACTORS ARE REQUIRED TO COORDINATE THEIR WORK WITH ALL DISCIPLINES TO AVOID CONFLICTS. THE MECHANICAL, ELECTRICAL, AND PLUMBING ASPECTS ARE NOT IN THE SCOPE OF THESE DRAWINGS. THEREFORE, ALL REQUIRED MATERIALS AND WORK MAY NOT BE INDICATED.
3. COORDINATE EXACT SIZE & LOCATION OF ALL MECHANICAL OPENINGS IN FOUNDATION WALLS WITH THE MECHANICAL, ELECTRICAL & PLUMBING CONTRACTORS.
4. ALL ELEVATIONS ARE REFERENCED FROM THE FIRST FLOOR FINISH FLOOR ELEVATION 0'-0" (U.S.G.S. DATUM) REF. CIVIL DWGS.
5. REF. ARCH. DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND IMMEDIATELY NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
6. REF S400 & S401 FOR TYPICAL FOUNDATION DETAILS.
7. NOTE: PERIMETER WALL AND COLUMN FOOTINGS SHALL BE LOWERED AND/OR SLEEVED TO PASS BELOW PLUMBING LINES (I.E. SANITARY & STORM SEWERS, WATER LINES, ETC.) SHOWN ON THE PLUMBING DRAWINGS. PROVIDE FOOTING STEPS AS REQUIRED PER THE TYPICAL DETAILS ON S400.
8. ALL SLAB RECESSES SHALL BE LOCATED PER THE ARCHITECTURAL DRAWINGS. COORDINATE DEPTHS OF ALL SLAB RECESSES WITH THE ARCHITECTURAL DRAWINGS AND/OR THE FLOORING SUPPLIER.
9. COORDINATE REINFORCING DOWELS FOR CMU VERTICAL REINFORCING WITH REINF. NOTED ON PLANS & SECTIONS.
10. GROUT ALL CORES OF CMU BELOW FINISH FLOOR SOLID.
11. COLUMN FOOTINGS, TRENCH FOOTINGS AND WALL FOOTINGS SHALL BEAR ON APPROVED SOIL. UNDERCUT AS REQ'D TO SUITABLE BEARING MATERIAL AS DETERMINED BY THE GEOTECHNICAL TESTING AGENCY. REF. TYPICAL FOOTING UNDERCUT DETAIL ON S400. UNDERCUTTING TO SUITABLE BRG. MATERIAL IS NOT REQUIRED FOR GRADE BEAMS. REFERENCE ELEVATIONS IN PARENTHESES (-XX'-X") FOR APPROXIMATE ELEVATION TO SUITABLE BEARING STRATA TO BE USE FOR BIDDING PURPOSES.
12. COLUMN FOOTINGS SUPPORTING MORE THAN ONE COLUMN SHALL BE CENTERED AT THE MIDPOINT BETWEEN THE COLUMNS, UNLESS NOTED OTHERWISE ON PLAN.
13. (NOT USED)
14. PROVIDE CONTINUOUS 4" H. x W. VARIES CONCRETE CURB ON ACOUSTIC ISOLATION SLABS IN MECHANICAL ROOMS. CURBS TO SURROUND ALL PENETRATIONS THRU SLAB INCLUDING COLUMNS, PIPES, SUMP PITS, ETC.
15. ALL EX. CONSTRUCTION SHOWN IN PLAN AND/OR SECTION WAS DERIVED FROM EXISTING DRAWINGS AND MUST BE FIELD VERIFIED. IF ANY DISCREPANCIES ARE DISCOVERED BETWEEN INFO. SHOWN ON THE DRAWINGS AND ACTUAL CONDITIONS IMMEDIATELY CONTACT ARCHITECT/ENGINEER FOR DIRECTION BEFORE PROCEEDING WITH THE WORK.
16. PROVIDE THICKENED SLAB UNDER ALL INTERIOR CMU WALLS WITHOUT FOOTINGS. SEE S401 FOR THICKENED SLAB DETAIL. LAYOUT THICKENED SLABS FROM DIMENSIONS ON THE ARCHITECT FLOOR PLANS.
17. PROVIDE CONTROL/CONTRACTION JOINTS IN SLABS ON GRADE (REF. THE TYPICAL DETAILS ON SHEET S401). ALL JOINTS IN SLABS TO RECEIVE THIN OR THICK-SET TERRAZZO, CERAMIC OR PORCELAIN TILE, VINYL-COMPOSITION TILE (VCT) OR VINYL SHEET GOODS, EPOXY OR SIMILAR THIN-FILM FINISH FLOORING SHALL BE CAREFULLY COORDINATED WITH THE FLOORING CONTRACTOR. THE CONTRACTOR SHALL SUBMIT SLAB JOINT LAYOUT TO ARCHITECT/ENGINEER FOR REVIEW PRIOR TO PLACING SLABS.
18. WHERE PIERS OCCUR WITHIN A LARGER ARCH. PILASTER OR COLUMN ENCLOSURE (FOR EG. POA's WITHIN 40' SQUARE CANOPY PILASTERS) PROVIDE PIER REINF. CAGE CENTERED ON THE GRID INTERSECTION. FORM OVERALL PIER TO PROFILE OF THE ARCHITECTURAL PILASTER OR COLUMN ENCLOSURE. LAYOUT PILASTERS FROM DIMENSIONS ON THE ARCHITECTURAL PLANS & DETAILS.
19. FOR ARCHITECTURAL PILASTERS NOT SUPPORTING STEEL COLUMNS, CONSTRUCT AS FULLY-GROUTED MASONRY PIERS OR CAST-IN-PLACE CONCRETE PIERS REINF'D W/ #5 VERTICAL REINFORCING AT 12" O.C. ALL FACES, AT CONTRACTOR'S OPTION.
20. (NOT USED)
21. PROVIDE CASTCONNEX ART-12.75 + UPC-8.625 / ART-324 + UPC-219 AT TOP AND BOTTOM OF COLUMN.
22. PLAN LEGEND:

F.F.	DENOTES FINISH FLOOR
T/'X'	DENOTES TOP OF FTG., GRADE BEAM, SLAB, PIER, ETC.
B/'X'	DENOTES BOTTOM OF FTG., GRADE BEAM, ETC.
C.J.	DENOTES SLAB ON GRADE CONTROL/CONTRACTION JOINT
WF30 -20'-0"	DENOTES WALL FOOTING MARK & TOP OF FOOTING ELEVATION (SEE WALL FOOTING SCHEDULE)
PC24x24	DENOTES PRECAST CONCRETE COLUMN SIZE, IN INCHES
N/A	NOT USED
CW16	DENOTES C.I.P. CONCRETE WALL MARK (SEE SCHEDULE)
PCW13	DENOTES PRECAST CONCRETE WALL MARK AND NOMINAL THICKNESS
S4	DENOTES 4" CONC. SLAB-ON-GRADE w/ FIBERFORCE 300 @ 1.5 LB/C.Y. (OR APPROVED EQUAL) & ES SYSTEM BY SPECIFICATION PRODUCTS, INC. CONSISTING OF: ES INTERNAL CURE ADMIXTURE @ 4 OZ/CWT & ES CATALYST SPRAYED ON BETWEEN 800-1,000 SF/GAL OVER 15-MIL CLASS A VAPOR BARRIER OVER 6" COMPACTED GRANULAR FILL (INDOT No. 53)
S5	DENOTES 5" CONC. SLAB-ON-GRADE w/ FIBERFORCE 300 @ 1.5 LB/C.Y. (OR APPROVED EQUAL) & ES SYSTEM BY SPECIFICATION PRODUCTS, INC. CONSISTING OF: ES INTERNAL CURE ADMIXTURE @ 4 OZ/CWT & ES CATALYST SPRAYED ON BETWEEN 800-1,000 SF/GAL OVER 15-MIL CLASS A VAPOR BARRIER OVER 6" COMPACTED GRANULAR FILL (INDOT No. 53)
	DENOTES UTILITY PIPE/CONDUIT TO RUN THROUGH FOUNDATION WALL. NOT ALL MAY BE SHOWN ON THIS DRAWING.
TF -2'-8" TF -4'-0" TF -5'-4"	DENOTES WALL FOOTING WITH STEPS, REF. TYP. DETAIL ON S400. FOOTING STEPS SHOWN ON PLAN REQUIRE COORDINATION BETWEEN TRADES AND MAY REQUIRE ADJUSTMENT.
F5.0 -4'-0" P24 -2'-0"	DENOTES COLUMN FOOTING MARK & TOP OF FTG. ELEVATION (SEE FTG. SCHED.) DENOTES PIER MARK & TOP OF PIER ELEVATION (SEE PIER SCHED.)
DENOTES COLUMN SIZE (REF. FRAMING PLANS FOR STUB COLS NOT ON FDNS)	COLUMN FOOTING, CONCRETE PIER, STEEL COLUMN

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PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	04.29.22	BID PKG. #1 ADD. #2

100% CONSTRUCTION DOCUMENTS

PROJECT: #21107
DATE: 04.11.2022
DRAWN BY: DJL

ENLARGED AUDITORIUM FOUNDATION PLAN

S201

K L C B A E D G F J H

N TRUE NORTH

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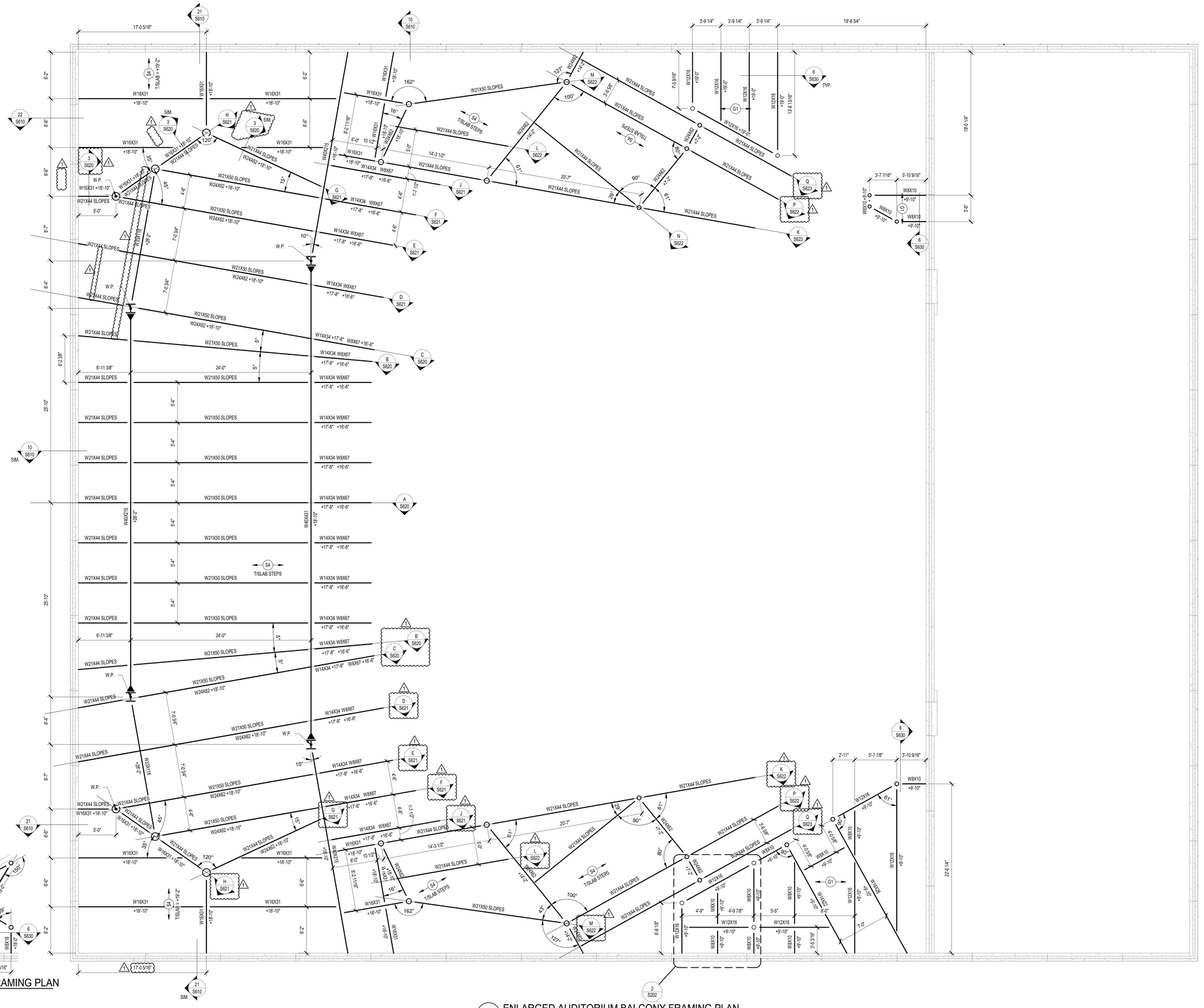

1 ENLARGED AUDITORIUM BALCONY FRAMING PLAN
3/16" = 1'-0"

2 BOX BOOM FRAMING PLAN
3/16" = 1'-0"

⚠ FRAMING PLAN NOTES

1. REF. S001 & S002 FOR STRUCTURAL NOTES, DESIGN DATA, SCHEDULES & LEGENDS.
2. REF. S500 FOR TYPICAL MASONRY DETAILS AND S600-602 FOR TYPICAL FRAMING DETAILS.
3. ALL CONTRACTORS ARE REQUIRED TO COORDINATE THEIR WORK WITH ALL DISCIPLINES TO AVOID CONFLICTS. THE MECHANICAL, ELECTRICAL, AND PLUMBING ASPECTS ARE NOT IN THE SCOPE OF THESE DRAWINGS. THEREFORE, ALL REQUIRED MATERIALS AND WORK MAY NOT BE INDICATED.
4. ALL ELEVATIONS ARE REFERENCED FROM THE FIRST FLOOR FIN. FLOOR ELEVATION +0'-0". COORD. USGS ELEVATION WITH CIVIL DWGS.
5. SEE FOUNDATION PLANS FOR SIZES OF STEEL COLUMNS SUPPORTED ON FOUNDATIONS.
6. NOT USED
7. NOT USED
8. INSTALL CONTINUOUS BENT PLATE/ANGLE POUR STOPS AT ALL ELEVATED SLAB-ON-DECK PERIMETER EDGES AND AROUND ALL INTERIOR FLOOR OPENINGS (BOTH SHOWN AND NOT SHOWN). SEE DETAIL 5/S601.
9. INSTALL CONTINUOUS ANGLES AT ALL PERIMETER ROOF EDGES. SEE DETAIL 12/S601 FOR ATTACHEMENT TO BEAM/JOIST AND FOR ALL CONDITIONS NO SPECIFICALLY DEFINED IN FRAMING SECTIONS.
10. INSTALL CONTINUOUS CONCRETE CURBS PER DETAIL 14/S601 AROUND THE PERIMETER OF ALL MECHANICAL ROOMS AND AROUND FLOOR PENETRATIONS BOTH SHOWN AND NOT SHOWN INCLUDING STEEL COLUMN PENETRATIONS.
11. ALL WALLS SHALL BE LAID OUT FROM THE ARCHITECTURAL DRAWINGS.
12. REF. ARCH. DRAWINGS. FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND IMMEDIATELY NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
13. COORDINATE EXACT SIZE & LOCATION OF ANY MECHANICAL OPENINGS IN FLOOR SLAB, ROOF DECK, OR WALLS WITH THE MEP CONTRACTOR(S). LOCATION & SIZE OF ALL DUCT OPENINGS, GRILLES, ETC. SHALL BE VERIFIED PRIOR TO CONSTRUCTION.
14. ALL ELEVATIONS SHOWN ON PLAN INDICATE TOP OF STEEL BEAM UNLESS NOTED OTHERWISE.
15. PROVIDE CHANNEL FRAMES AT ALL SUPPORTED SLAB OPENINGS PER TYPICAL DETAIL ON SXXX. COORDINATE EXACT NUMBER, LOCATIONS & DIMENSIONS WITH THE APPROPRIATE CONTRACTORS & THE ARCH. & MEP DRAWINGS.
16. PROVIDE FRAMES AT ALL ROOF DRAINS, ROOF HATCHES & OTHER ROOF OPENINGS PER TYPICAL DETAILS ON S600. COORD. EXACT NUMBER, LOCATIONS & DIMENSIONS WITH THE APPROPRIATE CONTRACTORS & THE ARCH. & MEP DWGS.
17. PROVIDE CMU REINFORCING AS NOTED ON PLANS. IF NOT SHOWN ON PLANS OR DETAILS, MINIMUM CMU WALL REINFORCING TO BE #5 VERTS @ 48" O.C. PROVIDE OPEN-CORE BOND BEAMS AT TOPS OF WALLS, AT CHANGES IN CMU THICKNESS, AND WHERE INDICATED ON PLANS & SECTIONS (10'-0" O.C. MAX VERTICAL SPACING). PROVIDE 1/2 OF INTERRUPTED VERTICALS AT JAMBS OF OPENINGS AND PROVIDE ADDITIONAL VERT'S. AT ENDS OF WALLS.
18. ALL MASONRY BOND BEAMS, OTHER THAN BOND BEAM LINTELS OVER OPENINGS, SHALL BE "OPEN-CORE" BOND BEAMS TO ALLOW VERTICAL REINFORCING TO PASS THROUGH, UNLESS NOTED OTHERWISE.
19. REF. ARCH. DWGS. FOR MASONRY CONTROL & EXPANSION JOINT LOCATIONS.
20. ALL HORIZONTAL AND DIAGONAL BRIDGING FOR STEEL JOISTS SHALL BE DESIGNED, LOCATED & PROVIDED BY THE JOIST SUPPLIER PER SJI SPECIFICATIONS.
21. FOR ESTIMATING AND BIDDING PURPOSES ONLY, ASSUME AN ADDITIONAL 1/2" THICKNESS OF CONCRETE WILL BE NECESSARY FOR ALL ELEVATED SLABS ON METAL DECK. THE INTENT OF THIS REQUIREMENT IS TO ACCOUNT FOR ANTICIPATED DEAD LOAD DEFLECTIONS IN THE SUPPORTING STRUCTURE. THE FINISHED SLAB SHALL MEET THE FLATNESS REQUIREMENTS DEFINED IN THE SPECIFICATION.
22. PLAN LEGEND:

F.F.	DENOTES FIN. FLOOR
T/'X'	DENOTES TOP OF STEEL, SLAB, ETC.
B/'X'	DENOTES BOTTOM OF LINTEL, ETC.
E.O.S. (or EOS)	DENOTES EDGE OF SLAB (MEASURED FROM BEAM C.L.) SEE TYPICAL DETAIL A/S-410
E.O.D. (or EOD)	DENOTES EDGE OF DECK (MEASURED FROM BEAM C.L.) NOTE: PERIMETER ROOF ANGLE/BENT PL NOT REQUIRED
E.O.L. (or EOL)	DENOTES EDGE OF ANGLE (MEASURED FROM BEAM C.L.) SEE TYPICAL DETAIL B/S-410
←(S4)→	DENOTES 1½", 20 GA. GALVANIZED COMPOSITE DECK w/ 2½" NW CONC SLAB w/ 6x6-W1.4xW1.4 WWF, TOTAL 't' = 4" & E5 SYSTEM BY SPECIFICATION PRODUCTS, INC. CONSISTING OF: E5 INTERNAL CURE ADMIXTURE @ 4 OZ/CWT & E5 CATALYST SPRAYED ON BETWEEN 800-1,000 SF/GAL
←(R15)→	DENOTES 1½" 20 GA. PRIME-PAINTED WIDE RIB STEEL ROOF DECK. SEE S600 FOR MORE INFORMATION
←(A20)→	DENOTES 2", 20 GA. ACOUSTICAL GALVANIZED & PRIME-PAINTED DOVETAIL RIB STEEL ROOF DECK. SEE S600 FOR MORE INFORMATION
←(G1)→	DENOTES McNICHOLS GHB-150 BAR GRATING WITH 7/16" PLYWOOD/OSB OVER TOP.
←(P4)→	NOT USED
▷—	DENOTES HSS BEAM-TO-COLUMN/BEAM MOMENT CONNECTION. REF. DETAIL 11/S610.
▶—	DENOTES BOLTED MOMENT CONNECTION. REF. DETAIL 1/S620.
●—	DENOTES BEAM-THRU-BEAM MOMENT CONNECTION. REF. DETAIL 9/S601.
— — —	DENOTES BRACED FRAME OR KICKER LOCATION
⊠	DENOTES APPROX. LOCATION OF OPENING IN DECK/SLAB. REF. DETAILS ON S600 FOR TYPICAL OPENING FRAMES. FOR MULTIPLE CLOSELY SPACED OPENINGS, TREAT AS ONE LARGE OPENING.

23. WIDE-FLANGE BEAM & GIRDER NOTATION:

BEAM REACTIONS SHOWN IN KIPS TO BE USED FOR DESIGN OF SHEAR CONNECTION BY STEEL FABRICATOR'S SSE (ALLOWABLE STRESS DESIGN / LOADS UNFACTORED).

REF. THE STEEL CONNECTION NOTES ON S001 FOR DESIGN OF CONNECTIONS AT BEAMS & GIRDERS WITH NO REACTION SHOWN.

