

## **ADDENDUM NO. 2**

**Project:** CITY OF GREAT FALLS INDOOR AQUATICS AND RECREATION CENTER  
**Project No.:** 20-019  
**Date:** OCTOBER 1, 2021  
**Bid Date:** OCTOBER 13, 2021



NOTICE TO ALL PLANHOLDERS OF RECORD: Acknowledge receipt of this Addendum by inserting its number and date in the Bid Proposal. This addendum forms a part of the Contract Documents to the same extent as if bound and modifies the documents as follows:

### **A. GENERAL**

- ITEM NO. 1. Current Plan Holders list: See Attachment "A"
- ITEM NO. 2. Autocad files of Civil Sheets are available upon request.

### **B. ARCHITECTURAL SPECIFICATIONS**

- ITEM NO. 2. **CLARIFICATION:** Section 01 20 00 Alternate #6: Base bid to include LVT flooring, rubber base, ACT, and wall finishes to match Corridor 126.
- ITEM NO. 3 **CLARIFICATION:** Section 01 20 00 Alternate #15: Flagpole to be 30' tall x 5" wide, satin-brushed aluminum. Manufacturers: American Flagpole and Flag Co., Concord American Flagpole, American Flagpole Company.
- ITEM NO. 4 **CLARIFICATION:** Section 01 20 00 Alternate #4: Military Training Equipment drawing (See Attachment "B").
- ITEM NO. 5. Section 07 21 16 **DELETE:** Part 1.1.A.2. Soundproofing Acoustical Membrane.
- ITEM NO. 6. Section 09 80 00 **ADD:** 2.2.D. Acoustical Ceiling Panels: MDC Zintra Quarter Baffle System (Full Circle) in Rec Pool 113P, and MDC Zintra Standard Baffles (Rectangle) in Lap Pool 120P.
- ITEM NO. 7. Section 10 51 13 Part 2.2.A. **CHANGE:** Option of HDPE or Phenolic lockers.  
Part 2.3.D. **CLARIFICATION:** (By General Contractor)
- ITEM NO. 8. Section 11 66 23.23 **REMOVE:** 2.8 SUSPENDED VOLLEYBALL SYSTEM

### **DRAWINGS**

- ITEM NO. 9. Sheet A/1.2 **CLARIFICATION:** Extend Prefinished Woodgrain Wall Panel into South Fitness Area 201. (See Attachment "C")
- ITEM NO. 10. Detail 3/SP1.1 **CHANGE:** Metal box sign to "Internally Illuminated Box with a Polycarbonate Face and Translucent Vinyl Copy". **CLARIFICATION:** Digital reader board is one-sided.
- ITEM NO. 11. Detail 2/A2.1 **ADD:** Shower seat, GB-1, GB-2 in ADA showers in Men's and Women's Showers.

- ITEM NO. 12. Detail 2/A2.2: **ADD:** TP-1 and SN-1 to RR 110R.
- ITEM NO. 13. Sheets A6.1-6.2: **CLARIFICATION:** Provide 1'-0" smooth exterior finish at top of all waveform precast panels to allow for soffit attachment. Final dimensions and orientation to be coordinated during shop drawing submittal.
- ITEM NO. 14. Sheet A7.2 Detail 1: **CHANGE:** Top of mirrors from 8' to 9' AFF. Mirrors are 7'-4" tall. **ADD:** Mirrors to South and West walls of North Fitness Area 207. (See Attachment "D")
- ITEM NO. 15. Sheet A9.2: **CHANGE:** BN-3 in Room 134 to Locker Room Bench (See Spec.)  
**CHANGE:** Remove locks from lockers in schedule. (See Spec.)
- ITEM NO. 16. Sheet A10.2 **ADD:** Note: Install Gymnasium Divider Curtain at mid-court line, see spec. (Alternate)
- ITEM NO. 17. Sheet A11.1 Finish Plan **CLARIFICATION:** No mirrors are to be installed on the West wall of Room 121.

**C. CIVIL**

**SPECIFICATIONS**

N/A

**DRAWINGS**

- ITEM NO. 18. **CLARIFICATION:** Straight Curb Detail 13/C8.0 is not used in project.

**D. LANDSCAPING**  
**SPECIFICATIONS**

- ITEM NO. 19. **CLARIFICATION:** Contractor is responsible for salvaging any existing memorial plaques that are disrupted by construction activities. Reinstalling plaques to existing locations or new tree locations shall be included in contract.

**DRAWINGS**

- ITEM NO. 20. **CLARIFICATION:** Bike rack detail shown on 7/L1.5. No specification provided.

- ITEM NO. 21. **CLARIFICATION:** Chainlink fence around slide and child watch area should be included in Base Bid.

**E. STRUCTURAL**  
**SPECIFICATIONS**

N/A

**DRAWINGS**

- ITEM NO. 22 **CHANGE:** (4) Structural Sheets updated (See Attachment "E")  
S3.0: Provided slab slope clarification and shifted a footing.  
S4.0: Added 1-special joist callout  
S7.2: Adjusted 3-joist details  
S8.0: Adjusted several joist loading diagrams and added a clarification note.

**F. MECHANICAL/PLUMBING  
SPECIFICATIONS**

ITEM NO. 23.      **ADD: Section 23 31 14 – Non-Metal Ducts.** See Attachment “F”.

**DRAWINGS**

ITEM NO. 24.      **REPLACE:** Sheet M0.2 with the attached sheet. Modifications include the following:

- Adjusted fabric duct sizes and orifice specifications.
- See Attachment “G”.

ITEM NO. 25.      **CLARIFICATION:** Deck drains (DD1 and DD2) are to be provided and installed by the plumbing contractor, and the continuous concrete slab underneath the deck drains is to be provided by the general contractor.

ITEM NO. 26.      Sheet P3.1 – **DELETE:** Extraneous RWL pipe in View 1.  
**ADD:** Mop Sink MS-1 tag within Jan-123 in Views 1 and 2.

**G. ELECTRICAL/TELECOM  
SPECIFICATIONS**

ITEM NO. 27.      **CLARIFICATIONS:**

QUESTION 1:

Please clarify alternate #18. It is listed on the electrical plans as an alternate, but calls for conduit, pathways and circuits to be provided in base bid. Note #23 on E3.0 call for the pool timing system provided by others. Confirm alt #18 does not change the electrical scope?

ANSWER 1:

It is anticipated that this does not change the electrical scope. Pool timing supplier will need to provide or coordinate with electrical contractor for device installation.

QUESTION 2:

The latest addenda that Alternate 20 did not change the electrical scope, calling out that all items are to be included in base bid. Wouldn't the same apply for alt #19? See electrical alternate notes on E0.1. it has the same requirements as Alt #20. The only thing that I could maybe see as needing the wiring installed is for the EPO button (note 14, E3.0) back to the P3B VFD?

ANSWER 2:

Provide noted items as part of base bid. EPO wiring and connections for the pump and VFD shall be included in the alternate.

QUESTION 3:

Spec Section 01 60 00 Part 1.6.A states Instructions to Bidders specify time restrictions for submitting requests for Substitutions during bidding period to requirements specified in this section. Spec Section 00 20 00 does not contain any language related to substitutions. Spec Section 26 00 10 Part 2.1.A states Manufacturers not listed in the specification will be considered substitutions and must have prior approval. Spec Section 26 00 10 Part 2.2.B.1 states Manufacturers not listed in specification or on schedule for a particular item are open for substitution prior to bid opening only. Please advise if substitution requests for manufacturers and materials are required and what, if any, requirements, and deadlines are applicable.

ANSWER 3:

Regarding section 26 00 10, we anticipate lighting substitutions (as noted on luminaire schedule) 10 days prior to bid.

ITEM NO. 28. **Section 26 05 33** – Raceways and Boxes for Electrical Systems

- Paragraph 3.1.B.2 – **CHANGE**: to read as follows:
  2. Exposed and Subject to Severe Physical Damage: GRC. Raceway locations include the following:
    - a. Loading dock.
    - b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
    - c. Gymnasiums (Gym 136).
    - d. Lap Pool Room 120P, Rec Pool Room 113, and Pool Equipment Room 117 (UNO).
    - e. Anywhere devices must be surface mounted on pre-fab concrete walls: Offices, Child Watch 110, etc. (see Architectural plans for wall types).
- Paragraph 3.1.B.3 – **CHANGE**: to read as follows:
  3. Exposed and/or concealed in Corrosive Environments: PVC or PVC coated GRC.
    - a. In Chlorine Room and Acid Room within Pool Equipment Room 117.
- QUESTION: The spec (26 05 33) refers only to polywater Type FST urethane foam Will it be required to be installed in an actual rigid conduit sealing body? Or can it just be installed into the open ends of the pipe?