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GREENFIELD CENTRAL HIGH SCHOOL
AUDITORIUM RENOVATION & ADDITION
810 N BROADWAY ST.
GREENFIELD, IN 46140

SCOTT A. CLORE
REGISTERED
PE10606154
STATE OF INDIANA
PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	04.29.22	BID PKG. #1 ADD.#2

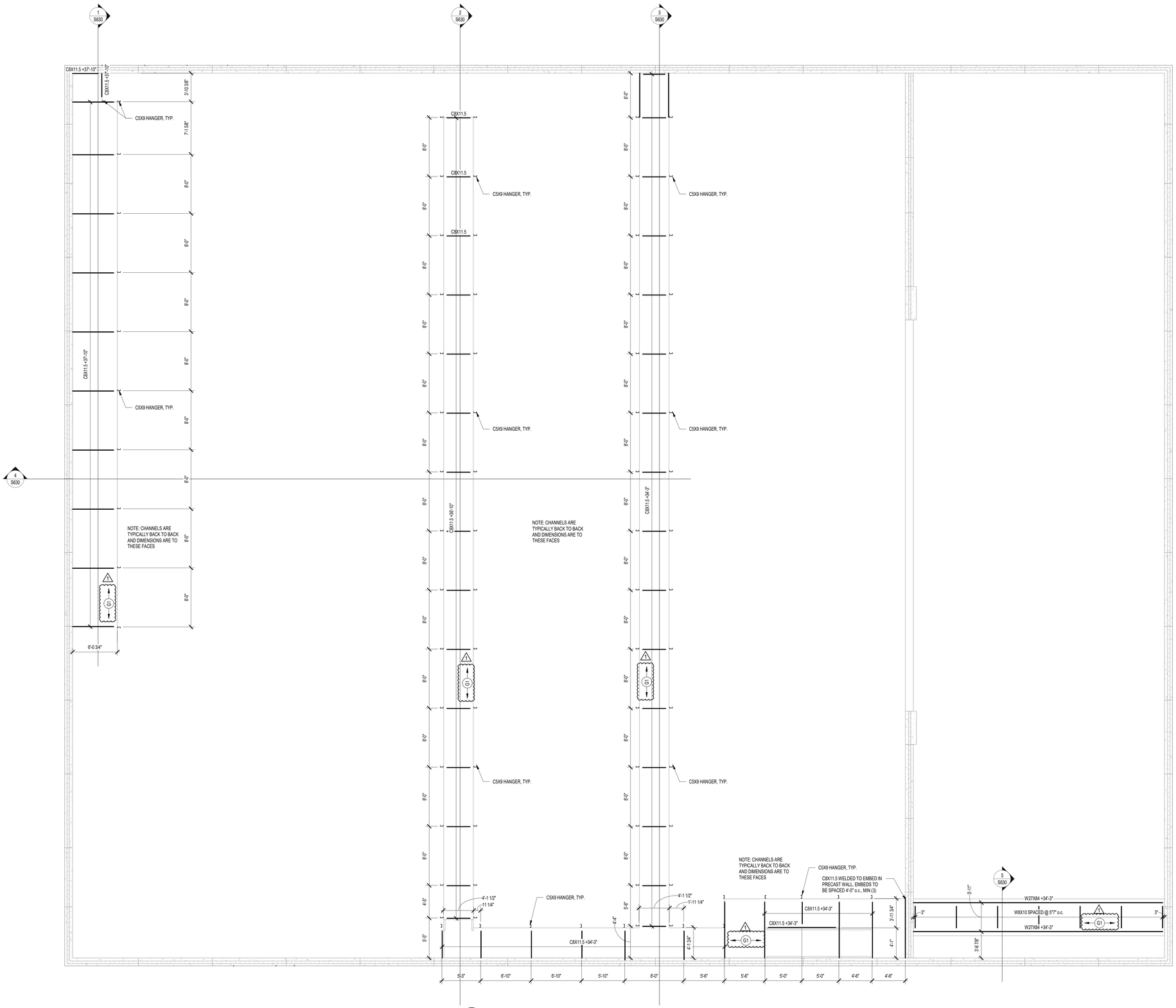
100% CONSTRUCTION DOCUMENTS

PROJECT: #21107
DATE: 04.11.2022
DRAWN BY: DJL

ENLARGED
AUDITORIUM
BALCONY
FRAMING PLAN

S202

PLOT DATE/TIME:4/29/2022 11:17:22 AM



1 ENLARGED AUDITORIUM CATWALK FRAMING PLAN
3/16" = 1'-0"

⚠ FRAMING PLAN NOTES

1. REF. S001 & S002 FOR STRUCTURAL NOTES, DESIGN DATA, SCHEDULES & LEGENDS.
2. REF. S500 FOR TYPICAL MASONRY DETAILS AND S600,602 FOR TYPICAL FRAMING DETAILS.
3. ALL CONTRACTORS ARE REQUIRED TO COORDINATE THEIR WORK WITH ALL DISCIPLINES TO AVOID CONFLICTS. THE MECHANICAL, ELECTRICAL, AND PLUMBING ASPECTS ARE NOT IN THE SCOPE OF THESE DRAWINGS. THEREFORE, ALL REQUIRED MATERIALS AND WORK MAY NOT BE INDICATED.
4. ALL ELEVATIONS ARE REFERENCED FROM THE FIRST FLOOR FIN. FLOOR ELEVATION +0'-0". COORD. USGS ELEVATION WITH CIVIL DWGS.
5. SEE FOUNDATION PLANS FOR SIZES OF STEEL COLUMNS SUPPORTED ON FOUNDATIONS.
6. NOT USED
7. NOT USED
8. INSTALL CONTINUOUS BENT PLATE/ANGLE POUR STOPS AT ALL ELEVATED SLAB-ON-DECK PERIMETER EDGES AND AROUND ALL INTERIOR FLOOR OPENINGS (BOTH SHOWN AND NOT SHOWN). SEE DETAIL 6/S601
9. INSTALL CONTINUOUS ANGLES AT ALL PERIMETER ROOF EDGES. SEE DETAIL 12/S601 FOR ATTACHEMENT TO BEAM 2/S601 AND FOR ALL CONDITIONS NO SPECIFICALLY DEFINED IN FRAMING SECTIONS.
10. INSTALL CONTINUOUS CONCRETE CURBS PER DETAIL 12/S601 AROUND THE PERIMETER OF ALL MECHANICAL ROOMS AND AROUND FLOOR PENETRATIONS BOTH SHOWN AND NOT SHOWN INCLUDING STEEL COLUMN PENETRATIONS.
11. ALL WALLS SHALL BE LAID OUT FROM THE ARCHITECTURAL DRAWINGS.
12. REF. ARCH. DRAWINGS. FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND IMMEDIATELY NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
13. COORDINATE EXACT SIZE & LOCATION OF ANY MECHANICAL OPENINGS IN FLOOR SLAB, ROOF DECK, OR WALLS WITH THE MEP CONTRACTOR(S). LOCATION & SIZE OF ALL DUCT OPENINGS, GRILLES, ETC. SHALL BE VERIFIED PRIOR TO CONSTRUCTION.
14. ALL ELEVATIONS SHOWN ON PLAN INDICATE TOP OF STEEL BEAM UNLESS NOTED OTHERWISE.
15. PROVIDE CHANNEL FRAMES AT ALL SUPPORTED SLAB OPENINGS PER TYPICAL DETAIL ON SXXX. COORDINATE EXACT NUMBER, LOCATIONS & DIMENSIONS WITH THE APPROPRIATE CONTRACTORS & THE ARCH. & MEP DRAWINGS.
16. PROVIDE FRAMES AT ALL ROOF DRAINS, ROOF HATCHES & OTHER ROOF OPENINGS PER TYPICAL DETAILS ON SXXX. COORD. EXACT NUMBER, LOCATIONS & DIMENSIONS WITH THE APPROPRIATE CONTRACTORS & THE ARCH. & MEP DWGS.
17. PROVIDE CMU REINFORCING AS NOTED ON PLANS. IF NOT SHOWN ON PLANS OR DETAILS, MINIMUM CMU WALL REINFORCING TO BE #5 VERTS @ 48" O.C. PROVIDE OPEN-CORE BOND BEAMS AT TOPS OF WALLS, AT CHANGES IN CMU THICKNESS, AND WHERE INDICATED ON PLANS & SECTIONS (10'-0" O.C. MAX VERTICAL SPACING). PROVIDE 1/2 OF INTERRUPTED VERTICALS AT JAMBS OF OPENINGS AND PROVIDE ADDITIONAL VERT'S. AT ENDS OF WALLS.
18. ALL MASONRY BOND BEAMS, OTHER THAN BOND BEAM LINTELS OVER OPENINGS, SHALL BE "OPEN-CORE" BOND BEAMS TO ALLOW VERTICAL REINFORCING TO PASS THROUGH, UNLESS NOTED OTHERWISE.
19. REF. ARCH. DWGS. FOR MASONRY CONTROL & EXPANSION JOINT LOCATIONS.
20. ALL HORIZONTAL AND DIAGONAL BRIDGING FOR STEEL JOISTS SHALL BE DESIGNED, LOCATED & PROVIDED BY THE JOIST SUPPLIER PER SJI SPECIFICATIONS.
21. FOR ESTIMATING AND BIDDING PURPOSES ONLY, ASSUME AN ADDITIONAL 1/2" THICKNESS OF CONCRETE WILL BE NECESSARY FOR ALL ELEVATED SLABS ON METAL DECK. THE INTENT OF THIS REQUIREMENT IS TO ACCOUNT FOR ANTICIPATED DEAD LOAD DEFLECTIONS IN THE SUPPORTING STRUCTURE. THE FINISHED SLAB SHALL MEET THE FLATNESS REQUIREMENTS DEFINED IN THE SPECIFICATION.
22. PLAN LEGEND:

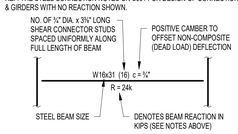
F.F.	DENOTES FIN. FLOOR
T/X'	DENOTES TOP OF STEEL, SLAB, ETC.
B/X'	DENOTES BOTTOM OF LINTEL, ETC.
E.O.S. (or EOS)	DENOTES EDGE OF SLAB (MEASURED FROM BEAM C.L.) SEE TYPICAL DETAIL A/S-410
E.O.D. (or EOD)	DENOTES EDGE OF DECK (MEASURED FROM BEAM C.L.) NOTE: PERIMETER ROOF ANGLE/BENT PL NOT REQUIRED
E.O.L. (or EOL)	DENOTES EDGE OF ANGLE (MEASURED FROM BEAM C.L.) SEE TYPICAL DETAIL B/S-410

- S4 — DENOTES 1½", 20 GA. GALVANIZED COMPOSITE DECK w/ 2½" NW CONC SLAB w/ 6x6-W1.4xW1.4 WWF, TOTAL T = 4" & ES SYSTEM BY SPECIFICATION PRODUCTS, INC. CONSISTING OF: ES INTERNAL CURE ADMIXTURE @ 4 OZ/CWT & ES CATALYST SPRAYED ON BETWEEN 800-1,000 SF/GAL
- R15 — DENOTES 1½" PRIME-PAINTED WIDE RIB STEEL ROOF DECK. SEE S601 FOR MORE INFORMATION
- A20 — DENOTES 2", 20 GA. ACOUSTICAL PRIME-PAINTED DOVETAIL RIB STEEL ROOF DECK. SEE S601 FOR MORE INFORMATION
- G1 — DENOTES McNICHOLS GHB-150 BAR GRATING WITH 7/16" PLYWOOD/OSB OVER TOP.
- P4 — NOT USED
- DENOTES HSS BEAM-TO-COLUMN/BEAM MOMENT CONNECTION. REF. DETAIL 11/S610.
- DENOTES BOLTED MOMENT CONNECTION. REF. DETAIL 1/S620.
- DENOTES BEAM-THRU-BEAM MOMENT CONNECTION. REF. DETAIL 9/S601
- DENOTES BRACED FRAME OR KICKER LOCATION
- DENOTES APPROX. LOCATION OF OPENING IN DECK/SLAB. REF. DETAILS ON S601 FOR TYPICAL OPENING FRAMES. FOR MULTIPLE CLOSELY SPACED OPENINGS, TREAT AS ONE LARGE OPENING.

23. WIDE-FLANGE BEAM & GIRDER NOTATION:

BEAM REACTIONS SHOWN IN KIPS TO BE USED FOR DESIGN OF SHEAR CONNECTION BY STEEL FABRICATOR'S SSE (ALLOWABLE STRESS DESIGN / LOADS UNFACTORED).

REF. THE STEEL CONNECTION NOTES ON S001 FOR DESIGN OF CONNECTIONS AT BEAMS & GIRDERS WITH NO REACTION SHOWN.



TYPICAL COMPOSITE BEAM DIAGRAM

LANCER+BEEBE, LLC
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ENLARGED AUDITORIUM CATWALK FRAMING PLAN

S203

K L
C B A
E D
G F
J H

PLOT DATE/TIME:4/29/2022 11:17:25 AM

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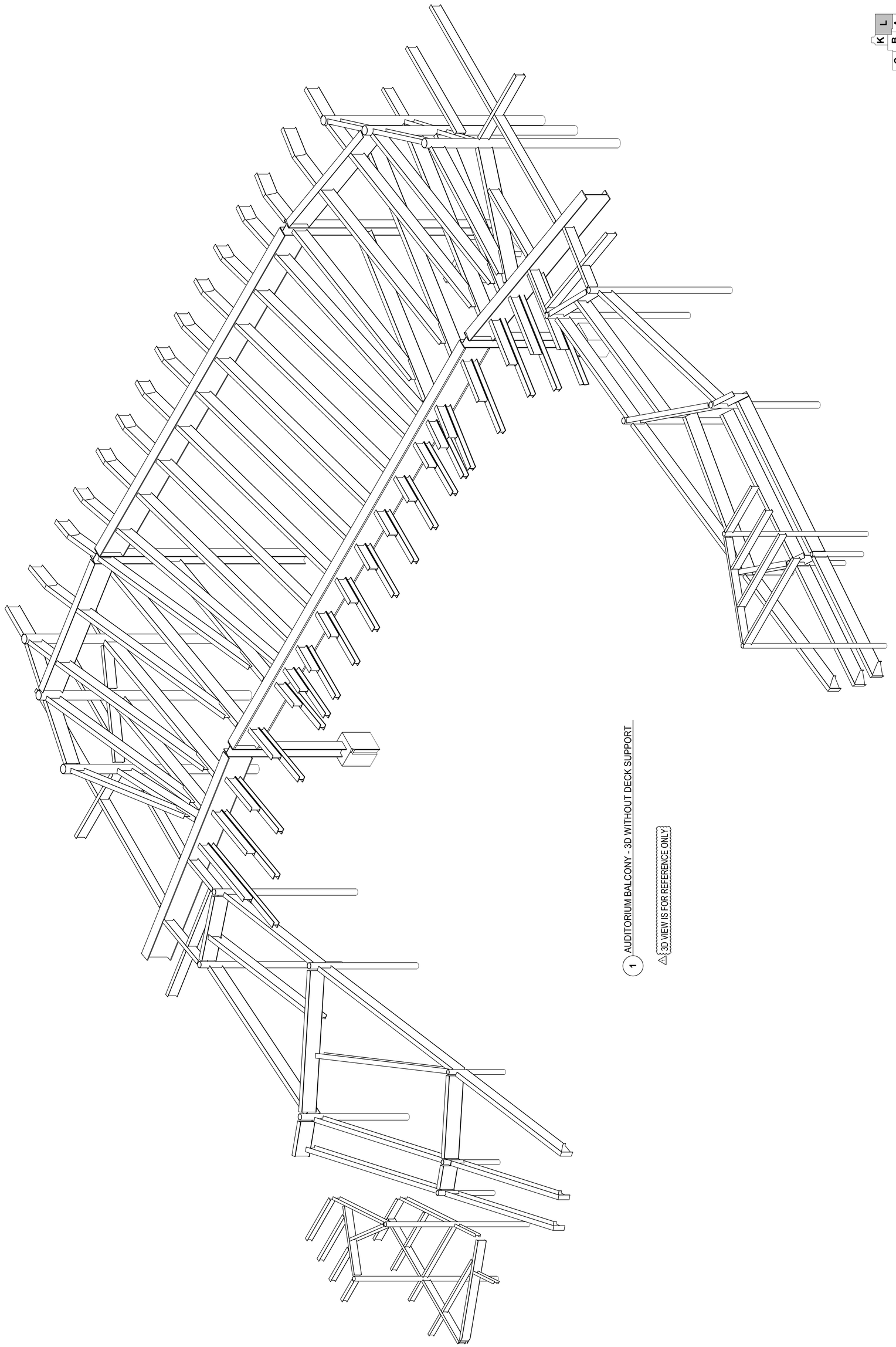
AUDITORIUM
BALCONY
ISOMETRIC
VIEW

S210

N
TRUE NORTH

K L A D F H
C B E G J



1 AUDITORIUM BALCONY - 3D WITHOUT DECK SUPPORT

⚠ 3D VIEW IS FOR REFERENCE ONLY

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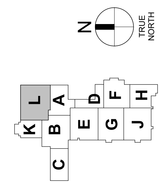
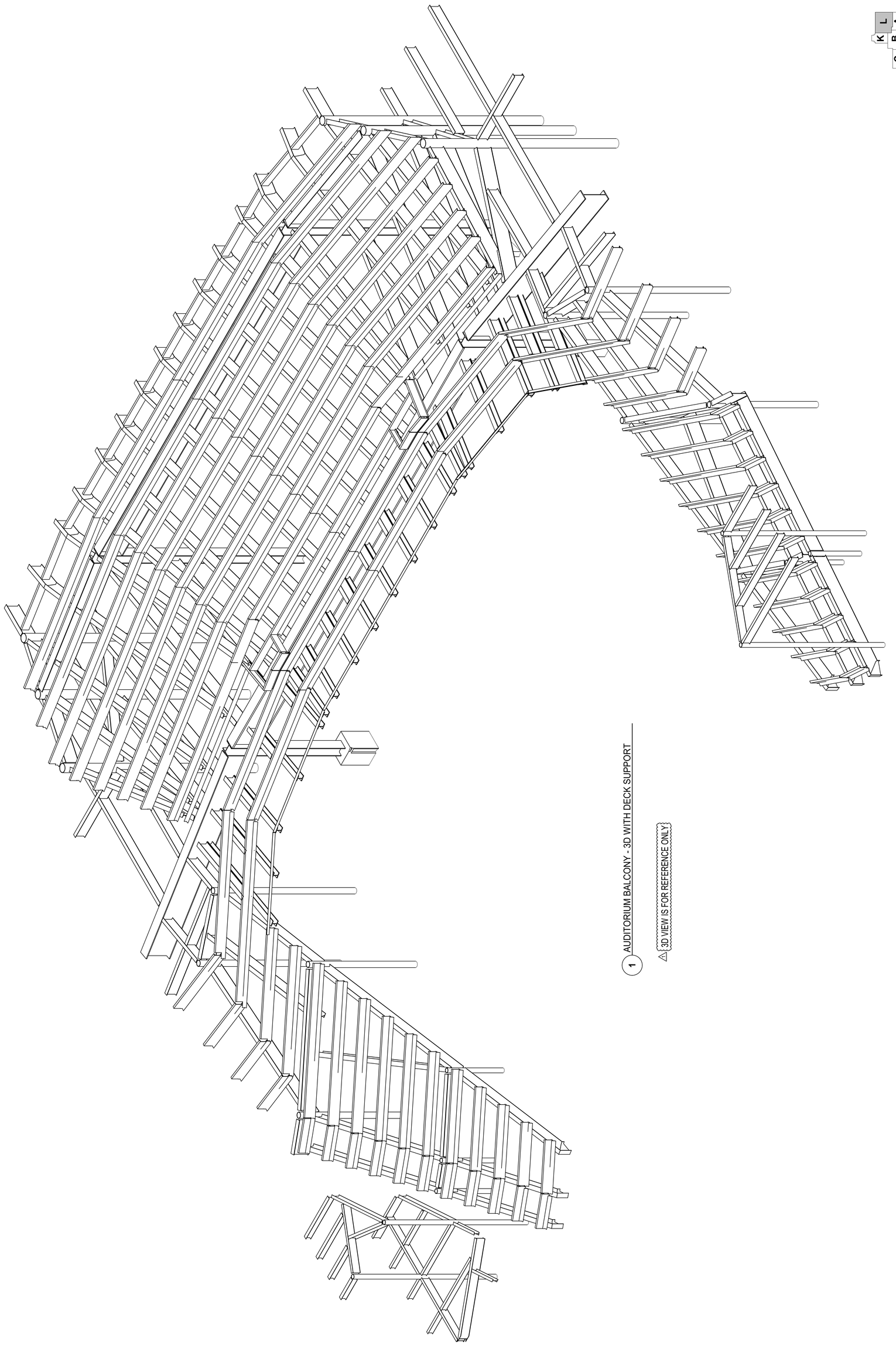
AUDITORIUM
BALCONY
ISOMETRIC
VIEW

S211





1 AUDITORIUM BALCONY - 3D WITH DECK SUPPORT

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PLOT DATE/TIME: 4/29/2022 1:17:29 AM

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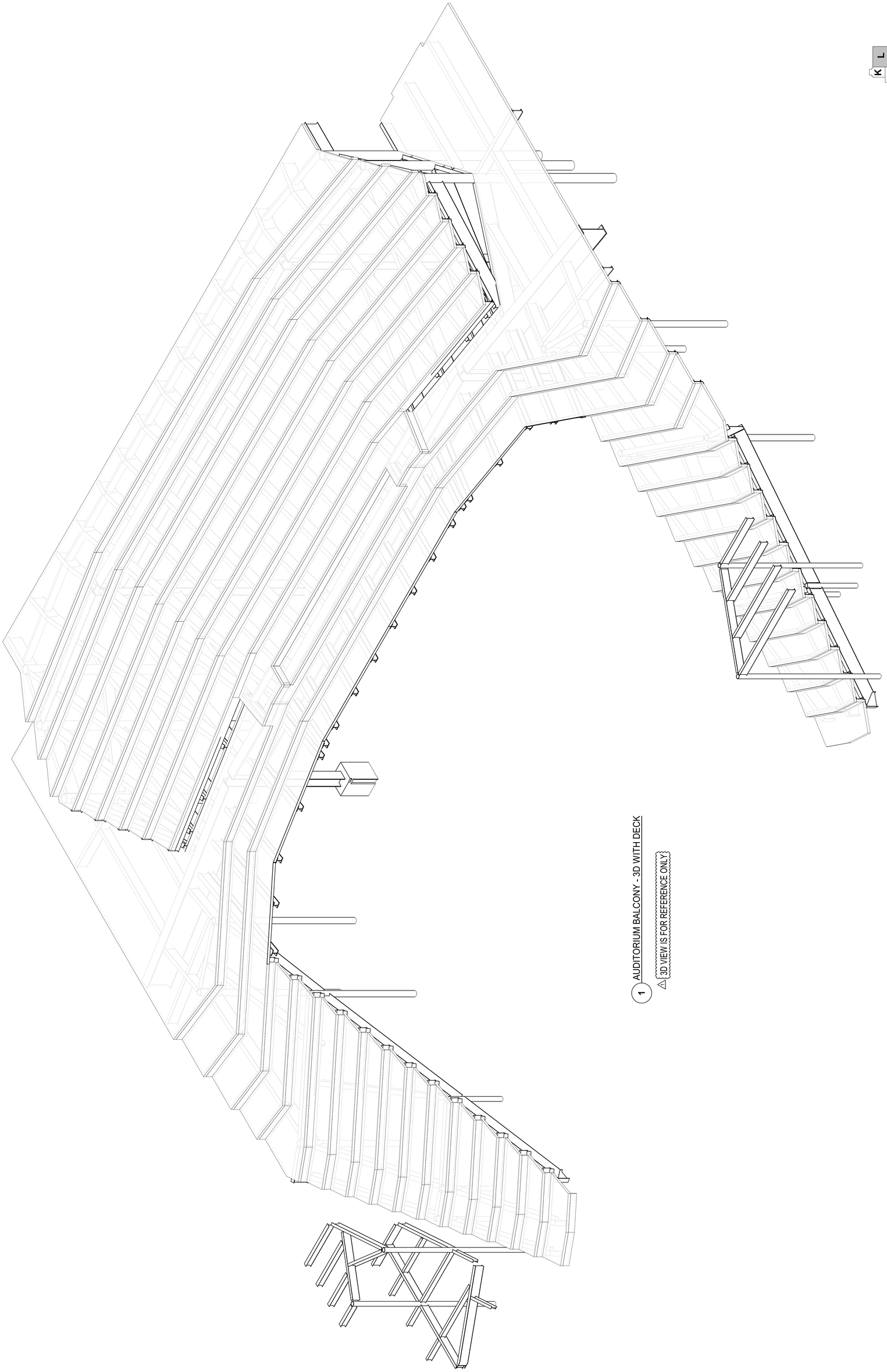
AUDITORIUM
BALCONY
ISOMETRIC
VIEW