ANSWER: Open ends of the pipe.

**DRAWINGS**

ITEM NO. 29. **Sheet E3.0** – Level 1 Power & Signal Plan

- Key Note 26 refers to work in the Lap Pool Room 120P, Rec Pool Room 113, and Pool Equipment Room 117 areas, and it reads as follows:
  26. ALL WIRING METHODS WITHIN ROOM SHALL COMPLY WITH 2017 NEC ARTICLES 680.14 AND 300.6. ALL FIXTURES, DEVICES, BOXES, AND CONDUIT IN THIS SPACE SHALL BE RATED FOR USE IN NATATORIUM ENVIRONMENT. PROVIDE RIGID METAL CONDUIT FOR WIRING WITHIN ROOM, UNO (Unless Noted Otherwise). SEAL ALL DEVICE BOXES AND ALL CONDUIT PENETRATIONS TO MAINTAIN VAPOR BARRIER OF POOL AREA WALLS AND CEILINGS.”

ITEM NO. 30. **Sheet E3.1** – Level Power & Signal Plan

- Remove Keynote 6 from sheet.

ITEM NO. 31. **Sheet E3.3** – Level 1 Pool Room Equipment Power Plan

- Within Pool Equipment Room 117, there are specific notes for the Chlorine Room and Acid Room where it states that conduit in these rooms shall be PVC or PVC coated Rigid Steel (this is where it is Noted Otherwise). Note that if standard PVC conduit is used in these rooms, it will need to be supported every 4' OC or less.

ITEM NO. 32. **Sheet T2.1**– Telecom Plan – First Floor

- Changed keynote 8. Delete EMT conduit. Use IMC conduit.

ITEM NO. 33. **Sheet T3.1**– Telecom Plan – First Floor

- Changed keynote 1. Delete EMT conduit. Use IMC conduit.

ITEM NO. 34. **Sheet T4.1**– Telecom Plan – First Floor

- Changed keynote 6. Delete EMT conduit. Use IMC conduit.

**H. AQUATIC SPECIFICATIONS**

N/A

**DRAWINGS**

N/A

**I. PRIOR APPROVALS**

All material or products supplied by the contractor must meet or exceed the quality and performance of the material or product originally specified. It is the contractor's responsibility to ensure that substituted equipment matches the exterior dimensions, weight, and configuration of the equipment that was specified.

**LANDSCAPING**

- 32 14 13 – Unit Paving
- Concrete Pavers
    - Belgard Melville PlankS

**ARCHITECTURAL**

- 04 82 00 – Reinforced Unit Masonry Assemblies
- Water Repellant
    - Weather Worker J26WB Siloxane Water Repellant
- 09 51 23 – Suspended Ceilings
- Wood Veneer Wall Systems
    - Arrow Industries – Galaxy Wood Slats
- 09 65 88 – Polyurethane Floor Systems
- Materials
    - Tarkett Polyturf Plus 12 + 2
- 09 80 00 – Acoustic Treatments
- Acoustic Wall Panels
    - Soundcore Single Baffles ZI001 and ZI003

- 10 21 13 – Toilet Compartments
  - Toilet Compartments
    - American Sanitary
    - Scranton
  
- 10 51 13 – Solid Plastic HDPE Lockers
  - Lockers
    - Columbia/PSiSC Solid Plastic HDPE Lockers
    - Summit Lockers – HDPE Plastic Lockers
  
- 11 66 53 – Gymnasium Divider Equipment
  - Gymnasium Dividers
    - ADP Lemco Gymnasium Dividers
  
- 11 66 23.13- Athletic Equipment
  - Scoreboards
    - ADP Lemco Athletic Equipment
  
- 11 66 23.23 – Volleyball Equipment
  - Volleyball Equipment
    - ADP Lemco Gymnasium Volleyball Equipment
  
- 12 76 00 – Portable Bleachers
  - Portable Tip and Roll Bleachers
    - Bleachers international Tip and Roll Bleachers

### **MECHANICAL/PLUMBING**

- 23 09 00 – HVAC Controls
  - DDC System Installers
    - Mechanical Technology, Inc.
  