S212

N
TRUE NORTH

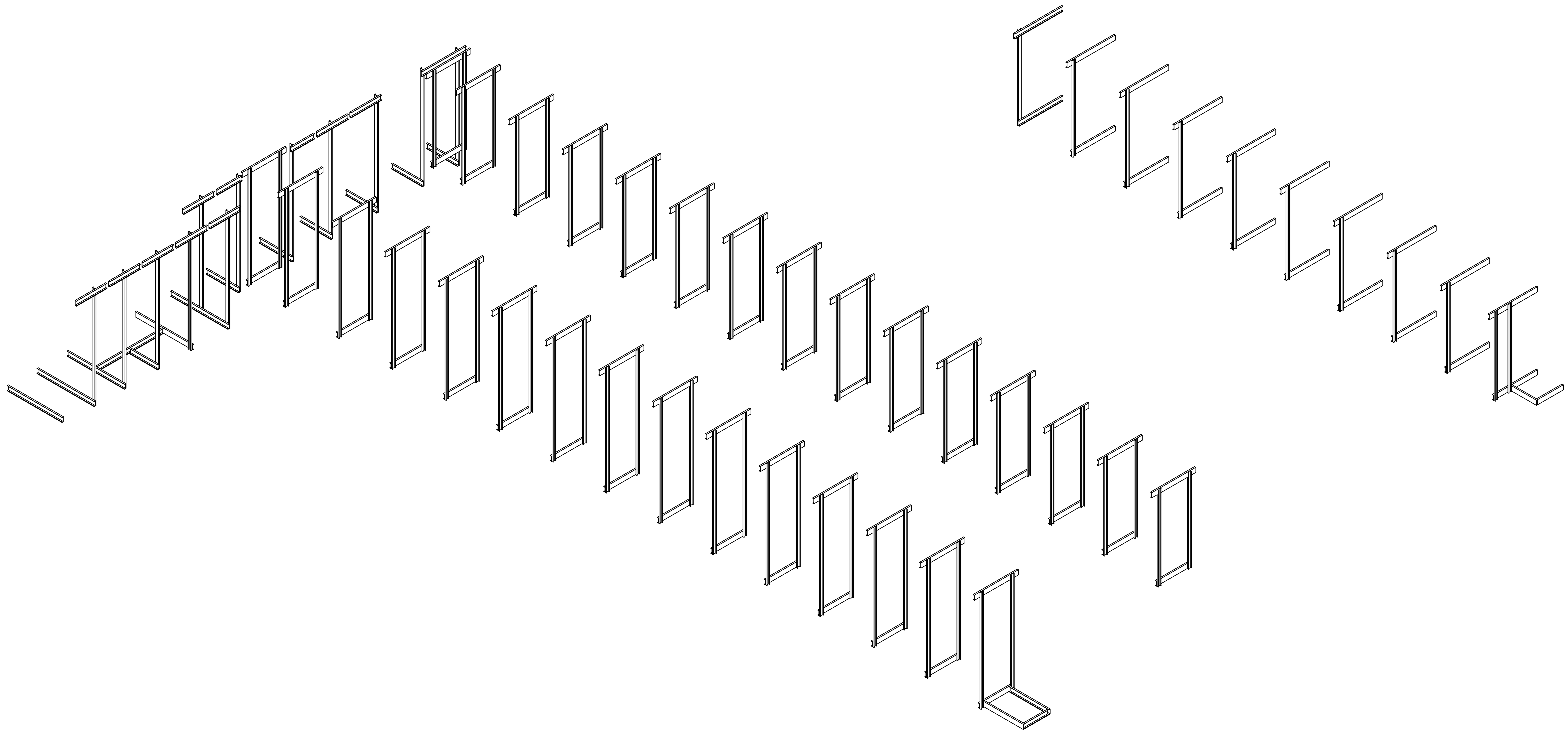
K L A D F H
C B E G J



1 AUDITORIUM BALCONY - 3D WITH DECK

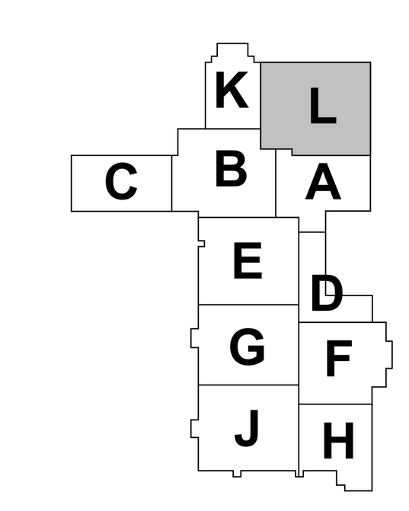
3D VIEW IS FOR REFERENCE ONLY

PLOT DATE/TIME:4/29/2022 11:17:31 AM



1 AUDITORIUM CATWALK - 3D

3D VIEW IS FOR REFERENCE ONLY



N

TRUE NORTH

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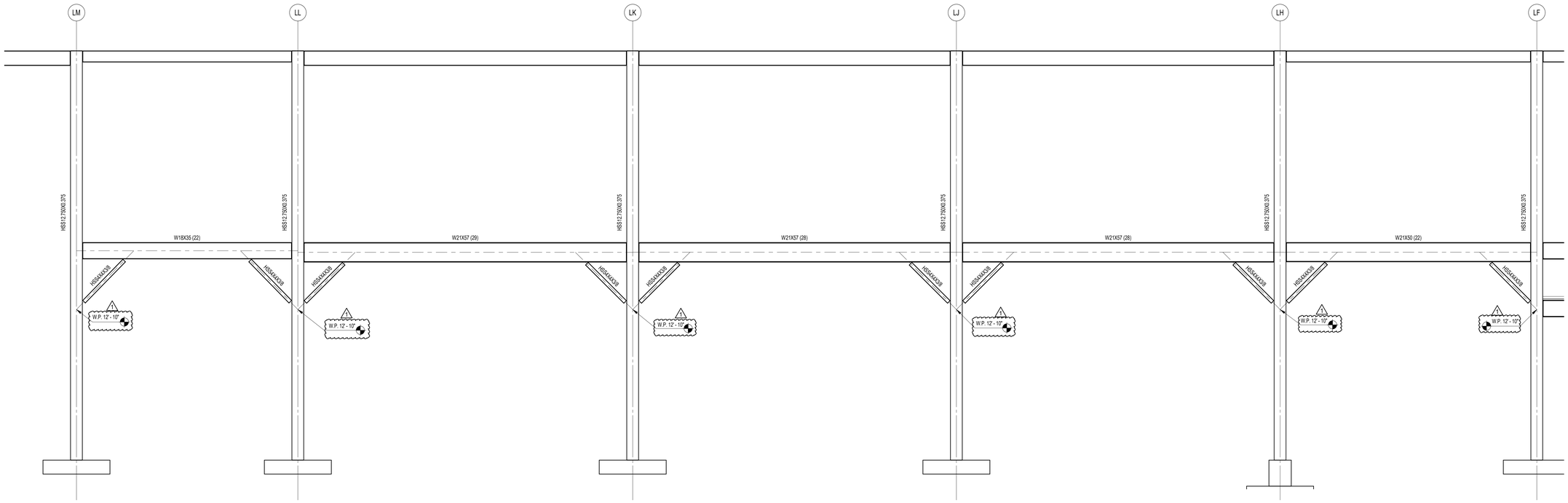
AUDITORIUM CATWALK ISOMETRIC VIEW

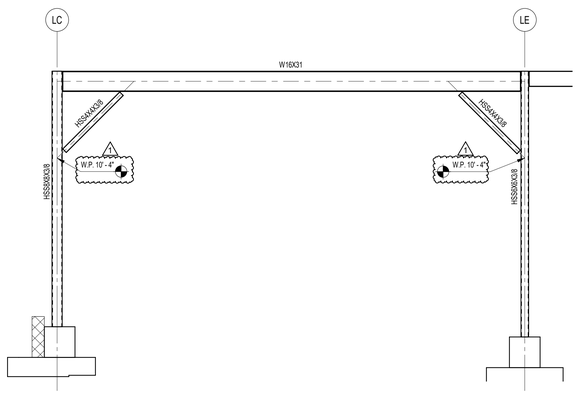
S213

⚠ BRACED FRAME NOTES

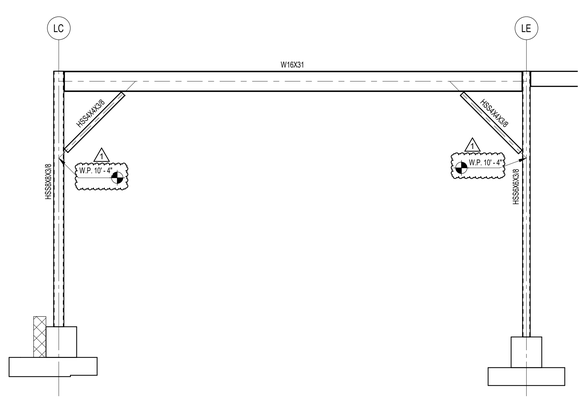
NOTES:
1. CONNECTIONS SHALL BE DESIGNED FOR THE BRACE FORCES (LRFD) NOTED ON THE DRAWINGS, CONSIDERING ALL APPLICABLE LIMIT STATES FOR EACH MEMBER AND CONNECTION COMPONENT.
2. GUSSET CONNECTION FORCES SHALL BE DETERMINED BASED ON THE UNIFORM FORCE METHOD.
3. GUSSET PLATE CONNECTION TO BE ASTM A572, GR. 50.
4. SEE DETAIL 6/S801 FOR KNEE BRACE DETAIL



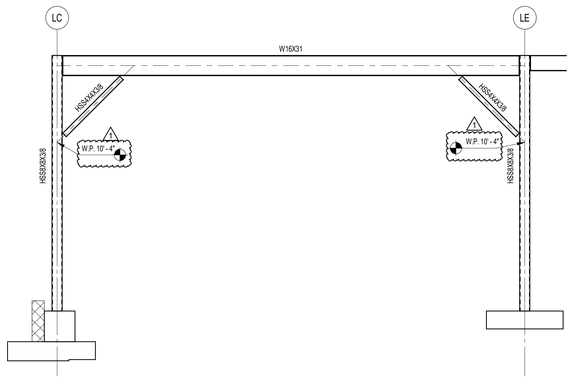
2 BRACING ELEVATION - GRID L4
1/4" = 1'-0"



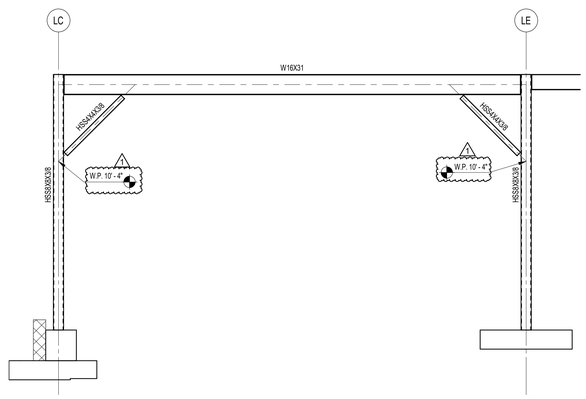
6 BRACING ELEVATION - GRID L14
1/4" = 1'-0"



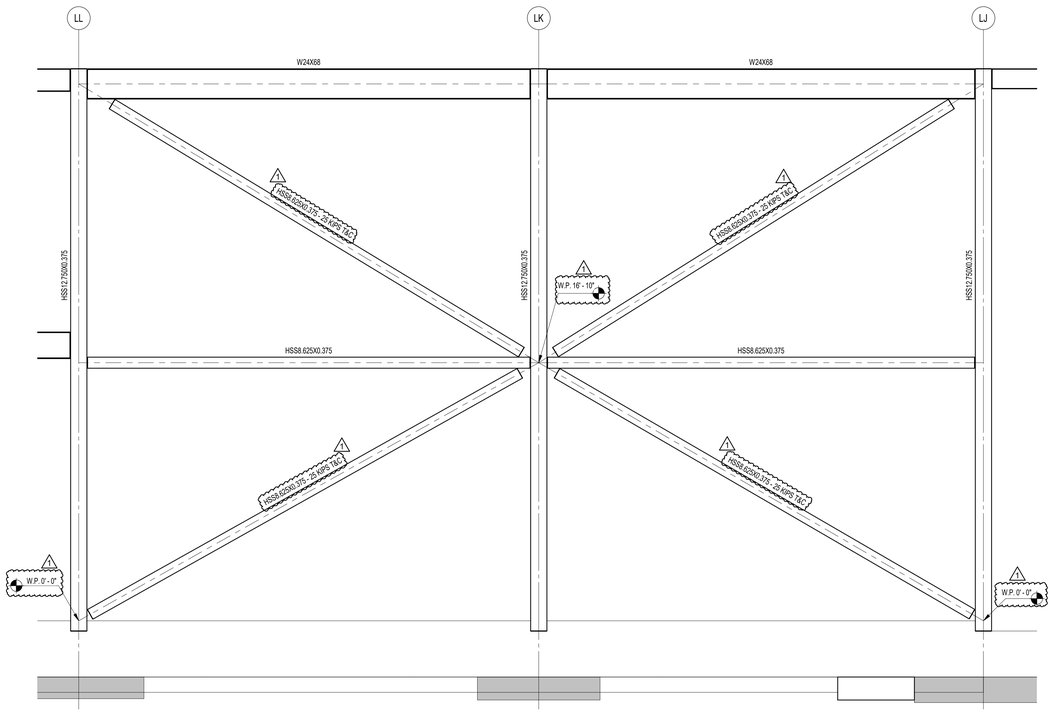
5 BRACING ELEVATION - GRID L13
1/4" = 1'-0"



4 BRACING ELEVATION - GRID L12
1/4" = 1'-0"



3 BRACING ELEVATION - GRID L11
1/4" = 1'-0"



1 BRACING ELEVATION - GRID L1
1/4" = 1'-0"

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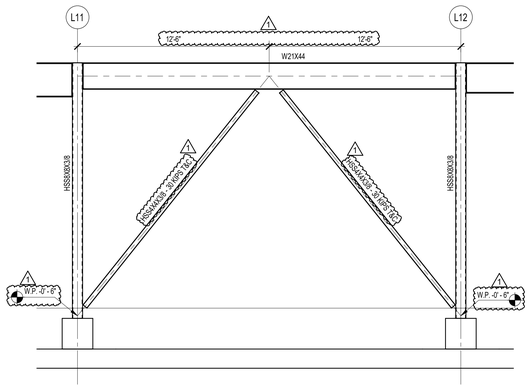
BRACED FRAME ELEVATIONS

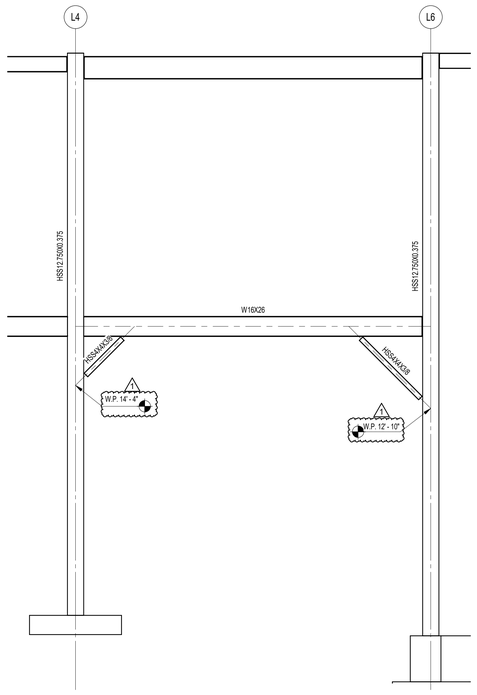
S300

⚠ BRACED FRAME NOTES

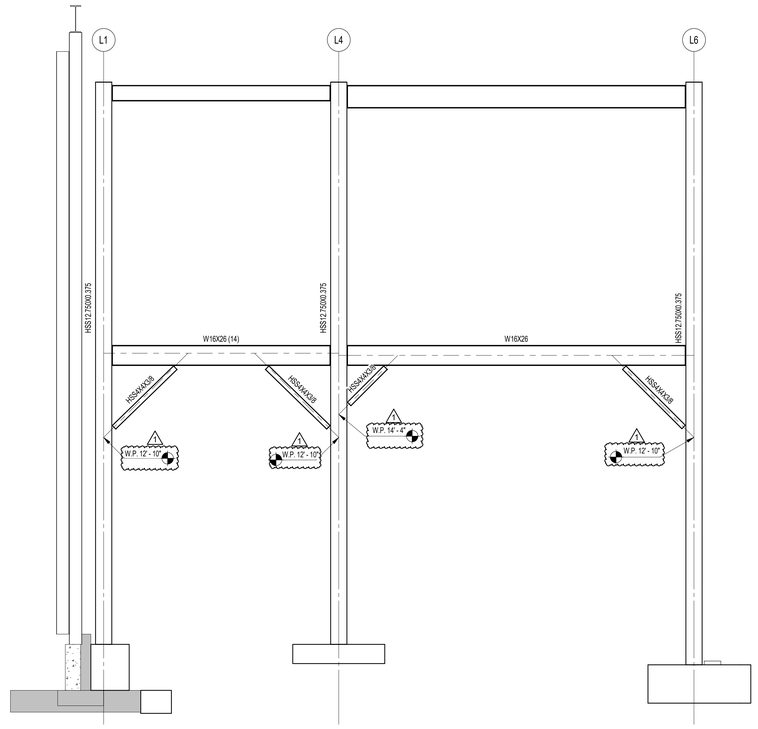
NOTES:
1. CONNECTIONS SHALL BE DESIGNED FOR THE BRACE FORCES (LRFD) NOTED ON THE DRAWINGS, CONSIDERING ALL APPLICABLE LIMIT STATES FOR EACH MEMBER AND CONNECTION COMPONENT.
2. GUSSET CONNECTION FORCES SHALL BE DETERMINED BASED ON THE UNIFORM FORCE METHOD.
3. GUSSET PLATE CONNECTION TO BE ASTM A572, GR. 50.
4. SEE DETAIL 6/S801 FOR KNEE BRACE DETAIL



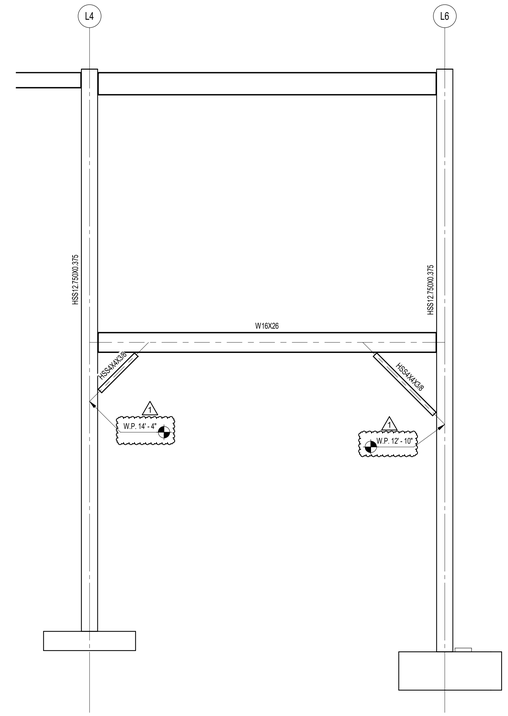
8 BRACING ELEVATION - GRID LC
1/4" = 1'-0"



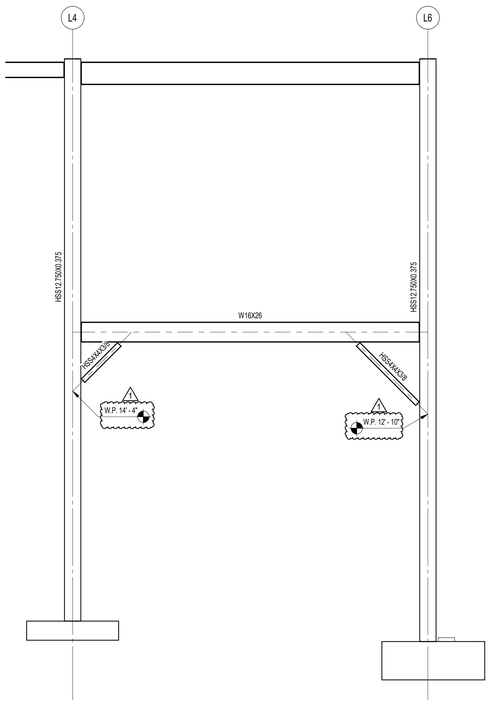
7 BRACING ELEVATION - GRID LM
1/4" = 1'-0"



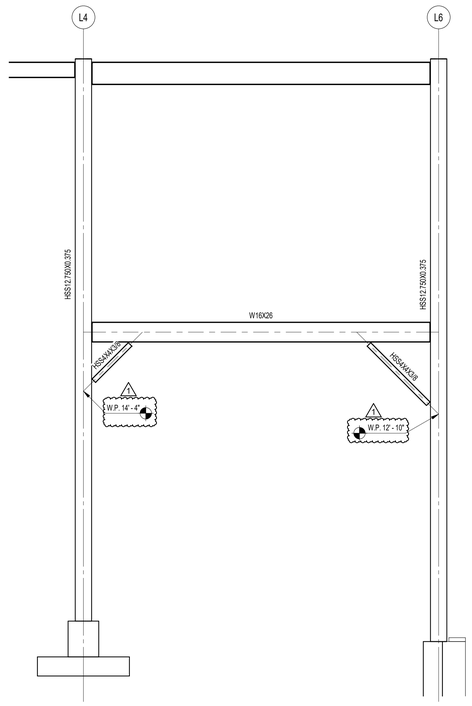
6 BRACING ELEVATION - GRID LL
1/4" = 1'-0"



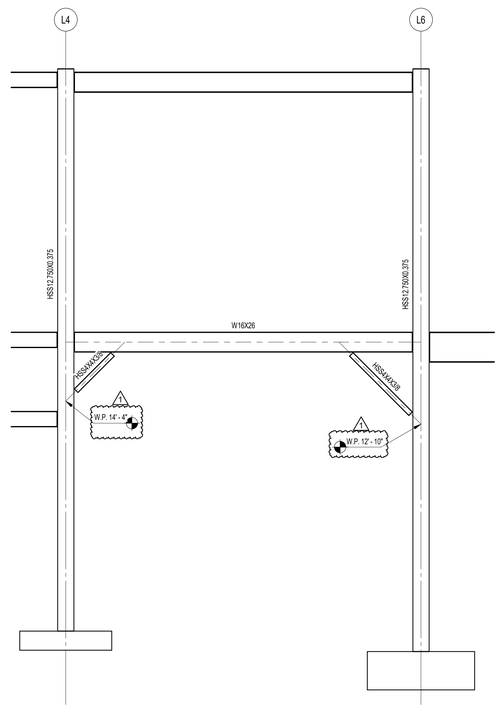
5 BRACING ELEVATION - GRID LK
1/4" = 1'-0"



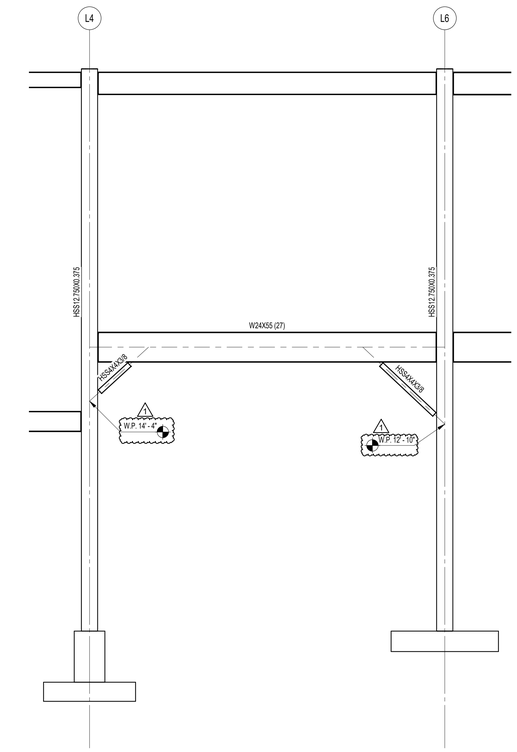
4 BRACING ELEVATION - GRID LJ
1/4" = 1'-0"



3 BRACING ELEVATION - GRID LH
1/4" = 1'-0"



2 BRACING ELEVATION - GRID LF
1/4" = 1'-0"



1 BRACING ELEVATION - GRID LD
1/4" = 1'-0"

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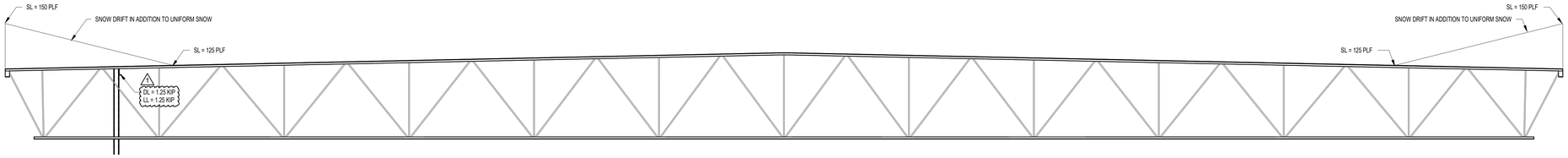
BRACED FRAME ELEVATIONS

S301

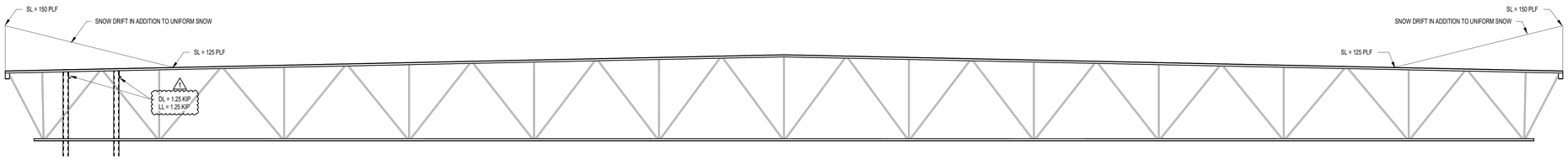
PLOT DATE/TIME:4/29/2022 11:17:40 AM

DESIGN LOADS & DEFLECTIONS
1. UNIFORM TOP CHORD LOADS:
   DL = 175 PLF
   SL = 125 PLF
2. BOTTOM CHORD POINT LOADS - COORD. WITH SUPPLIERS
3. COORD. HANGER LOCATIONS WITH STEEL DETAILER
4. NET WIND UPLIFT:
   15 PSF
5. DEFLECTION LIMITS:
   MAX TL DEFLECTION = L/360
   MAX LL DEFLECTION = L/480



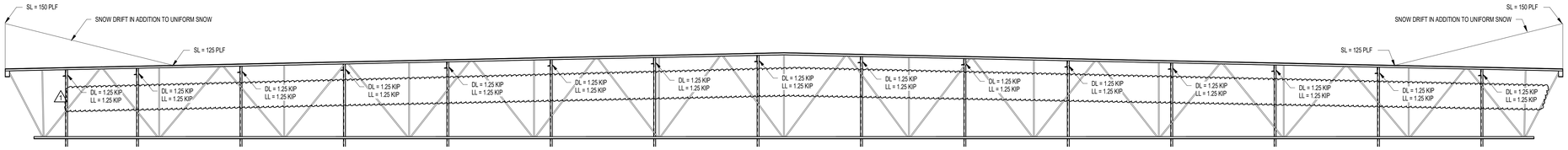
7 JOIST LOADING DIAGRAM - 80DLHSP6
1/4" = 1'-0"

DESIGN LOADS & DEFLECTIONS
1. UNIFORM TOP CHORD LOADS:
   DL = 175 PLF
   SL = 125 PLF
2. BOTTOM CHORD POINT LOADS - COORD. WITH SUPPLIERS
3. COORD. HANGER LOCATIONS WITH STEEL DETAILER
4. NET WIND UPLIFT:
   15 PSF
5. DEFLECTION LIMITS:
   MAX TL DEFLECTION = L/360
   MAX LL DEFLECTION = L/480



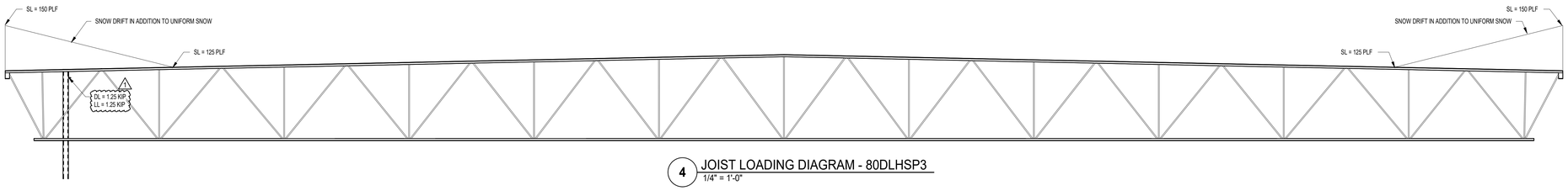
6 JOIST LOADING DIAGRAM - 80DLHSP5
1/4" = 1'-0"

DESIGN LOADS & DEFLECTIONS
1. UNIFORM TOP CHORD LOADS:
   DL = 200 PLF
   SL = 150 PLF
2. BOTTOM CHORD POINT LOADS - COORD. WITH SUPPLIERS
3. COORD. HANGER LOCATIONS WITH STEEL DETAILER
4. NET WIND UPLIFT:
   15 PSF
5. DEFLECTION LIMITS:
   MAX TL DEFLECTION = L/360
   MAX LL DEFLECTION = L/480



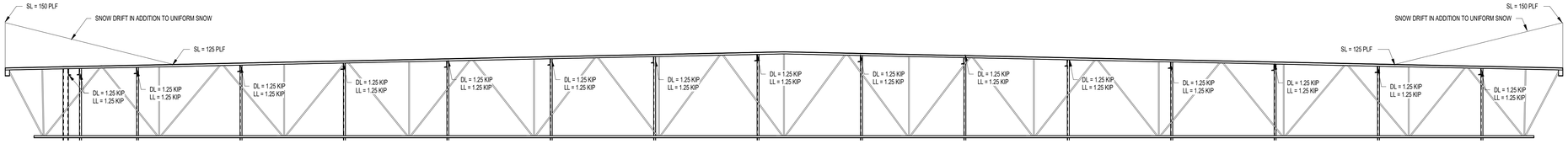
5 JOIST LOADING DIAGRAM - 80DLHSP4
1/4" = 1'-0"

DESIGN LOADS & DEFLECTIONS
1. UNIFORM TOP CHORD LOADS:
   DL = 200 PLF
   SL = 150 PLF
2. BOTTOM CHORD POINT LOADS - COORD. WITH SUPPLIERS
3. COORD. HANGER LOCATIONS WITH STEEL DETAILER
4. NET WIND UPLIFT:
   15 PSF
5. DEFLECTION LIMITS:
   MAX TL DEFLECTION = L/360
   MAX LL DEFLECTION = L/480



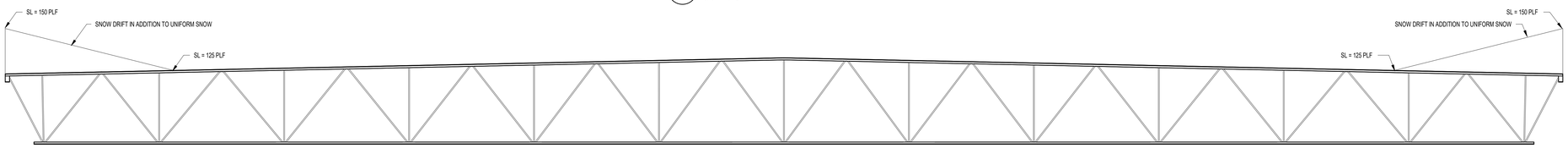
4 JOIST LOADING DIAGRAM - 80DLHSP3
1/4" = 1'-0"

DESIGN LOADS & DEFLECTIONS
1. UNIFORM TOP CHORD LOADS:
   DL = 225 PLF
   SL = 175 PLF
2. BOTTOM CHORD POINT LOADS - COORD. WITH SUPPLIERS
3. COORD. HANGER LOCATIONS WITH STEEL DETAILER
4. NET WIND UPLIFT:
   15 PSF
5. DEFLECTION LIMITS:
   MAX TL DEFLECTION = L/360
   MAX LL DEFLECTION = L/480



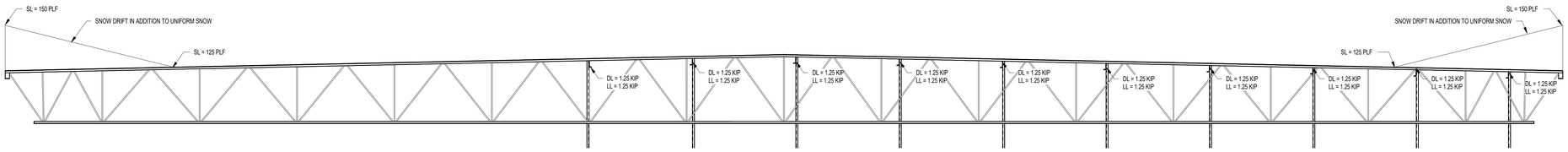
3 JOIST LOADING DIAGRAM - 80DLHSP2
1/4" = 1'-0"

DESIGN LOADS & DEFLECTIONS
1. UNIFORM TOP CHORD LOADS:
   DL = 175 PLF
   SL = 125 PLF
2. BOTTOM CHORD POINT LOADS - COORD. WITH SUPPLIERS
3. COORD. HANGER LOCATIONS WITH STEEL DETAILER
4. NET WIND UPLIFT:
   15 PSF
5. DEFLECTION LIMITS:
   MAX TL DEFLECTION = L/240
   MAX LL DEFLECTION = L/360



2 JOIST LOADING DIAGRAM - 80DLHSP1
1/4" = 1'-0"

DESIGN LOADS & DEFLECTIONS
1. UNIFORM TOP CHORD LOADS:
   DL = 200 PLF
   SL = 150 PLF
2. BOTTOM CHORD POINT LOADS - COORD. WITH SUPPLIERS
3. COORD. HANGER LOCATIONS WITH STEEL DETAILER
4. NET WIND UPLIFT:
   15 PSF
5. DEFLECTION LIMITS:
   MAX TL DEFLECTION = L/360
   MAX LL DEFLECTION = L/480



1 JOIST LOADING DIAGRAM - 64DLHSP1
1/4" = 1'-0"

PLOT DATE/TIME:4/29/2022 11:17:43 AM

LANCER+BEEBE, LLC
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PE10606154
STATE OF
REGISTERED
PROFESSIONAL ENGINEER

REVISIONS:

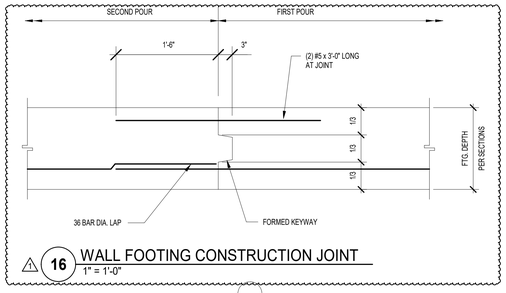
#	Date	Desc.
1	04.29.22	BID PKG. #1 ADD #2

100% CONSTRUCTION DOCUMENTS

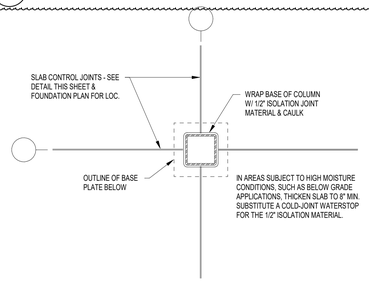
PROJECT: #21107
DATE: 04.11.2022
DRAWN BY: DJL

STEEL JOIST LOADING DIAGRAMS

S310

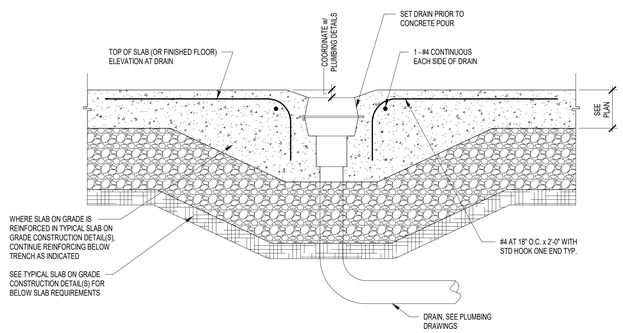


16 WALL FOOTING CONSTRUCTION JOINT
1" = 1'-0"

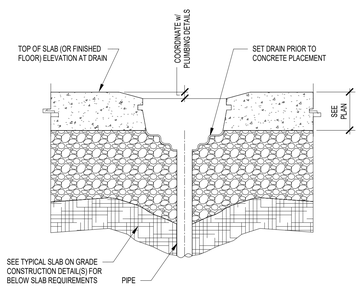


NOTE: THIS DETAIL SHOULD BE USED IN LIEU OF A DIAMOND OR ROUND ISOLATION JOINT TO PREVENT TELEGRAPHING THROUGH FINISH FLOOR MATERIALS SUCH AS THIN-SET TERRAZZO, CERAMIC TILE, VINYL TILE, ETC. SOME MINOR RANDOM SHRINKAGE CRACKS SHOULD BE ANTICIPATED.

15 COLUMN ISOLATION JOINT DETAIL
3/4" = 1'-0"

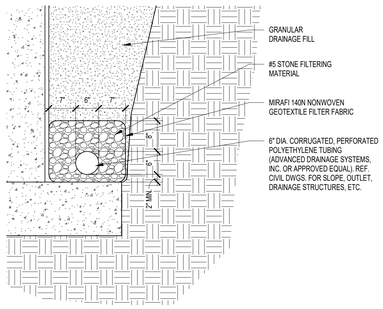


TYPICAL FLOOR TRENCH DRAIN

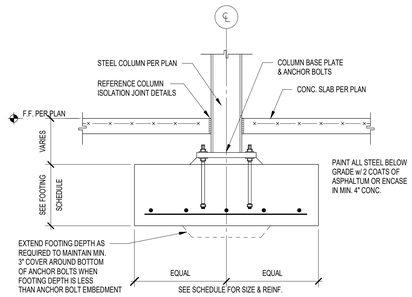


TYPICAL FLOOR DRAIN

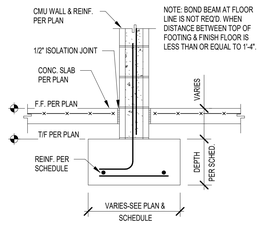
14 TYPICAL FLOOR AND TRENCH DRAIN
3/4" = 1'-0"



13 TYPICAL FOUNDATION DRAIN
3/4" = 1'-0"

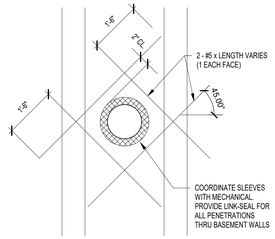


12 TYPICAL INTERIOR COLUMN FOOTING
3/4" = 1'-0"



11 INTERIOR WALL FOOTING DETAIL
3/4" = 1'-0"

NOTE:
WHERE VERTICAL REINFORCING IS INTERRUPTED BY THE OPENING, HALF OF THE INTERRUPTED STEEL SHALL BE ADDED EACH SIDE OF THE OPENING. USE FULL LENGTH BARS. IF BARS CANNOT BE PLACED AS DETAILED, REPLACE THE 1'-6" EXTENSION WITH 6" AND A STANDARD HOOK.



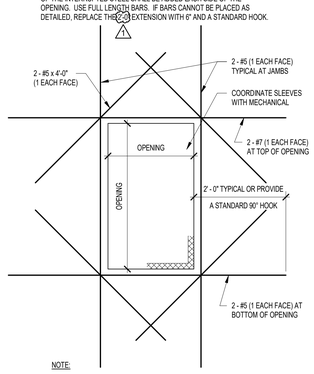
NOTE:
COORDINATE FINAL LOCATION OF PIPE PENETRATIONS WITH MECHANICAL CONTRACTOR BEFORE INSTALLATION OF THE REINFORCING.

THIS DETAIL APPLIES TO ALL ROUND AND ELLIPTICAL OPENINGS IN CONCRETE WALLS, UNLESS OTHERWISE NOTED ON THE PLANS.

10 C.I.P. WALL ROUND OPENING
3/4" = 1'-0"

NOTE:

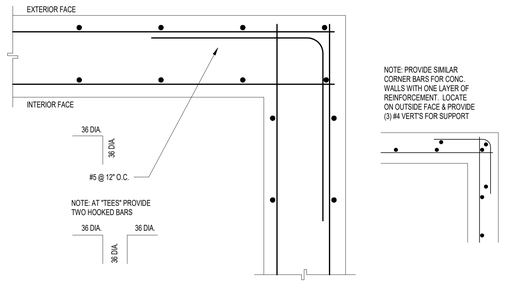
WHERE VERTICAL REINFORCING IS INTERRUPTED BY THE OPENING, HALF OF THE INTERRUPTED STEEL SHALL BE ADDED EACH SIDE OF THE OPENING. USE FULL LENGTH BARS. IF BARS CANNOT BE PLACED AS DETAILED, REPLACE THE 2'-0" EXTENSION WITH 6" AND A STANDARD HOOK.



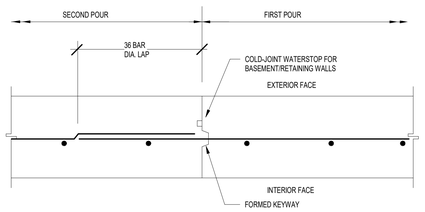
NOTE:
COORDINATE FINAL LOCATION OF MECHANICAL PENETRATIONS WITH MECHANICAL CONTRACTOR BEFORE INSTALLATION OF THE REINFORCING.

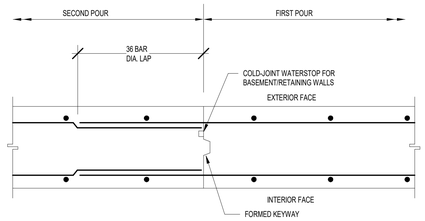
THIS DETAIL APPLIES TO ALL SQUARE AND RECTANGULAR OPENINGS IN CONCRETE WALLS UNLESS OTHERWISE NOTED ON THE PLANS.

9 C.I.P. WALL RECTANGULAR OPENING
3/4" = 1'-0"

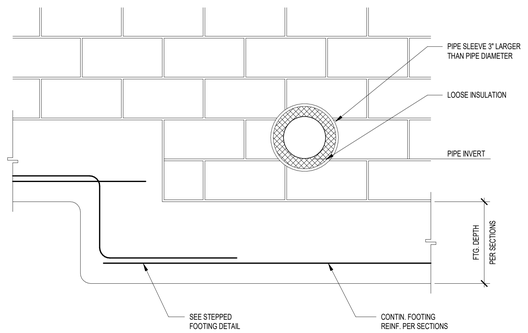


8 C.I.P. WALL CORNER REINFORCING
1" = 1'-0"





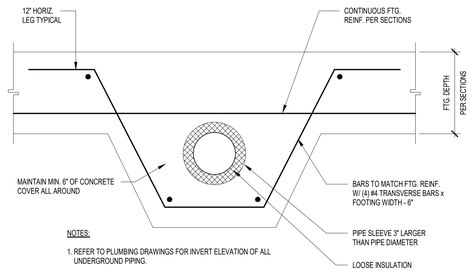
7 C.I.P. WALL CONSTRUCTION JOINTS
1" = 1'-0"



NOTES:

1. REFER TO PLUMBING DRAWINGS FOR INVERT ELEVATION OF ALL UNDERGROUND PIPING.
2. STEP FOOTING FOR PIPE PENETRATION THROUGH FOUNDATION WALL UNLESS WRITTEN PERMISSION IS OBTAINED FROM THE MEP ENGINEER.
3. PROVIDE PRECAST OR BOND BEAM LINTEL FOR MULTIPLE PENETRATIONS OR OPENINGS GREATER THAN 24" IN WIDTH.

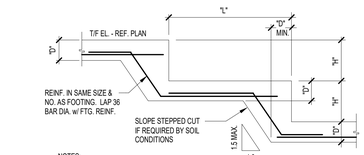
6 CMU FOUNDATION WALL SLEEVE
1" = 1'-0"



NOTES:

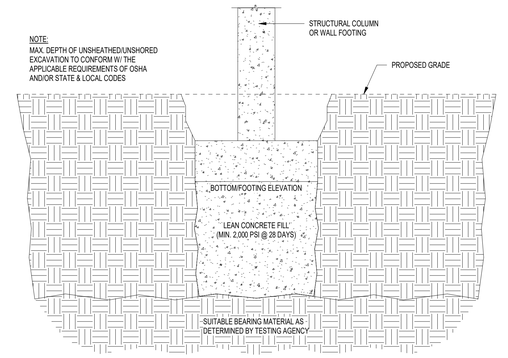
1. REFER TO PLUMBING DRAWINGS FOR INVERT ELEVATION OF ALL UNDERGROUND PIPING.
2. PROVIDE THIS DETAIL WHERE A PENETRATION THROUGH A WALL FOOTING IS UNAVOIDABLE.
3. NO SLEEVES IN COLUMN FOOTINGS ARE PERMITTED WITHOUT PRIOR WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.

5 WALL FOOTING SLEEVE DETAIL
1" = 1'-0"



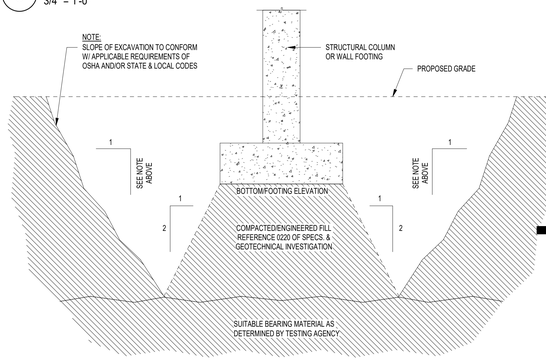
NOTES:
1. "H" DENOTES HEIGHT OF STEP AS SHOWN ON PLAN.
2. "L" DENOTES LENGTH BETWEEN STEPS. LAYOUT TO MAINTAIN SLOPE OF 1 VERTICAL TO 2 HORIZONTAL UNLESS NOTED OTHERWISE.
3. "D" DENOTES FOOTING DEPTH, REFER TO PLANS, SECTIONS & SCHEDULES.

4 STEPPED FOOTING DETAIL
1/2" = 1'-0"



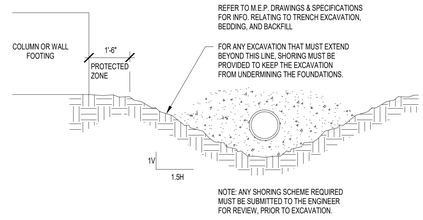
1. REFER TO THE SPECIFICATIONS FOR APPLICATION OF UNIT COSTS FOR REMOVAL OF UNSUITABLE BEARING MATERIAL & REPLACEMENT W/ LEAN CONCRETE FILL.
2. REFER TO THE GEOTECHNICAL ENGINEERING REPORT FOR ADDITIONAL INFORMATION RE: EXPECTED SOIL CONDITIONS, SUITABILITY OF EX. SOILS FOR USE AS ENGINEERED FILL, GROUNDWATER CONDITIONS, ETC.

3 OVEREXCAVATION DETAIL - LEAN CONCRETE FILL
3/4" = 1'-0"



1. REFER TO THE SPECIFICATIONS FOR APPLICATION OF UNIT COSTS FOR REMOVAL OF UNSUITABLE BEARING MATERIAL & REPLACEMENT W/ COMPACTED, ENGINEERED FILL.
2. REFER TO THE GEOTECHNICAL ENGINEERING REPORT FOR ADDITIONAL INFORMATION RE: EXPECTED SOIL CONDITIONS, SUITABILITY OF EX. SOILS FOR USE AS ENGINEERED FILL, GROUNDWATER CONDITIONS, ETC.