- 23 05 93 – Testing, Adjusting, and Balancing for HVAC
  - Test and Balance Contractors
    - Statera Technology, Inc.
  
- 23 52 16 – Condensing Boilers
  - Condensing Boilers
    - Riello
    - Thermal Solutions
  
- 23 21 23 – Hydronic Piping
  - Hydronic Pumps
    - Wilo
  
- Misc. – Glycol Feeder
  - Wessels
  
- 23 21 16 – Hydronic Piping Specialties
  - Hydraulic Separator
    - Resideo
  - Expansion Tank
    - Wessels

### **ELECTRICAL/TELECOM**

- 26 51 10 – Lighting
  - Type C1/C1E
    - Ametrix is an approved Manufacturer. Verify calculations are provided with luminaire at 25ft AFF. Please note ceiling height varies approx. 32'-42'.
  - Type C2E/C2E

- Ametrix is an approved Manufacturer. Verify calculations are provided with luminaire at 25ft AFF. Please note ceiling height varies approx. 32'-42'.
- Type E2
  - GVA is an approved manufacturer.
- Type E4
  - AV is an approved manufacturer. Provide with louvered optic.
- Type E5/E6/E7
  - Cooper is an approved manufacturer, provide luminaire with improved BUG rating to match or improve the BUG rating of specified fixture.
- Type E8
  - Cooper Lumark is an approved manufacturer.
- Type X1/X2/X3
  - Sure-Lites is an approved manufacturer.
- Type X1/X2/X3
  - Sure-Lites is an approved manufacturer.
- Type Inverter.
  - Myers is an approved manufacturer. Provide 10 output breakers per INV Schedule on E6.2.
- Emergency Control Unit
  - Greengate is an approved manufacturer.
- Wallstations
  - Wavelinx Wired is an approved manufacturer.
- Dimming Panel
  - Wavelinx Wired is an approved manufacturer.
- Sensors Panel
  - Greengate is an approved manufacturer.