2 OVEREXCAVATION DETAIL - COMPACTED FILL
3/4" = 1'-0"



1 EXCAVATION LIMITS DETAILS
3/4" = 1'-0"

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PE10606154
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INDIANA
PROFESSIONAL ENGINEER

REVISIONS:		
#	Date	Desc.
1	04.29.22	BID PKG. #1 ADD #2

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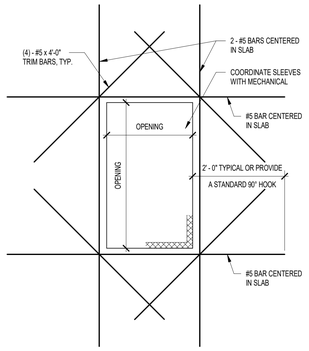
PROJECT:	#21107
DATE:	04.11.2022
DRAWN BY:	DJL

TYPICAL FOUNDATION DETAILS

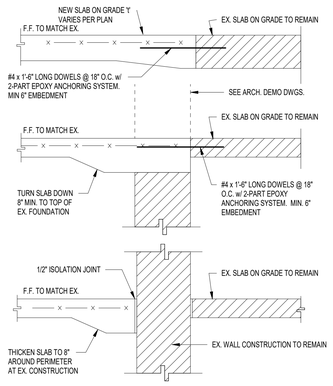
S400

PLOT DATE/TIME: 4/29/2022 11:17:47 AM

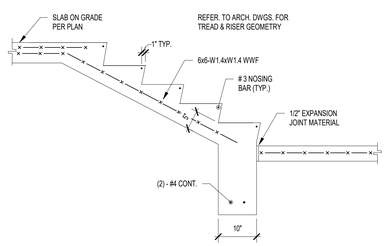
NOTES:
1. IF BARS CANNOT BE PLACED AS DETAILED, REPLACE THE 2'-0" EXTENSION WITH 6" AND A STANDARD HOOK.
2. COORDINATE FINAL LOCATION OF MECHANICAL PENETRATIONS WITH MECHANICAL CONTRACTOR BEFORE INSTALLATION OF THE REINFORCING.
3. THIS DETAIL APPLIES TO ALL OPENINGS IN SLABS ON GRADE UNLESS OTHERWISE NOTED ON THE PLANS.



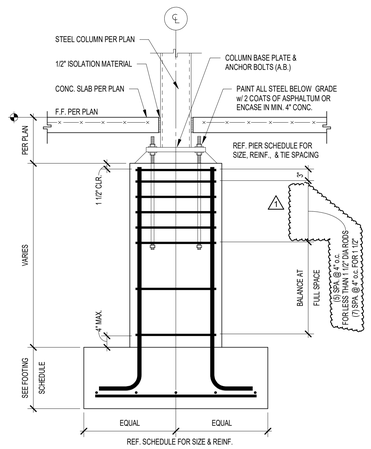
15 SLAB ON GRADE MECH. OPENING
3/4" = 1'-0"



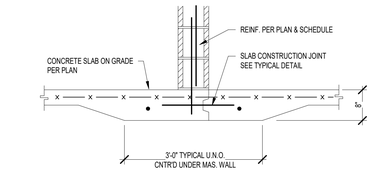
14 NEW-TO-EXISTING SLAB DETAIL
3/4" = 1'-0"



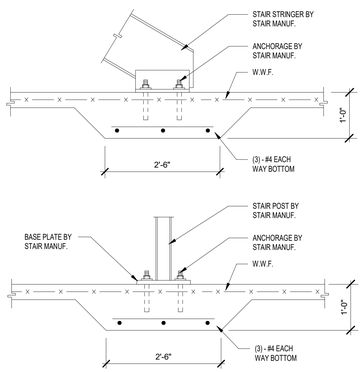
13 TYPICAL CONCRETE STAIR DETAIL
3/4" = 1'-0"



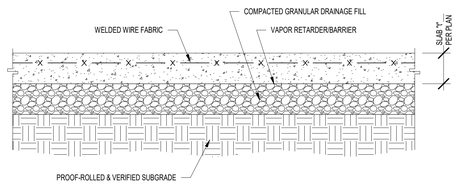
12 TYPICAL CONCRETE PIER REINFORCING
3/4" = 1'-0"



11 THICKENED SLAB DETAILS
3/4" = 1'-0"

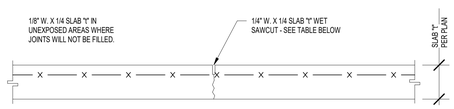


10 THICKENED SLAB AT STAIR POSTS
3/4" = 1'-0"



1. LOCATE WELDED WIRE FABRIC IN UPPER THIRD OF SLAB. SUPPORT ON BOLSTERS, CHAIRS, OR CONCRETE BRICKS.
2. LAP WELDED WIRE FABRIC A MIN. OF ONE FULL MESH SPACING.
3. THE USE OF NYLON OR POLYPROPYLENE FIBER IN LIEU OF WELDED WIRE FABRIC AS A SECONDARY REINFORCEMENT IS PERMISSIBLE, UNLESS OTHERWISE NOTED. NOTE: FIBER MAY NOT BE SUBSTITUTED FOR W.W.F. IN SUPPORTED SLABS.
4. SEE PLAN, NOTES, AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS SUCH AS FINISH, JOINTING, CURING, ETC.

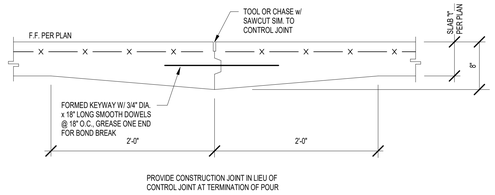
9 SLAB ON GRADE CONSTRUCTION
1" = 1'-0"



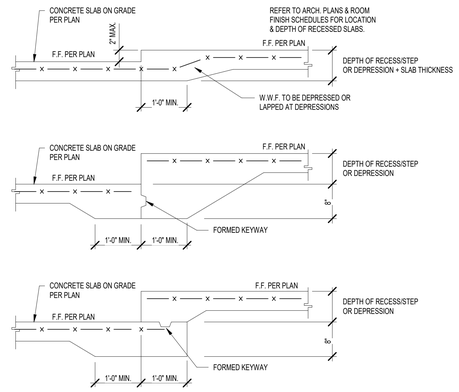
CONTROL JOINTS SHALL BE SAWN NOT LATER THAN THE FOLLOWING TABLE, OR 16 HOURS AFTER FINAL TROWELING (WHICHEVER IS LESS). WHERE TEMP EQUALS THE AMBIENT TEMPERATURE IN DEGREES FAHRENHEIT AT THEN TIME OF FINAL TROWELING. SAWCUTTING SHALL BE SUSPENDED ONLY IF THE LARGE AGGREGATE IS DISLODGED OR LOOSENED. ALTERNATE: USE PRE-FORMED JOINT FORMER.

TEMP., F°	TIME, HOURS
< 40°	16
50°	14
60°	8 1/2
70°	5 1/2
80°	4
90°	3

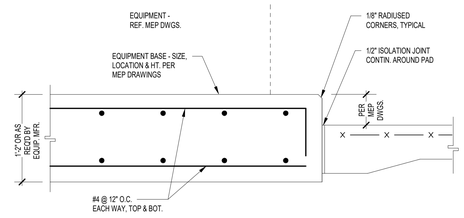
8 SLAB CONTROL/CONTRACTION JOINT
1" = 1'-0"



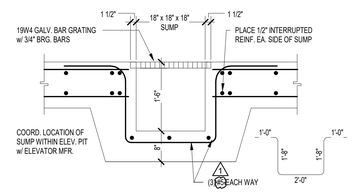
7 SLAB CONSTRUCTION JOINT
1" = 1'-0"



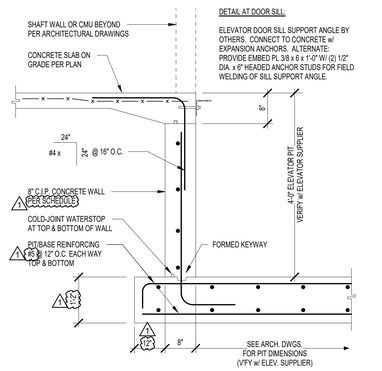
6 RECESSED SLAB DETAIL
3/4" = 1'-0"



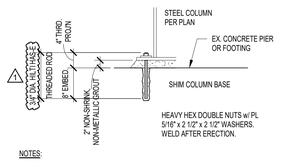
5 MECHANICAL EQUIPMENT PAD
1" = 1'-0"



4 ELEVATOR SUMP PIT DETAIL
3/4" = 1'-0"

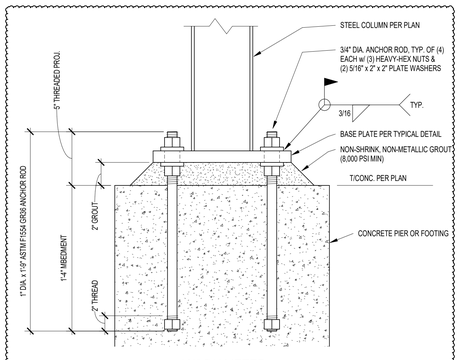


3 ELEVATOR PIT DETAIL - C.I.P.
3/4" = 1'-0"



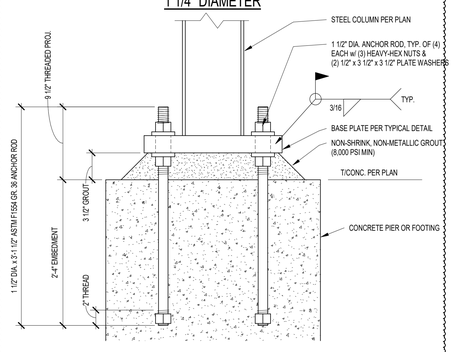
NOTES:
1. DRILL & GROUT THREADED ANCHOR RODS SOLIDLY INTO EX. CONCRETE USING HILTI HIT-HY 200, OR APPROVED 2-PART EPOXY ANCHORING SYSTEM.
2. WHERE COLUMNS ARE TO BE INSTALLED BETWEEN TWO FIXED ELEVATIONS, SUCH AS BETWEEN THE BOTTOM OF AN EXISTING BEAM AND THE TOP OF AN EXISTING FOUNDATION, THE ANCHORS MAY BE INSTALLED AFTER THE COLUMN IS TEMPORARILY SET IN PLACE. IT IS THE RESPONSIBILITY OF THE STEEL ERECTOR TO ADEQUATELY BRACE THE COLUMN UNTIL THE ANCHOR BOLTS CAN BE INSTALLED AND TIGHTENED.
3. THIS DETAIL SHALL BE USED ONLY FOR CONNECTION OF COLUMNS TO EXISTING FOUNDATIONS AND NOT FOR NEW COLUMNS SUPPORTED ON NEW FOUNDATIONS.

2 3/4" DIA. ANCHOR BOLTS TO EX. FOUNDATIONS
3/4" = 1'-0"



3/4" DIAMETER

1 1/4" DIAMETER



1 1/2" DIAMETER

NOTES:
1. LOCATION OF ANCHOR BOLTS MUST NOT VARY MORE THAN 1/8" CENTER-TO-CENTER OF ANY TWO BOLTS WITHIN AN ANCHOR BOLT GROUP.
2. HOLD MAX. DEVIATION OF 1/4", CENTER-TO-CENTER OF ADJACENT ANCHOR BOLT GROUPS.
3. HOLD ELEVATION OF THE TOP OF THE ANCHOR BOLTS TO +/- 1/2 INCH.
4. HOLD MAXIMUM DEVIATION OF 1/4" FROM THE CENTER OF ANY ANCHOR BOLT GROUP TO THE ESTABLISHED COLUMN LINE THROUGH THAT GROUP.
5. REFER TO THE AISC CODE OF STANDARD PRACTICE FOR ADDITIONAL INFORMATION.

1 ANCHOR ROD DETAILS
1 1/2" = 1'-0"

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PE10606154
STATE OF
INDIANA
PROFESSIONAL ENGINEER

REVISIONS:		
#	Date	Desc.
1	04.29.22	BID PKG. #1 ADD #2

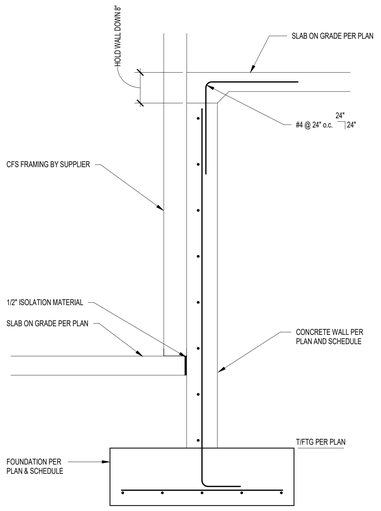
100% CONSTRUCTION DOCUMENTS

PROJECT: #21107
DATE: 04.11.2022
DRAWN BY: DJL

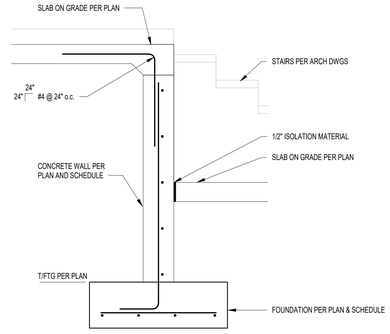
TYPICAL FOUNDATION DETAILS

S401

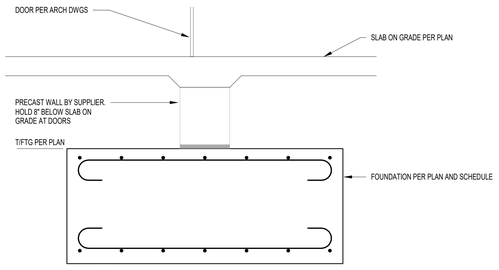
PLOT DATE/TIME: 4/29/2022 11:17:50 AM



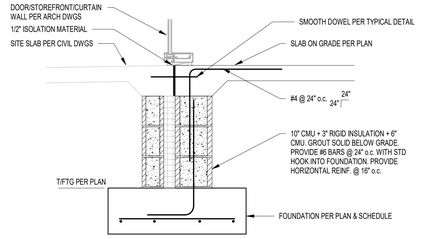
18 FOUNDATION SECTION
3/4" = 1'-0"



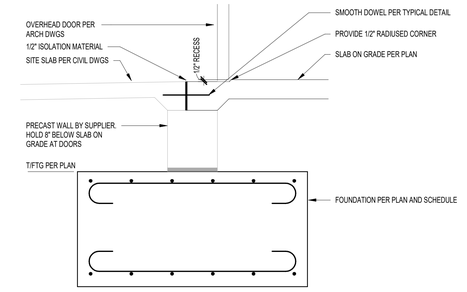
14 FOUNDATION SECTION
3/4" = 1'-0"



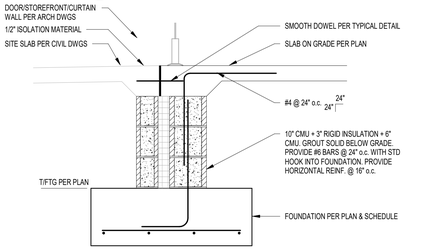
10 FOUNDATION SECTION
3/4" = 1'-0"



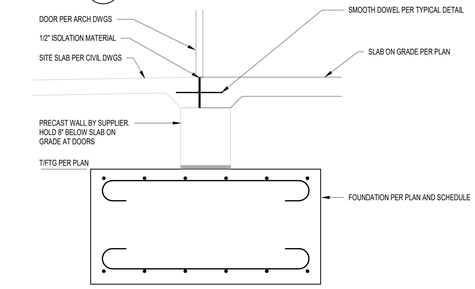
5 FOUNDATION SECTION
3/4" = 1'-0"



9 FOUNDATION SECTION
3/4" = 1'-0"

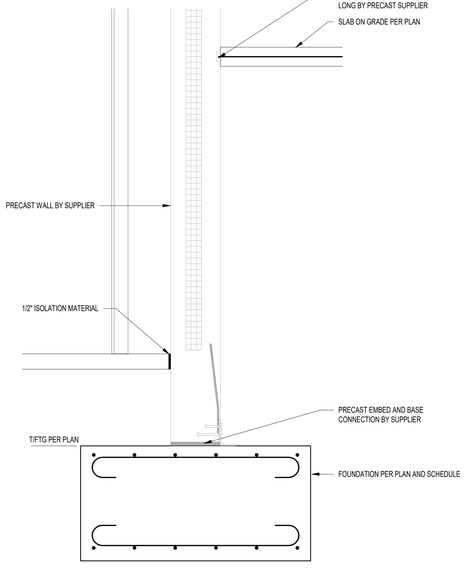


4 FOUNDATION SECTION
3/4" = 1'-0"

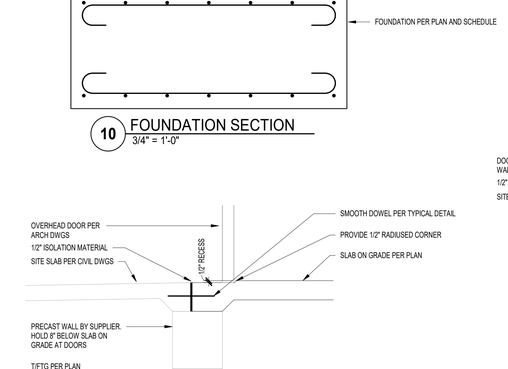


8 FOUNDATION SECTION
3/4" = 1'-0"

3 FOUNDATION SECTION
3/4" = 1'-0"



13 FOUNDATION SECTION
3/4" = 1'-0"

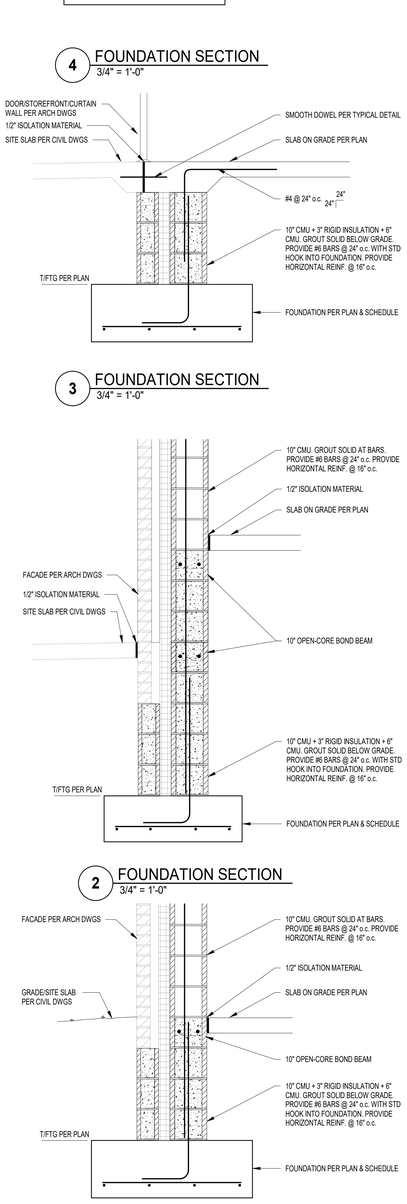


7 FOUNDATION SECTION
3/4" = 1'-0"

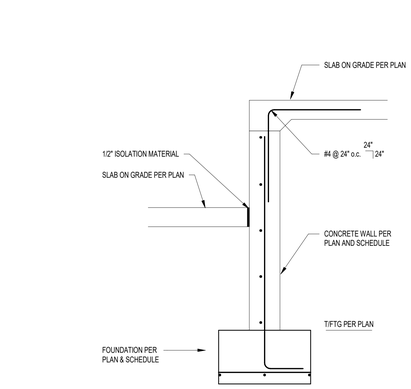
2 FOUNDATION SECTION
3/4" = 1'-0"

11 FOUNDATION SECTION
3/4" = 1'-0"

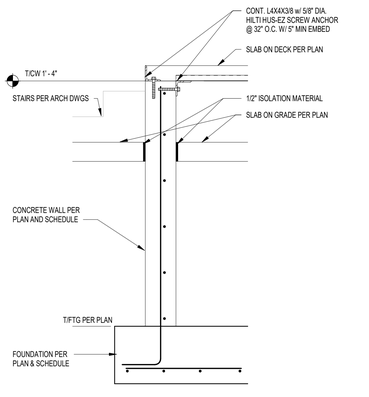
6 FOUNDATION SECTION
3/4" = 1'-0"



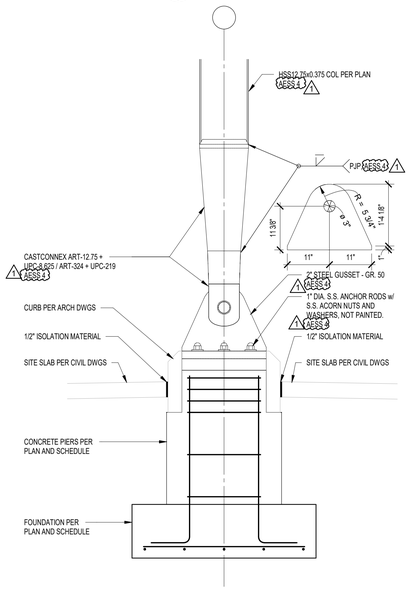
1 FOUNDATION SECTION
3/4" = 1'-0"



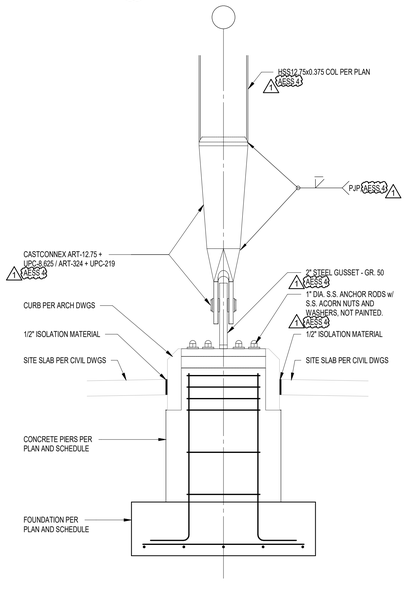
19 FOUNDATION SECTION
3/4" = 1'-0"



17 FOUNDATION SECTION
3/4" = 1'-0"



16 FOUNDATION SECTION
3/4" = 1'-0"



15 FOUNDATION SECTION
3/4" = 1'-0"

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100% CONSTRUCTION DOCUMENTS

PROJECT: #21107
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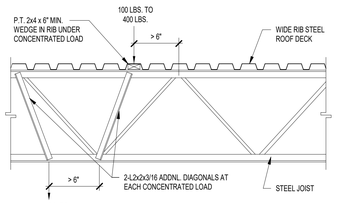
DRAWN BY: DJL

FOUNDATION SECTIONS

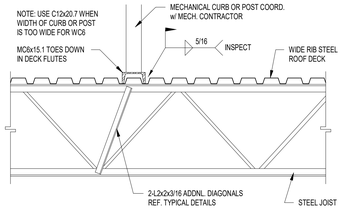
S410

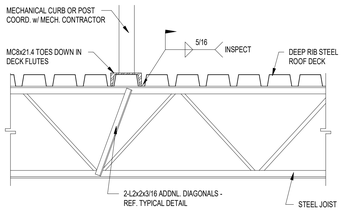
PLOT DATE/TIME:4/29/2022 11:18:01 AM



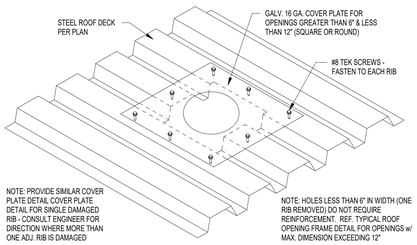
1. LOADS LESS THAN 100 LBS. MAY BE LOCATED ANYWHERE ALONG THE TOP OR BOTTOM CHORD OF THE JOIST WITHOUT REQUIRING REINFORCEMENT.
2. PROVIDE THIS DETAIL WHERE SUSPENDED EQUIPMENT, MECHANICAL UNIT, OR PIPING IMPARTS A CONCENTRATED LOAD OF BTWN. 100 AND 400 LBS. IF THE LOAD IS APPLIED WITHIN 6" OF A TOP OR BOTTOM CHORD PANEL POINT, NO REINFORCEMENT IS REQUIRED.
3. NO CONCENTRATED LOADS GREATER THAN 400 LBS. WILL BE ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.

16 JOIST CONCENTRATED LOAD
3/4" = 1'-0"

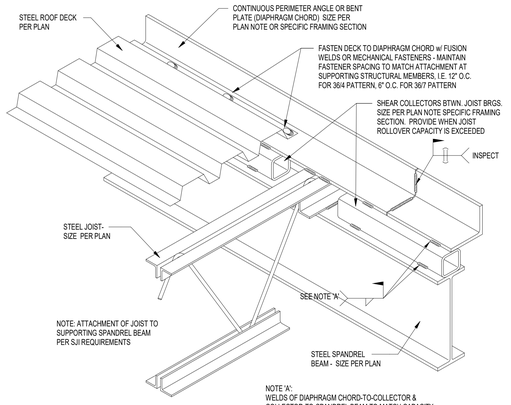




15 RTU CURB SUPPORT DETAIL
3/4" = 1'-0"

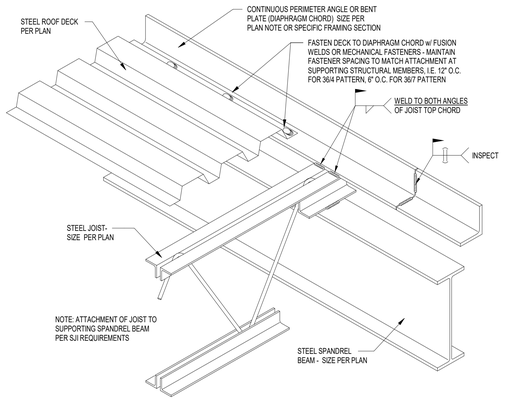


14 SMALL ROOF OPENING DETAIL
3/4" = 1'-0"

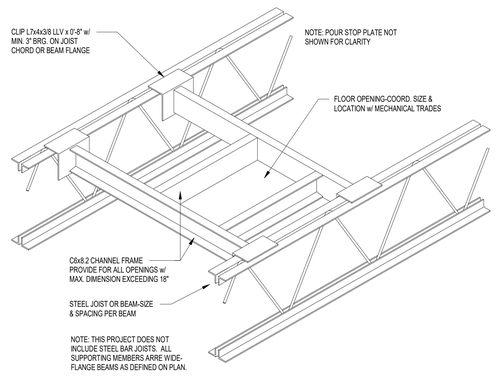


NOTE 'A':
WELDS OF DIAPHRAGM CHORD-TO-COLLECTOR & COLLECTOR-TO-SPANDREL BEAM TO MATCH CAPACITY OF DECK-TO-DIAPHRAGM CHORD ATTACHMENT

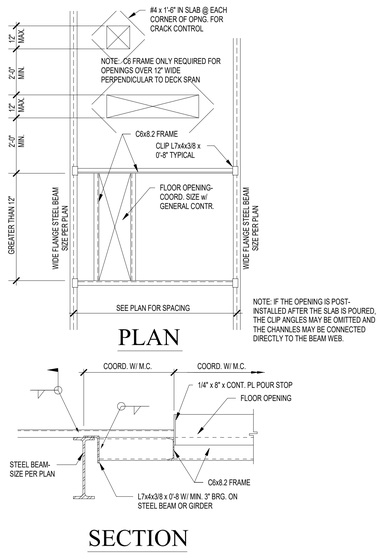
13 PERIMETER ROOF FRAMING DETAIL W/ COLLECTOR
3/4" = 1'-0"



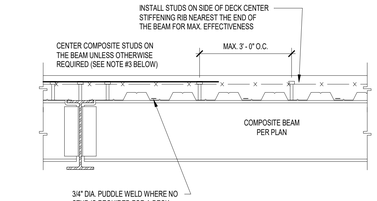
12 PERIMETER ROOF FRAMING DETAIL
3/4" = 1'-0"



11 FLOOR OPENING FRAMING - PERSPECTIVE
3/4" = 1'-0"

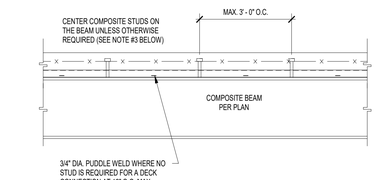


10 FLOOR OPENING FRAME DETAIL
3/4" = 1'-0"



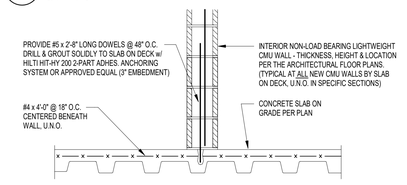
1. THE MIN. NUMBER OF STUDS FOR EACH BEAM IS SHOWN ON THE FRAMING PLAN.
2. SPACE STUDS AS EVENLY AS POSSIBLE IN AVAILABLE DECK FLUTES. WHERE STUD SPACING EXCEEDS THE MAX. SPACING ALLOWED, PROVIDE ADDITIONAL STUDS TO SATISFY THE SPACING REQUIREMENTS.
3. WHERE THE NUMBER OF STUDS EXCEEDS THE NUMBER OF FLUTES, PROVIDE TWO STUDS IN EVERY OTHER FLUTE, STARTING AT EACH END OF THE BEAM. THE TRANSVERSE SPACING BETWEEN TWO STUDS IN A SINGLE FLUTE SHALL BE 3", UNLESS NOTED OTHERWISE.
4. PLACE ANY NATURAL BEAM CAMBER UP.

8 COMPOSITE PURLIN DETAIL
3/4" = 1'-0"



1. THE MIN. NUMBER OF STUDS FOR EACH BEAM IS SHOWN ON THE FRAMING PLAN.
2. SPACE STUDS AS EVENLY AS POSSIBLE IN AVAILABLE DECK FLUTES. WHERE STUD SPACING EXCEEDS THE MAX. SPACING ALLOWED, PROVIDE ADDITIONAL STUDS TO SATISFY THE SPACING REQUIREMENTS.
3. WHERE THE NUMBER OF STUDS EXCEEDS THE NUMBER OF FLUTES, PROVIDE TWO STUDS IN EVERY OTHER FLUTE, STARTING AT EACH END OF THE BEAM. THE TRANSVERSE SPACING BETWEEN TWO STUDS IN A SINGLE FLUTE SHALL BE 3", UNLESS NOTED OTHERWISE.
4. PLACE ANY NATURAL BEAM CAMBER UP.

7 COMPOSITE GIRDER DETAIL
3/4" = 1'-0"



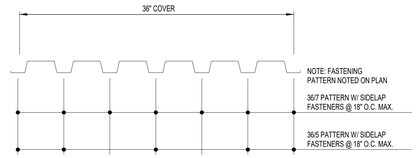
6 CMU PARTITION WALL ON SLAB ON DECK
3/4" = 1'-0"

NOT USED

5 NOT USED
3/4" = 1'-0"

NOT USED

4 NOT USED
3/4" = 1'-0"

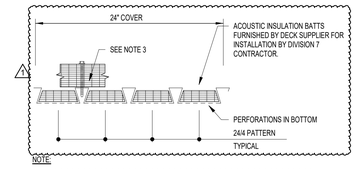


NOTE:

1. 1 1/2", 20 GA. PRIME PAINTED WIDE RIB STEEL ROOF DECK. CLEAN, TREAT AND PRIME.
2. MECHANICAL FASTENERS SHALL BE USED IN LIEU OF WELDS.
3. USE THE FOLLOWING HILTI POWER ACTUATED FASTENERS:
   - X-HSN 24 FOR OPEN-WEB STEEL JOISTS & STRUCTURAL STEEL 1/8" ≤ 't' ≤ 3/8"
   - X-ENP-19 L15 FOR HEAVY OPEN-WEB STEEL JOISTS & STRUCTURAL STEEL 't' ≥ 1/4"
   - S-SLC 01 M HWH SIDELAP FASTENERS
4. ACCEPTABLE ALTERNATE: PNEUTEK AIR/SAFE FASTENING SYSTEM.
5. SUBMIT PROPOSED FASTENERS & TECHNICAL DATA FOR REVIEW.
6. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
7. REF. DECK TYPE ◄ R15 ► ON THE FRAMING PLANS.
8. MAXIMUM CONSTRUCTION CLEAR SPANS SHALL NOT EXCEED THE FOLLOWING:
   - SINGLE SPAN: 8'-11"
   - DOUBLE SPAN: 11'-0"
   - TRIPLE SPAN: 11'-2"

   SPANS SHOWN ARE BASED ON NEW MILLENNIUM 1 1/2" B 20 GA. DECK. THE CONTRACTOR MUST CONFIRM THAT ALTERNATE DECK PRODUCTS MEET OR EXCEED THE SPANS SHOWN OR ARE ACCEPTABLE FOR THE GIVEN SPANS ON THE FRAMING PLANS.

3 1 1/2 WIDE RIB STEEL ROOF DECK
3/4" = 1'-0"

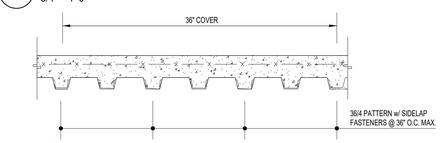


NOTE:

1. 2", 20 GA. GALVANIZED & PRIME PAINTED DOVETAIL ACOUSTICAL STEEL ROOF DECK
2. MECHANICAL FASTENERS SHALL BE USED IN LIEU OF WELDS.
3. COORD. ROOFING ATTACHMENTS W/ DIVISION 7 CONTRACTOR SO THAT X-U FASTENERS ATTACH TO THE TOP (NARROW) FLANGE OF THE DECK. I.E. NO EXPOSED FASTENERS PERMITTED IN THE FINISHED STRUCTURE.
4. USE THE FOLLOWING HILTI POWER ACTUATED FASTENERS:
   - X-HSN 24 FOR OPEN-WEB STEEL JOISTS & STRUCTURAL STEEL 1/8" ≤ 't' ≤ 3/8"
   - X-ENP-19 L15 FOR HEAVY OPEN-WEB STEEL JOISTS & STRUCTURAL STEEL 't' ≥ 1/4"
   - S-SLC 01 M HWH SIDELAP FASTENERS
5. ACCEPTABLE ALTERNATE: PNEUTEK AIR/SAFE FASTENING SYSTEM.
6. SUBMIT PROPOSED FASTENERS & TECHNICAL DATA FOR REVIEW.
7. PROVIDE MFR'S. STD. BEST. NON-ORGANIC FIBER SOUND-ABSORBING BATTS PLACED IN RIB OPENINGS. NRC 0.95
8. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
9. REF. DECK TYPE ◄ A20 ► ON THE FRAMING PLANS.
10. MAXIMUM CONSTRUCTION CLEAR SPANS SHALL NOT EXCEED THE FOLLOWING:
    - SINGLE SPAN: 8'-5"
    - DOUBLE SPAN OR MORE: 11'-1"

    SPANS SHOWN ARE BASED ON EPIC EPCORE EPDRA. THE CONTRACTOR MUST CONFIRM THAT ALTERNATE DECK PRODUCTS MEET OR EXCEED THE SPANS SHOWN OR ARE ACCEPTABLE FOR THE GIVEN SPANS ON THE FRAMING PLANS.

2 2" DOVETAIL ACOUSTICAL STEEL ROOF DECK
3/4" = 1'-0"



NOTE:

1. 1 1/2" (20 GA) GALVANIZED & PRIME PAINTED COMPOSITE STEEL FLOOR DECK w/ 2 1/2" NORMAL WEIGHT CONCRETE SLAB w/ 6X6-W1.4XW1.4 WWF, TOTAL 't' = 4"
2. WELD DECK TO SUPPORTING STRUCTURE USING 3/4" DIAMETER WELDS. MECHANICAL FASTENERS MAY BE USED IN LIEU OF WELDS. SUBMIT PROPOSED FASTENERS & TECHNICAL DATA FOR REVIEW. COMPOSITE SHEAR CONNECTIONS MAY TAKE THE PLACE OF WELDS AT COMPOSITE BEAMS.
3. BUTT ENDS OF DECK OVER SUPPORT
4. USE #10 TEK SCREW SIDELAP FASTENERS, U.N.O.
5. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
6. REF. SLAB TYPE ◄ S4 ► ON THE FRAMING PLANS.
7. MAXIMUM CONSTRUCTION CLEAR SPANS SHALL NOT EXCEED THE FOLLOWING:
   - SINGLE SPAN: 8'-3"
   - DOUBLE SPAN: 7'-7"
   - TRIPLE SPAN: 8'-0"

   SPANS SHOWN ARE BASED ON NEW MILLENNIUM 1 1/2" C (20 GA) DECK. THE CONTRACTOR MUST CONFIRM THAT ALTERNATE DECK PRODUCTS MEET OR EXCEED THE SPANS SHOWN OR ARE ACCEPTABLE FOR THE GIVEN SPANS ON THE FRAMING PLANS. CONTRACTOR SHALL SHORE ALL SPANS EXCEEDING THE LIMITS ABOVE UNTIL CONCRETE HAS ACHIEVED ITS SPECIFIED 28-DAY COMPRESSIVE STRENGTH.

1 1 1/2" COMPOSITE STEEL DECK & SLAB
3/4" = 1'-0"

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1	04.29.22	BID PKG. #1 ADD. #2

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PROJECT: #21107
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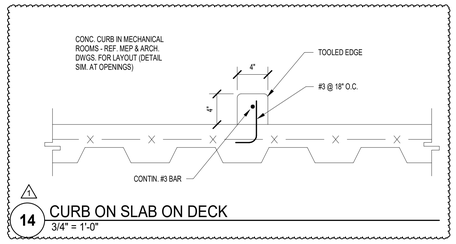
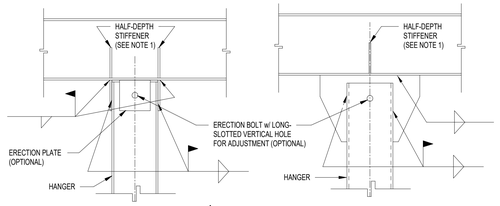
TYPICAL FRAMING DETAILS

S600

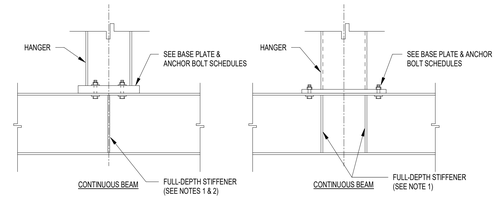
PLOT DATE/TIME:4/29/2022 11:16:55 AM

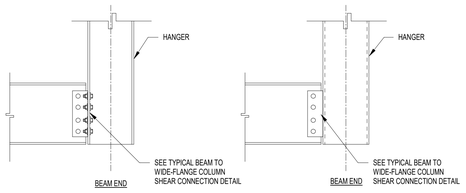


14 CURB ON SLAB ON DECK
3/4" = 1'-0"



HANGER/STUB TOP CONNECTION DETAILS





WIDE-FLANGE HANGER

HSS HANGER

HANGER/STUB BOTTOM CONNECTION DETAILS

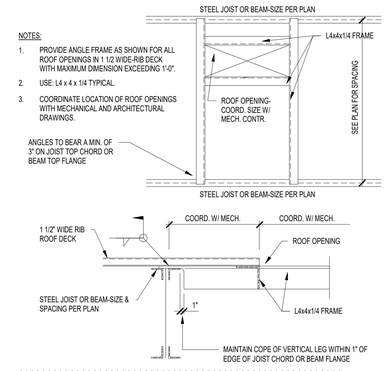
HANGER NOTES:

1. PROVIDE 1/2" MINIMUM FULL-DEPTH OR HALF-DEPTH STIFFENER AS INDICATED, UNLESS OTHERWISE NOTED.
2. WHERE BEAM FRAMES INTO GIRDER WEB. PROVIDE STIFFENER THICKNESS AS REQ'D. FOR SINGLE PLATE SHEAR CONNECTION, AND OFFSET STIFFENER AS REQUIRED FOR CONNECTION.

13 TYPICAL HANGER/STUB COLUMN DETAILS
3/4" = 1'-0"

NOT USED

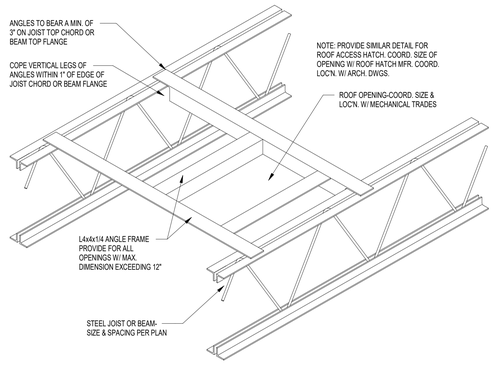
12 NOT USED
3/4" = 1'-0"



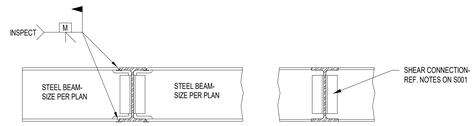
NOTES:

1. PROVIDE ANGLE FRAME AS SHOWN FOR ALL ROOF OPENINGS IN 1 1/2 WIDE-RIB DECK WITH MAXIMUM DIMENSION EXCEEDING 1'-0".
2. USE: L4 x 4 x 1/4 TYPICAL
3. COORDINATE LOCATION OF ROOF OPENINGS WITH MECHANICAL AND ARCHITECTURAL DRAWINGS.

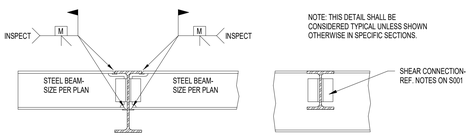
11 1 1/2" ROOF DECK OPENING FRAME - DETAIL
3/4" = 1'-0"



10 1 1/2" ROOF DECK OPENING FRAME - PERSPECTIVE
3/4" = 1'-0"

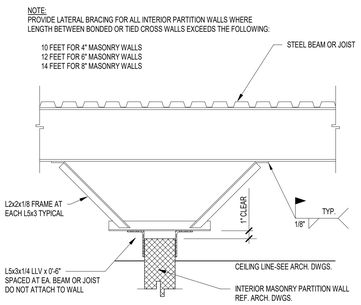


DETAIL A - BEAMS NOMINALLY SAME DEPTH



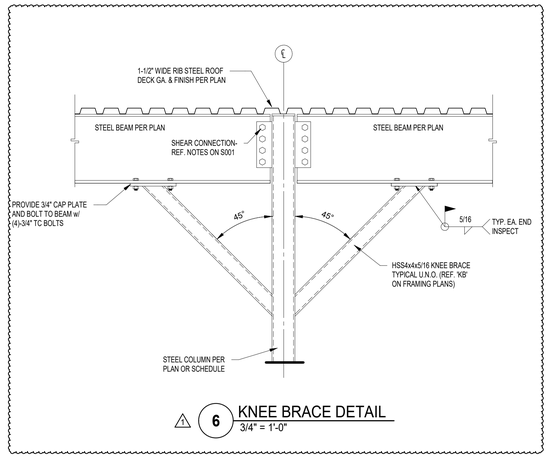
DETAIL B - DEPTH DIFFERENTIAL 2" OR GREATER

9 BEAM-THRU MOMENT CONNECTION
3/4" = 1'-0"



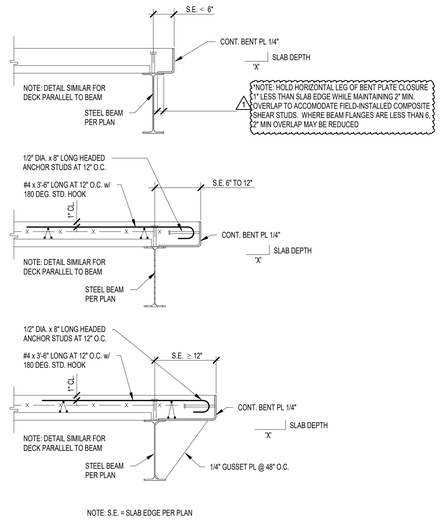
WALL EXTENDED TO ABOVE CEILING
WALL PERPENDICULAR TO PURLINS

8 CMU PARTITION BRACING DETAIL
3/4" = 1'-0"



6 KNEE BRACE DETAIL
3/4" = 1'-0"

NOTE: ASSUME THAT ALL BENT PLATE SLAB EDGES SHALL BE FIELD WELDED AFTER ADJUSTMENT TO MAINTAIN TOLERANCES AND REQ'D. CLEARANCES. SLAB CLOSURES FOR SHORT MEMBERS, OR FOR SLAB EDGES WHERE TOLERANCES ARE NOT CRITICAL MAY BE SHOP-WELDED PENDING APPROVAL OF THE ENGINEER. THE FABRICATOR & ERECTOR SHALL COORDINATE ALL FIELD WELDING VS. SHOP WELDING AT THE TIME OF BIDDING. LACK OF FIELD WELD SYMBOLS ON SPECIFIC SECTIONS DOES NOT RELIEVE THE FABRICATOR/ ERECTOR FROM THE RESPONSIBILITY TO MAINTAIN TOLERANCES.

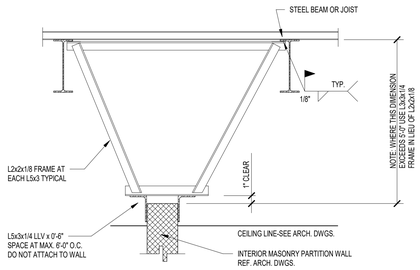


NOTE: S.E. = SLAB EDGE PER PLAN

5 INTERIOR COMPOSITE SLAB EDGE DETAILS
3/4" = 1'-0"

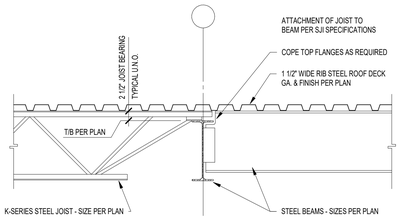
NOTE:
PROVIDE LATERAL BRACING FOR ALL INTERIOR PARTITION WALLS WHERE LENGTH BETWEEN BONDED OR TIED CROSS WALLS EXCEEDS THE FOLLOWING:

10 FEET FOR 4" MASONRY WALLS
12 FEET FOR 6" MASONRY WALLS
14 FEET FOR 8" MASONRY WALLS

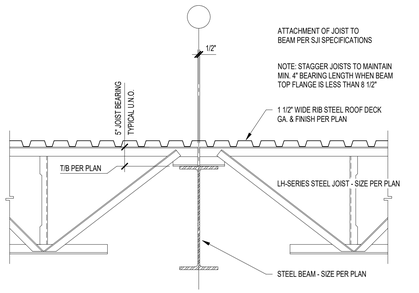


WALL EXTENDED TO ABOVE CEILING
WALL PARALLEL TO PURLINS

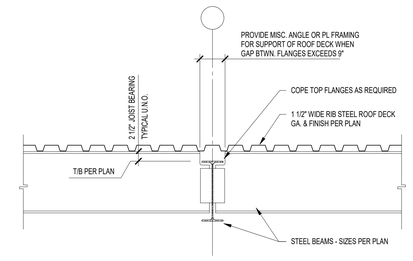
7 CMU PARTITION BRACING DETAIL
3/4" = 1'-0"



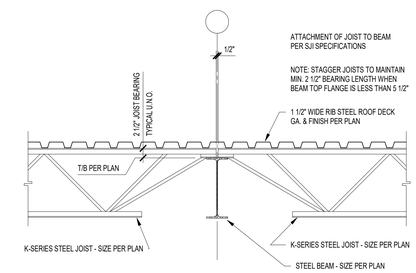
4 INTERIOR ROOF GIRDER DETAIL - K-JOIST & BEAM
3/4" = 1'-0"



3 INTERIOR ROOF GIRDER DETAIL - LH-JOISTS
3/4" = 1'-0"



2 INTERIOR ROOF GIRDER DETAIL - BEAMS
3/4" = 1'-0"



1 INTERIOR ROOF GIRDER DETAIL - K-JOISTS
3/4" = 1'-0"

PLOT DATE/TIME:4/29/2022 11:18:08 AM

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SCOTT A. CLOSE
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STATE OF
INDIANA
PROFESSIONAL ENGINEER

REVISIONS:

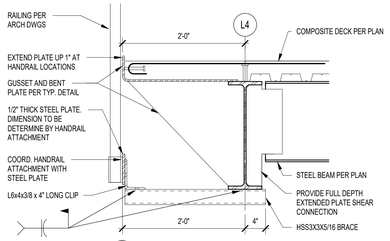
#	Date	Desc.
1	04.29.22	BID PKG. #1 ADD #2

100% CONSTRUCTION DOCUMENTS

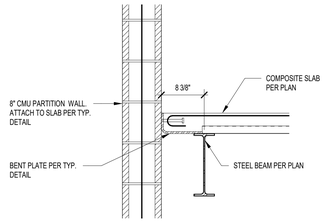
PROJECT: #21107
DATE: 04.11.2022
DRAWN BY: DJL

TYPICAL FRAMING DETAILS

S601



24 FRAMING SECTION
1" = 1'-0"



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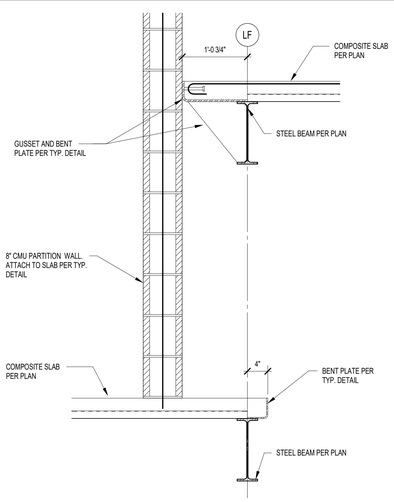

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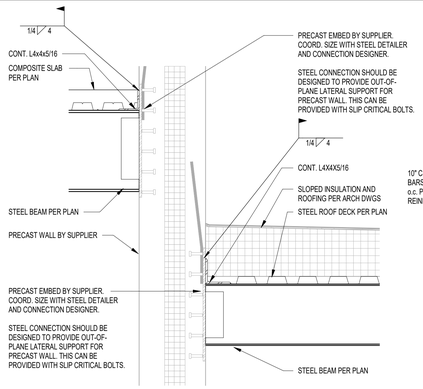

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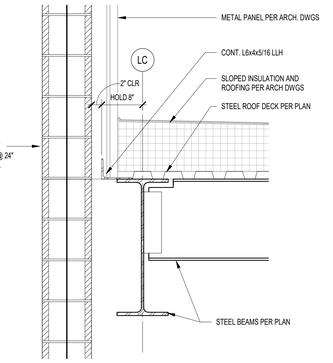

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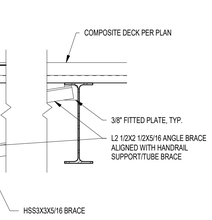

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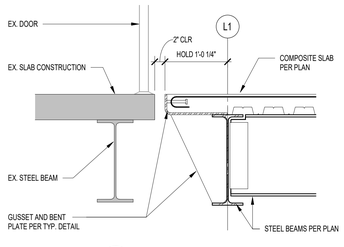

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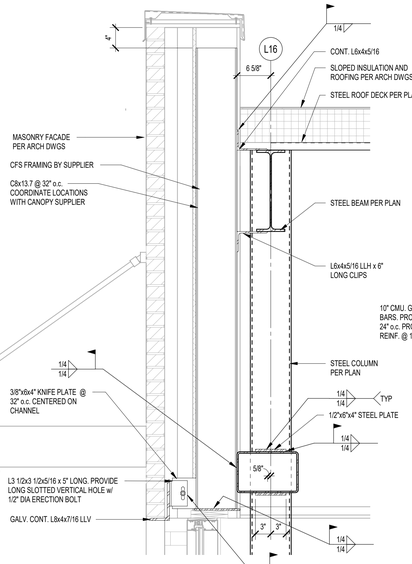

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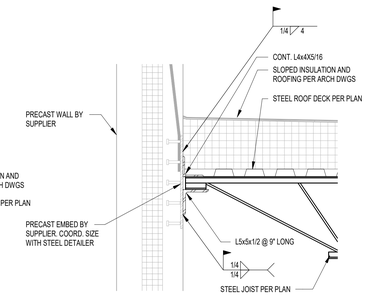

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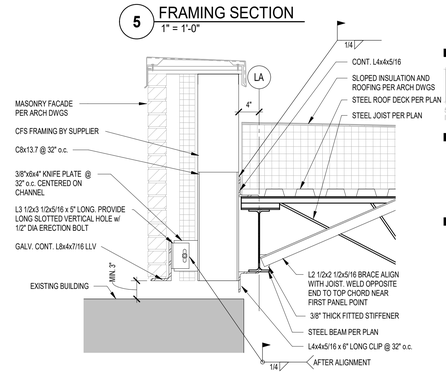

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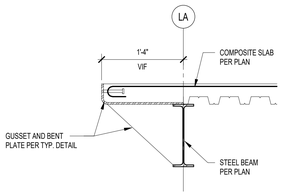

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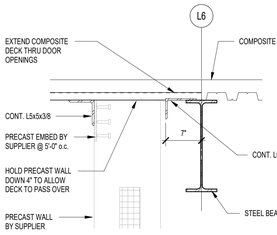

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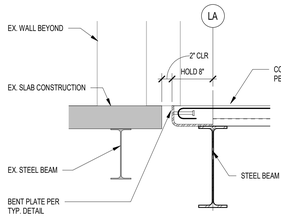

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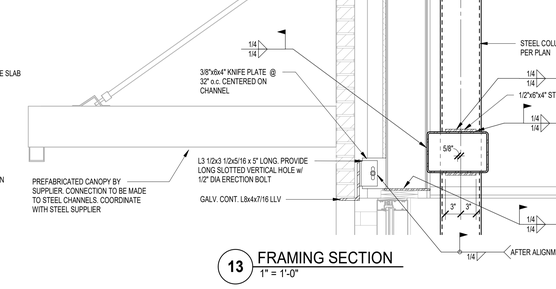

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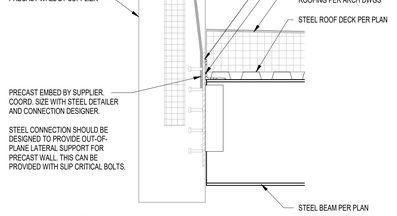

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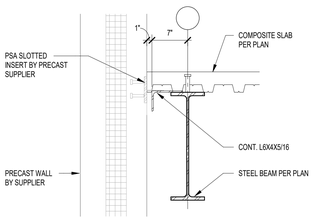

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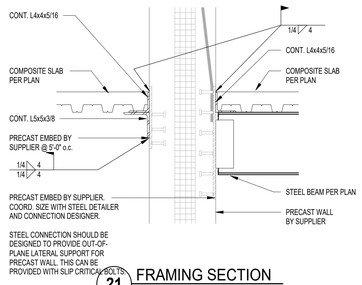

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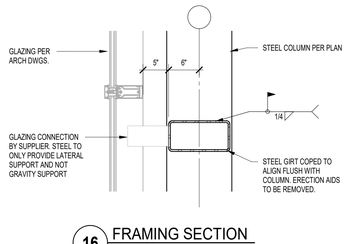

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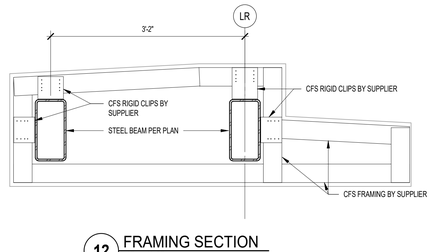

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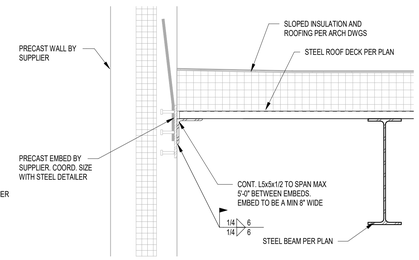

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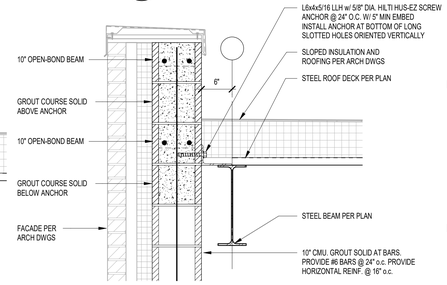

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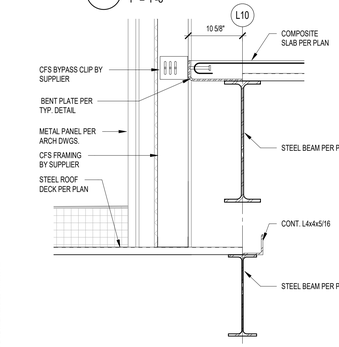

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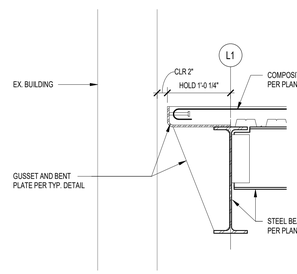

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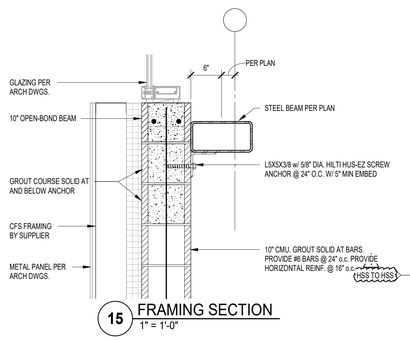

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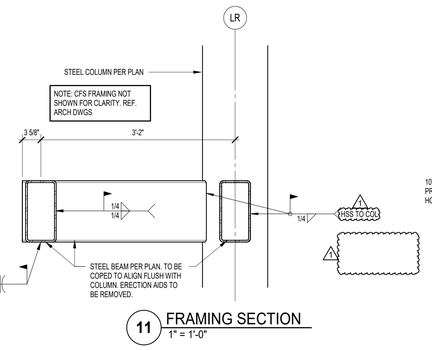

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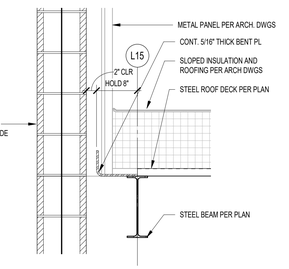

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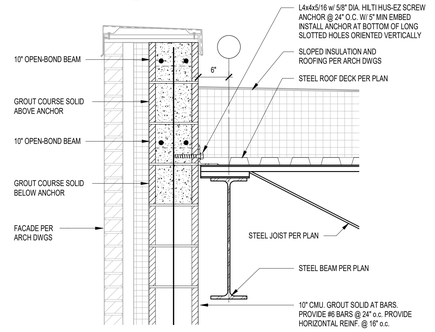

1 FRAMING SECTION
1" = 1'-0"

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INDIANA
PROFESSIONAL ENGINEER

REVISIONS:			
#	Date	Desc.	
1	04.29.22	BID PKG. #1 ADD #2	

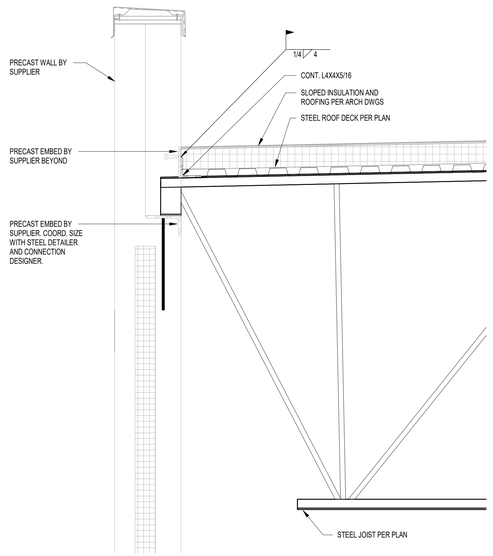
100% CONSTRUCTION DOCUMENTS

PROJECT:	#21107
DATE:	04.11.2022
DRAWN BY:	DJL

FRAMING SECTIONS

S610

PLOT DATE/TIME:4/29/2022 11:18:38 AM



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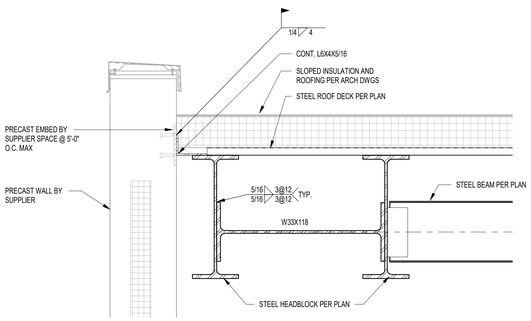

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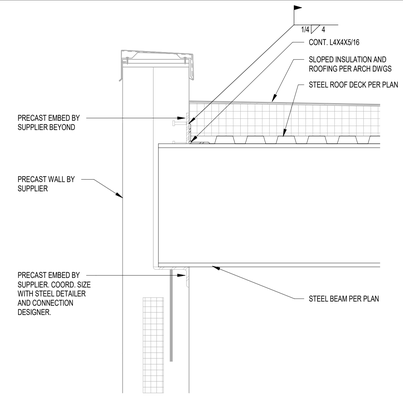

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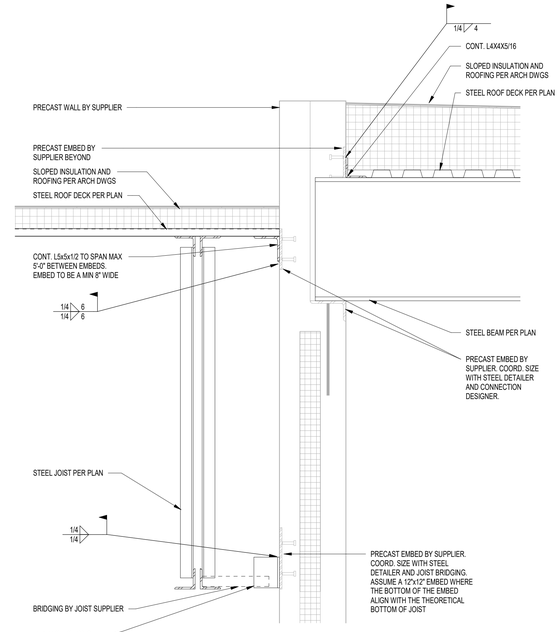

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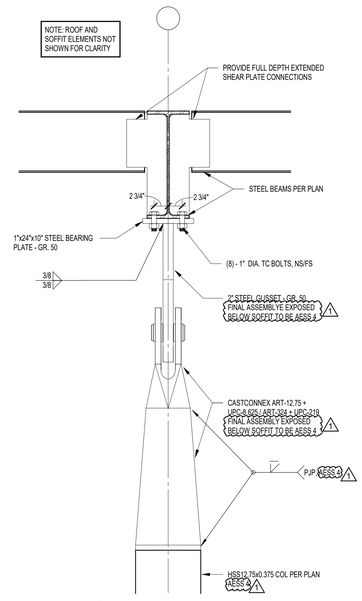
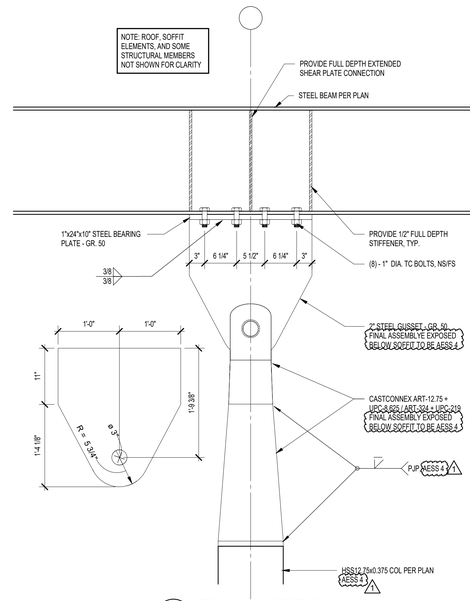
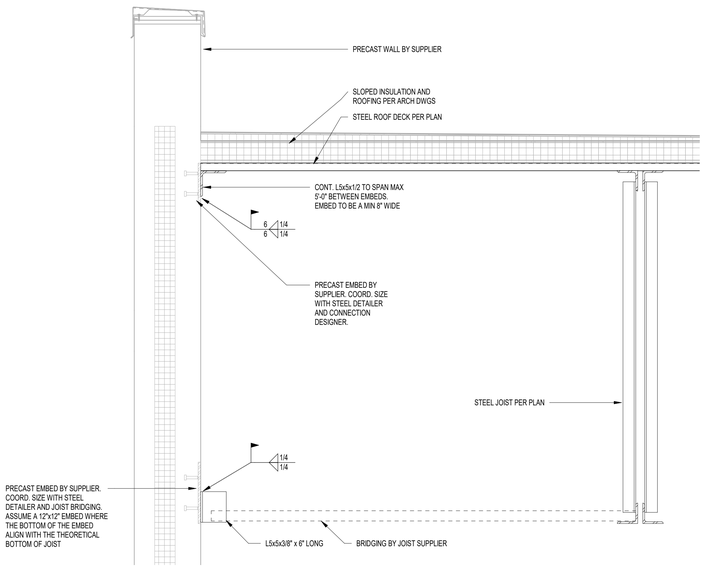


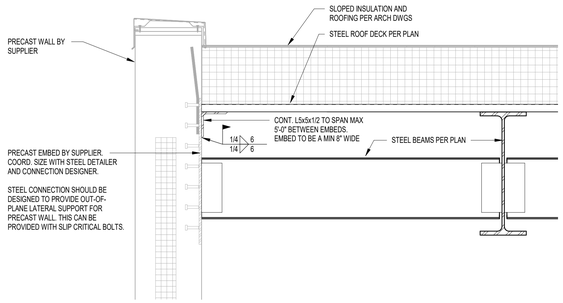
4 FRAMING SECTION
1" = 1'-0"



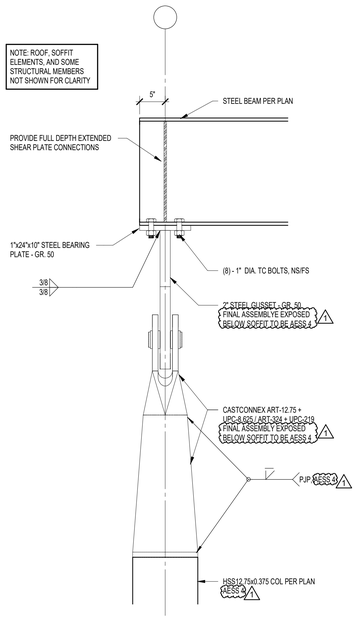
3 FRAMING SECTION
1" = 1'-0"



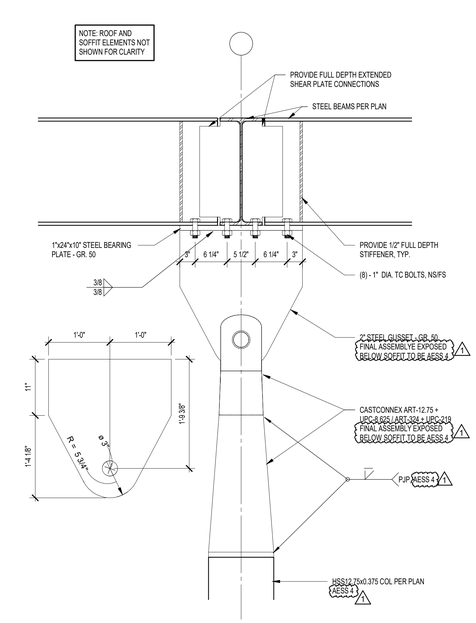
10 FRAMING SECTION
1" = 1'-0"



7 FRAMING SECTION
1" = 1'-0"



2 FRAMING SECTION
1" = 1'-0"



1 FRAMING SECTION
1" = 1'-0"

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REGISTERED
PE10606154
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PROFESSIONAL ENGINEER

REVISIONS:		
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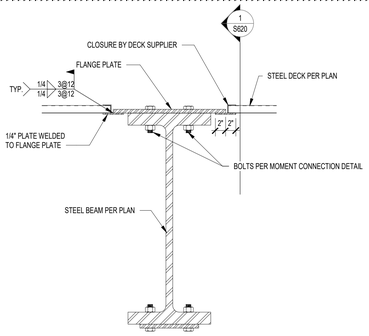
PROJECT:	#21107
DATE:	04.11.2022
DRAWN BY:	DJL

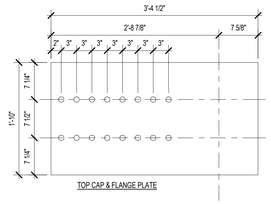
FRAMING SECTIONS

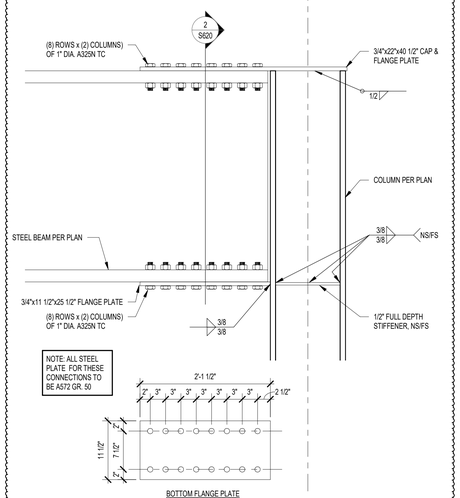
S612

PLOT DATE/TIME:4/29/2022 11:19:44 AM

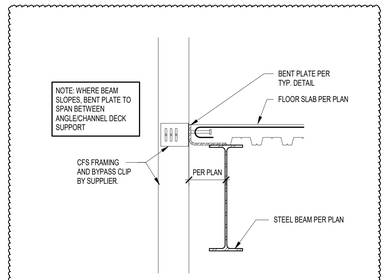


⚠1 **2** FRAMING SECTION
1" = 1'-0"

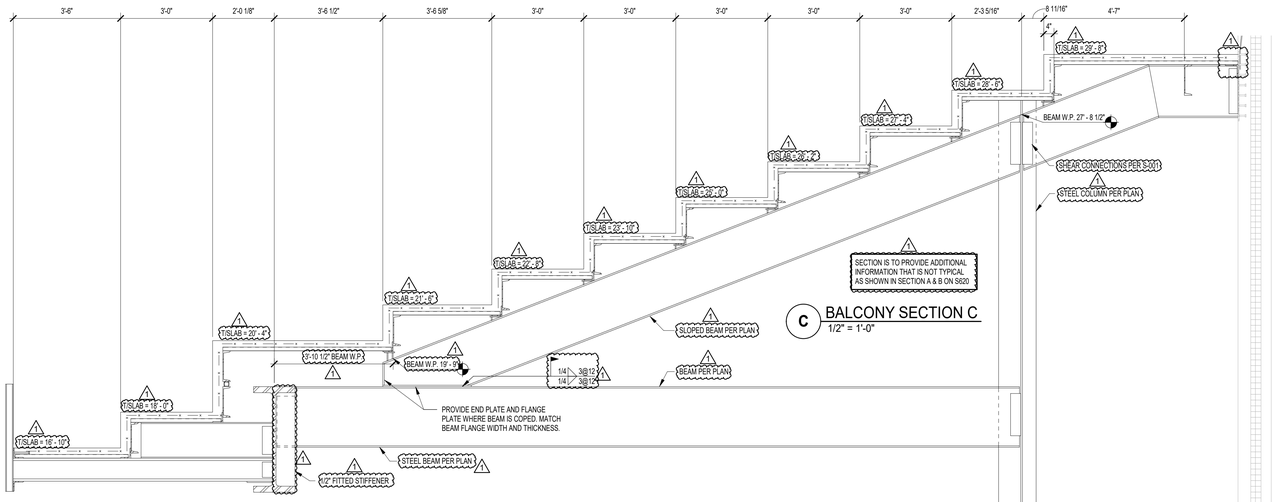




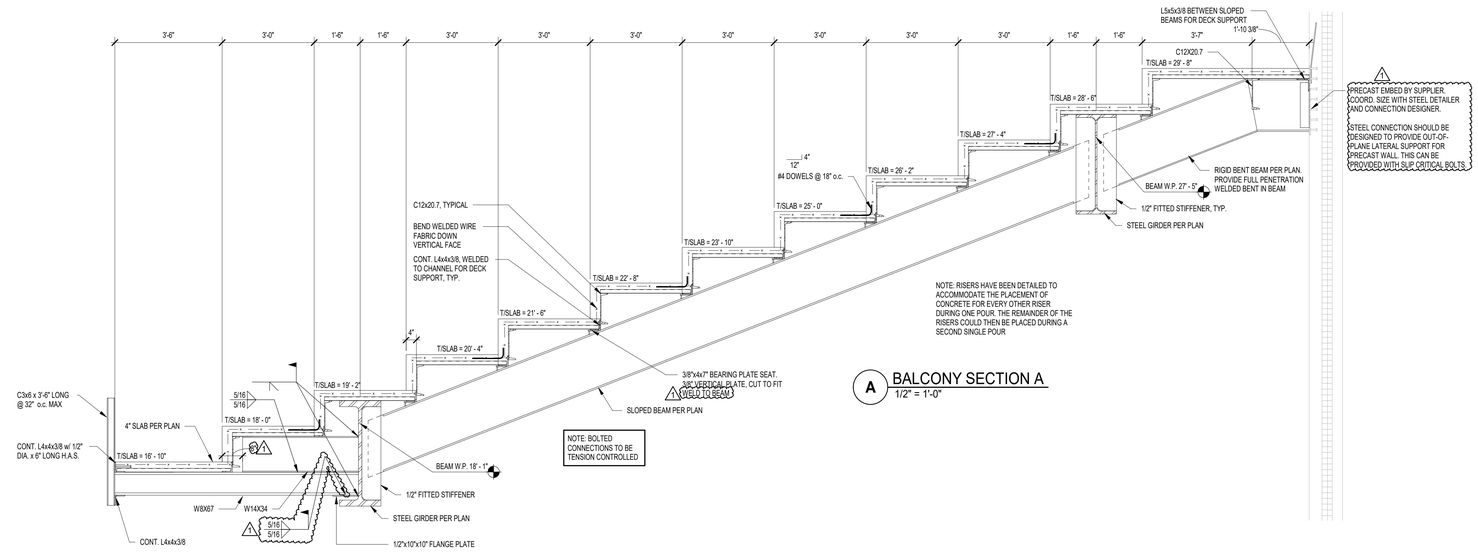
⚠1 **1** FRAMING SECTION
1" = 1'-0"



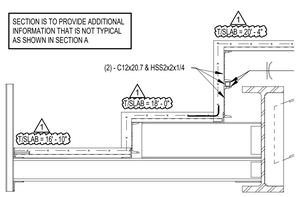
⚠1 **3** FRAMING SECTION
1" = 1'-0"



C BALCONY SECTION C
1/2" = 1'-0"



A BALCONY SECTION A
1/2" = 1'-0"



B BALCONY SECTION B
1/2" = 1'-0"

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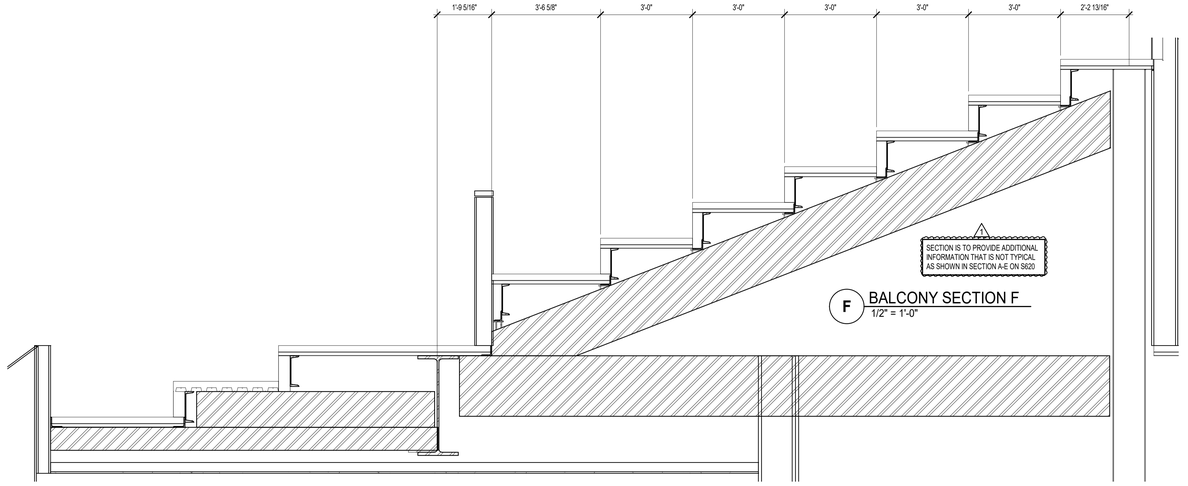
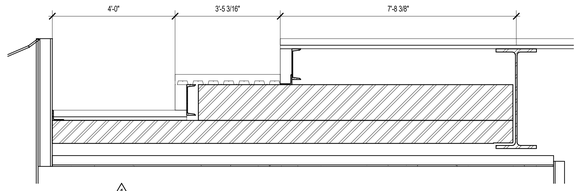
FRAMING SECTIONS

S620

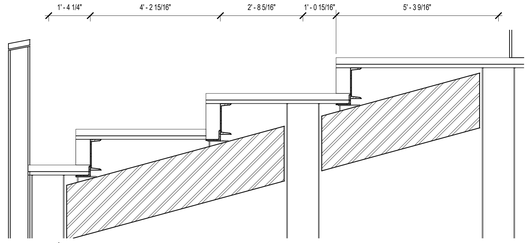
PLOT DATE/TIME:4/29/2022 11:18:48 AM



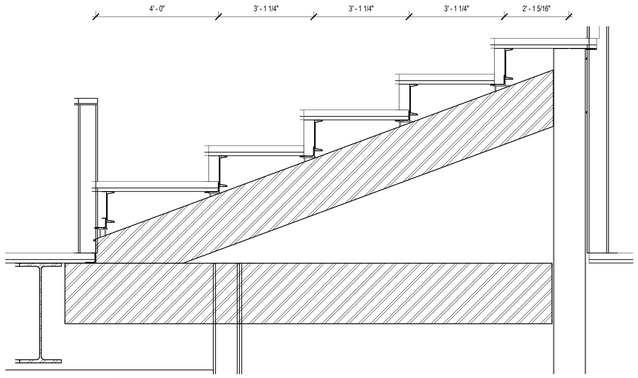
F BALCONY SECTION F
1/2" = 1'-0"



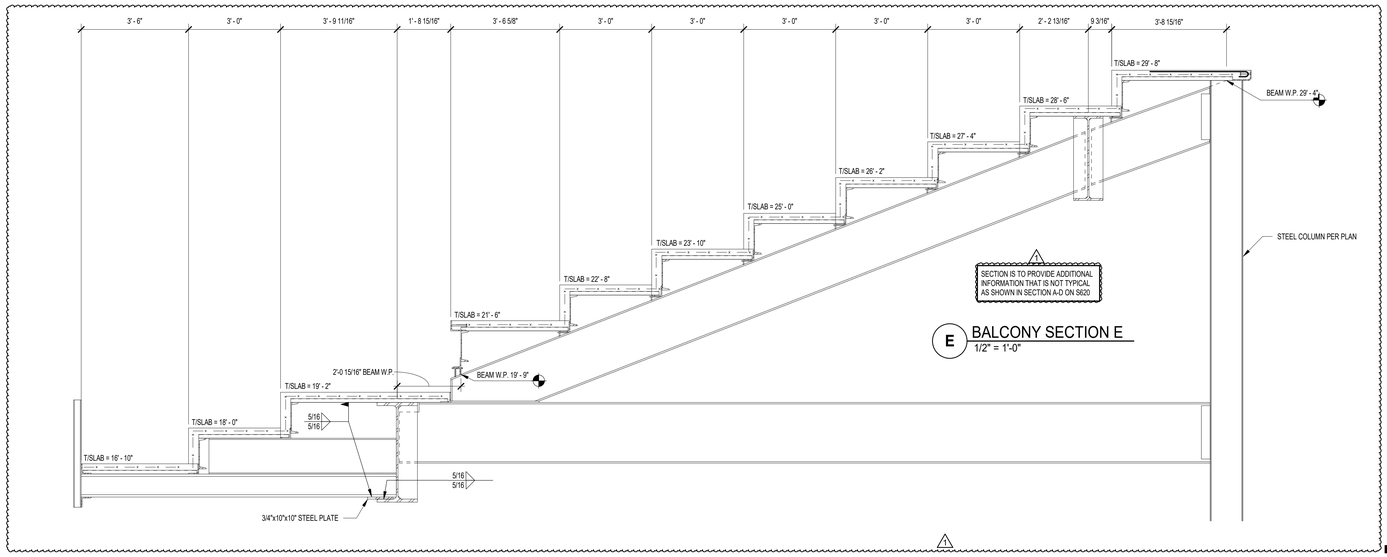
J BALCONY SECTION J
1/2" = 1'-0"



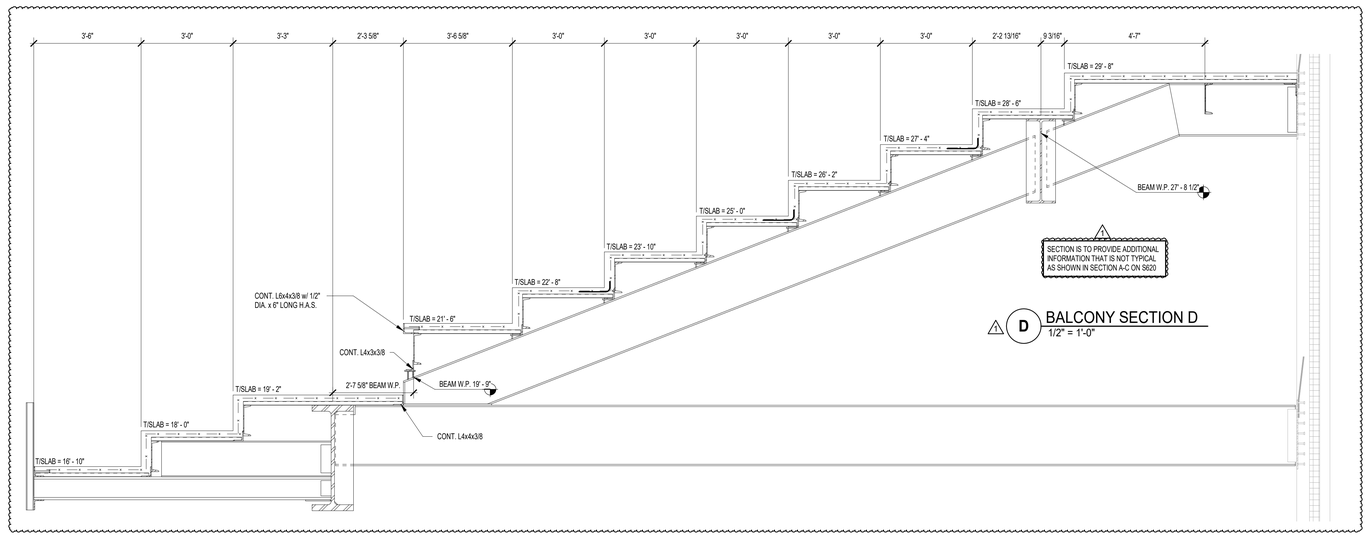
H BALCONY SECTION H
1/2" = 1'-0"



G BALCONY SECTION G
1/2" = 1'-0"



E BALCONY SECTION E
1/2" = 1'-0"



D BALCONY SECTION D
1/2" = 1'-0"

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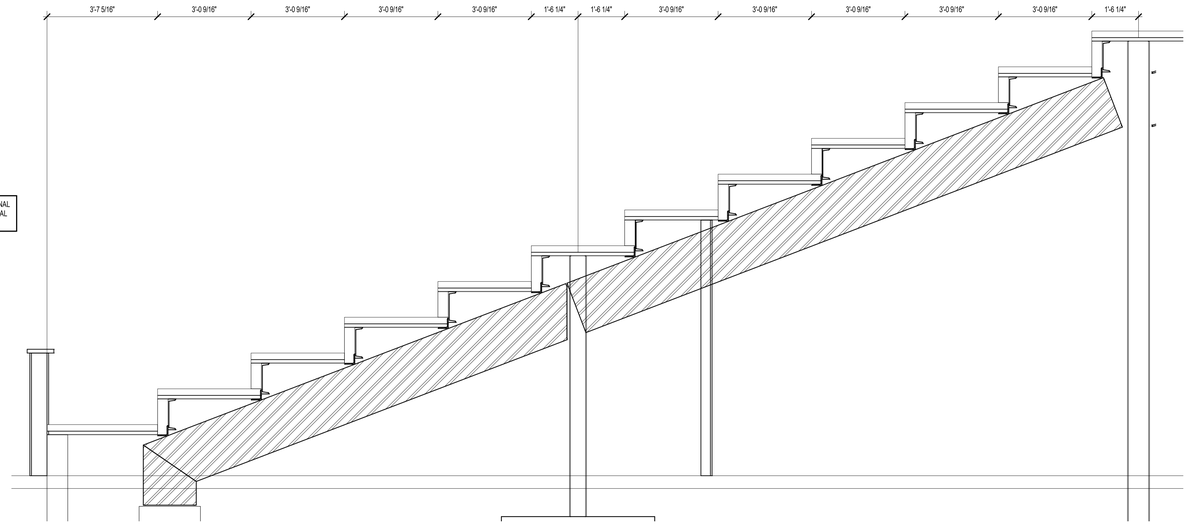
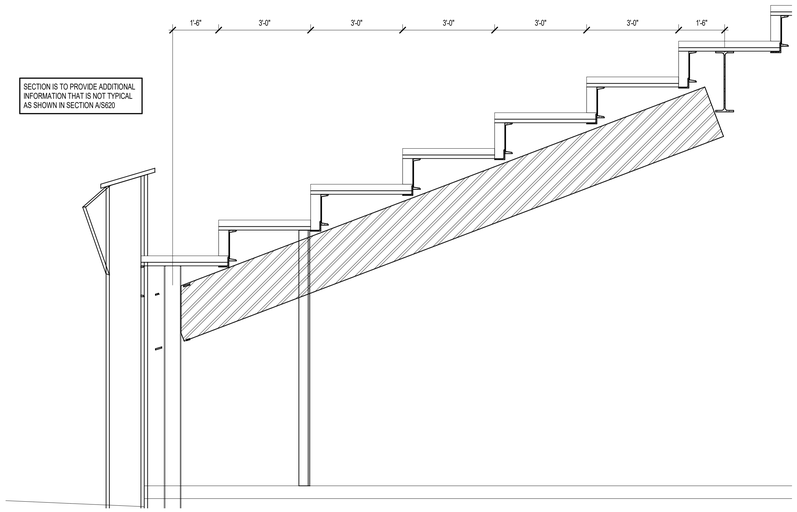
FRAMING SECTIONS

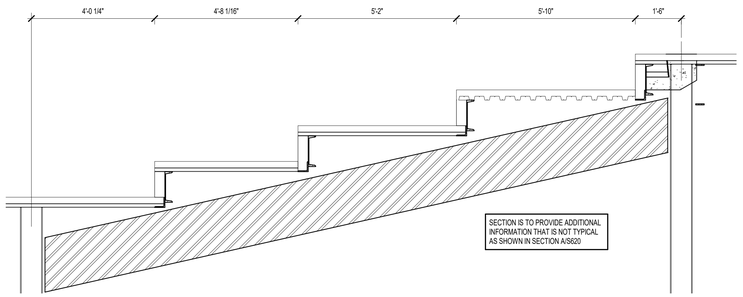
S621



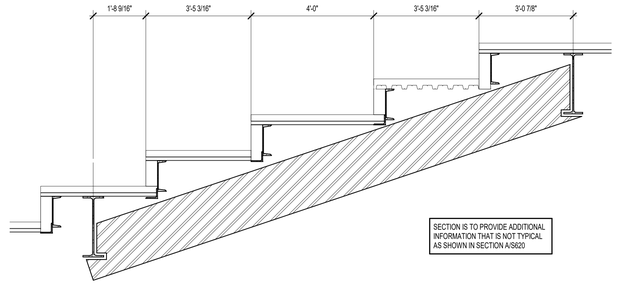
1 P BALCONY SECTION P
1/2" = 1'-0"



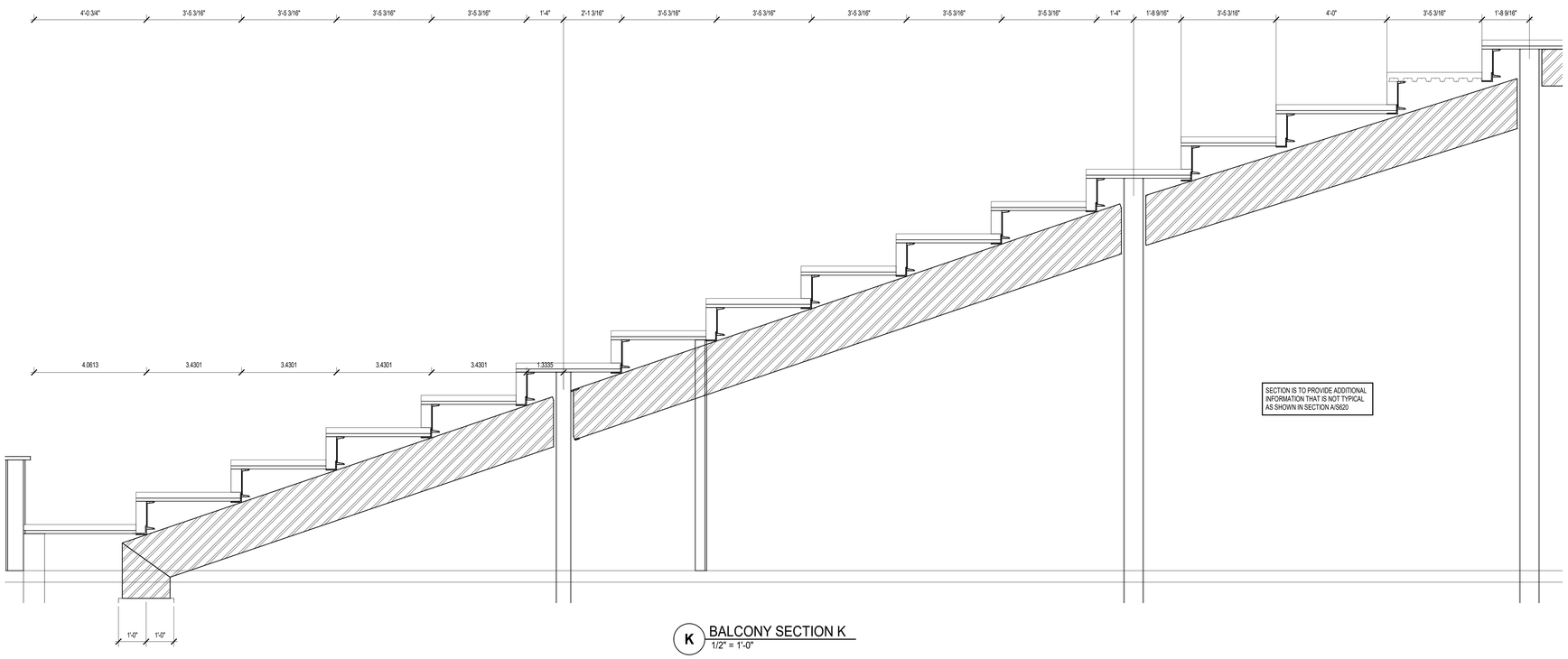
N BALCONY SECTION N
1/2" = 1'-0"



M BALCONY SECTION M
1/2" = 1'-0"



L BALCONY SECTION L
1/2" = 1'-0"



K BALCONY SECTION K
1/2" = 1'-0"

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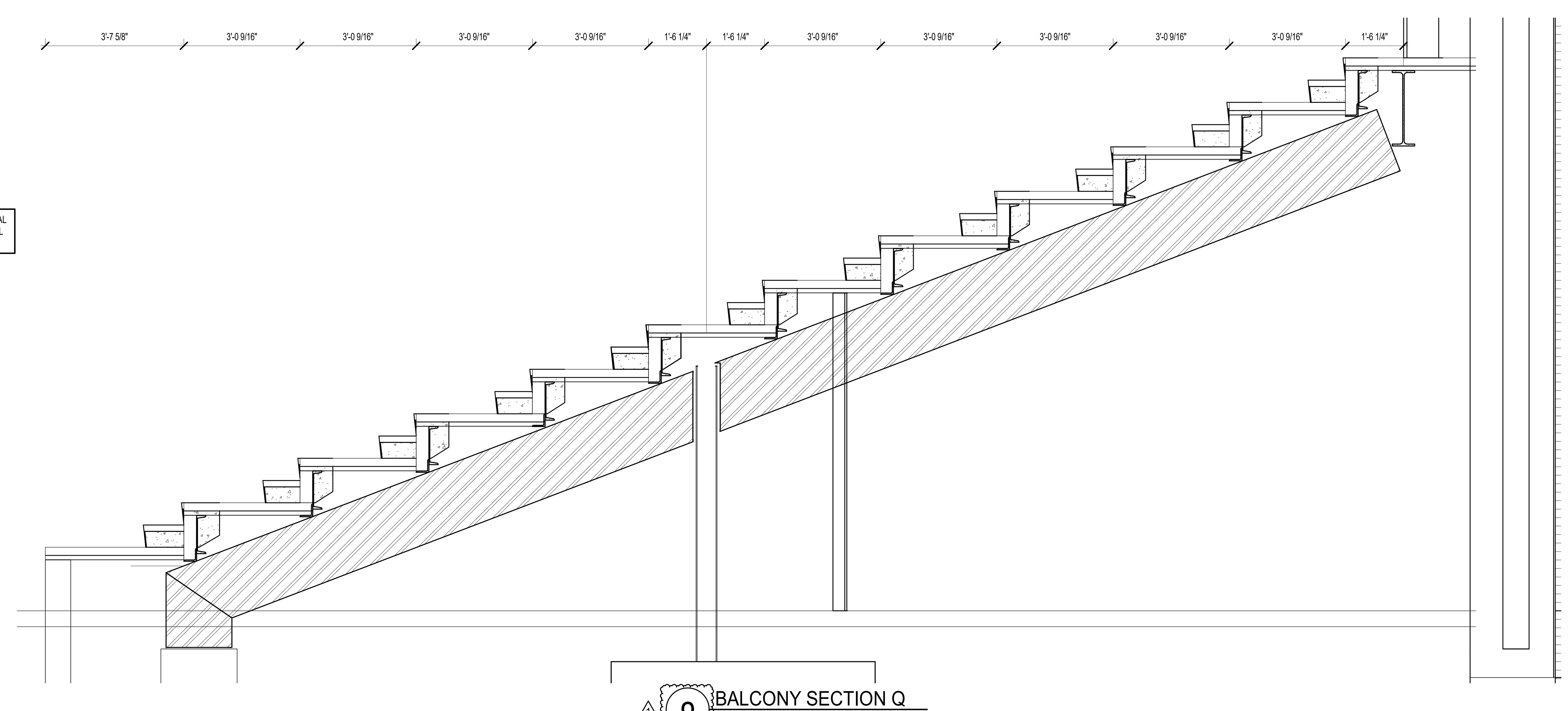
S622

PLOT DATE/TIME:4/29/2022 11:55:57 AM

SECTION IS TO PROVIDE ADDITIONAL INFORMATION THAT IS NOT TYPICAL AS SHOWN IN SECTION A/S620



Q BALCONY SECTION Q
1/2" = 1'-0"

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FRAMING SECTIONS

S623