28 23 00 – Video Surveillance

- NVR and VMS
  - Salient Enterprise Server with Complete View VMS

**End of Addendum 2**

**Project:** Indoor Aquatics and Recreation Center - O.F. 1770.0 10-6

9/29/2021

	A	B	C	D	E
1	<b>Set #</b>	<b>Date Iss</b>	<b>Company Name</b>	<b>Address</b>	<b>Phone</b>
2	<b>1</b>		GFBE		
3	<b>2</b>	8/24/21	Swank Enterprises	614 Pondera Avenue Valier, MT 59486	(406) 279-3241
4	<b>3</b>	8/27/21	Dick Anderson Construction	4610 Tri Hill Frontage Road Great Falls, MT 59404	406-761-8707
5	<b>4</b>	8/30/21	Sampson Construction	5825 S 14th St Lincoln, NE 68512	402-434-5420
6	<b>5</b>	9/2/21	Sletten Construction	P.O. Box 2467 Great Falls, MT 59403	(406) 761-7920
7	<b>6</b>	9/23/21	LPW/City of Great Falls		
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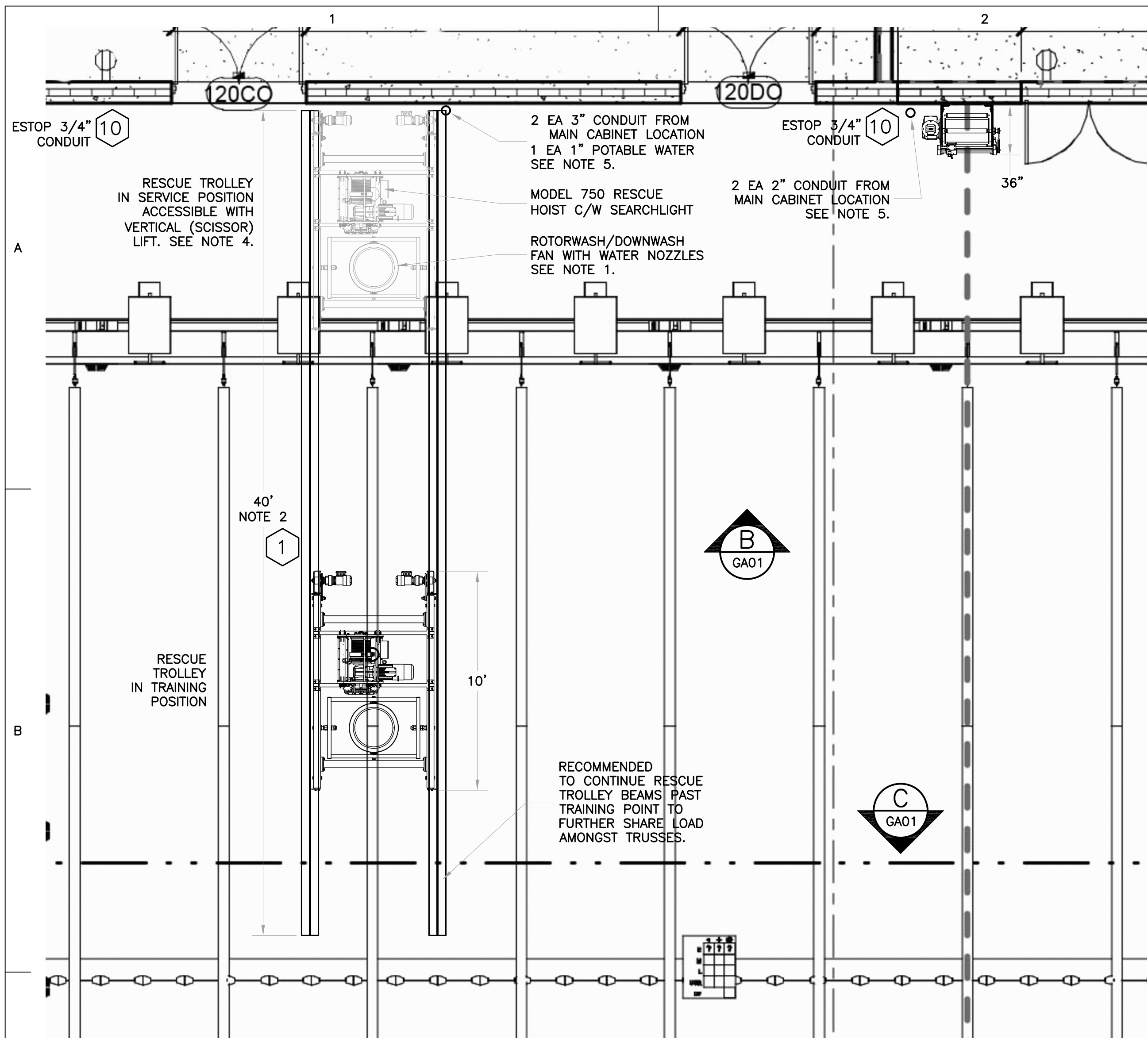


**Project:** Indoor Aquatics and Recreation Center - O.F. 1770.0 10-6

9/29/2021

	F	G	H
1	E-Mail	Contact	Add
2			
3	<a href="mailto:kforbes@swankenterprises.com">kforbes@swankenterprises.com</a>	Kevin Forbes	
4	<a href="mailto:evenetz@daconstruction.com">evenetz@daconstruction.com</a>	Ed Venentz	
5	<a href="mailto:pat.clough@sampson-construction.com">pat.clough@sampson-construction.com</a>	Pat Clough	
6	<a href="mailto:mguelff@sletteninc.com">mguelff@sletteninc.com</a>	Mike Guelff	
7	<a href="mailto:lkunz@greatfallsmt.net">lkunz@greatfallsmt.net</a>	Lisa Kunz	
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**A PARTIAL DECK PLAN**  
GA01 SCALE 1/4" = 1'

**GENERAL NOTES:**

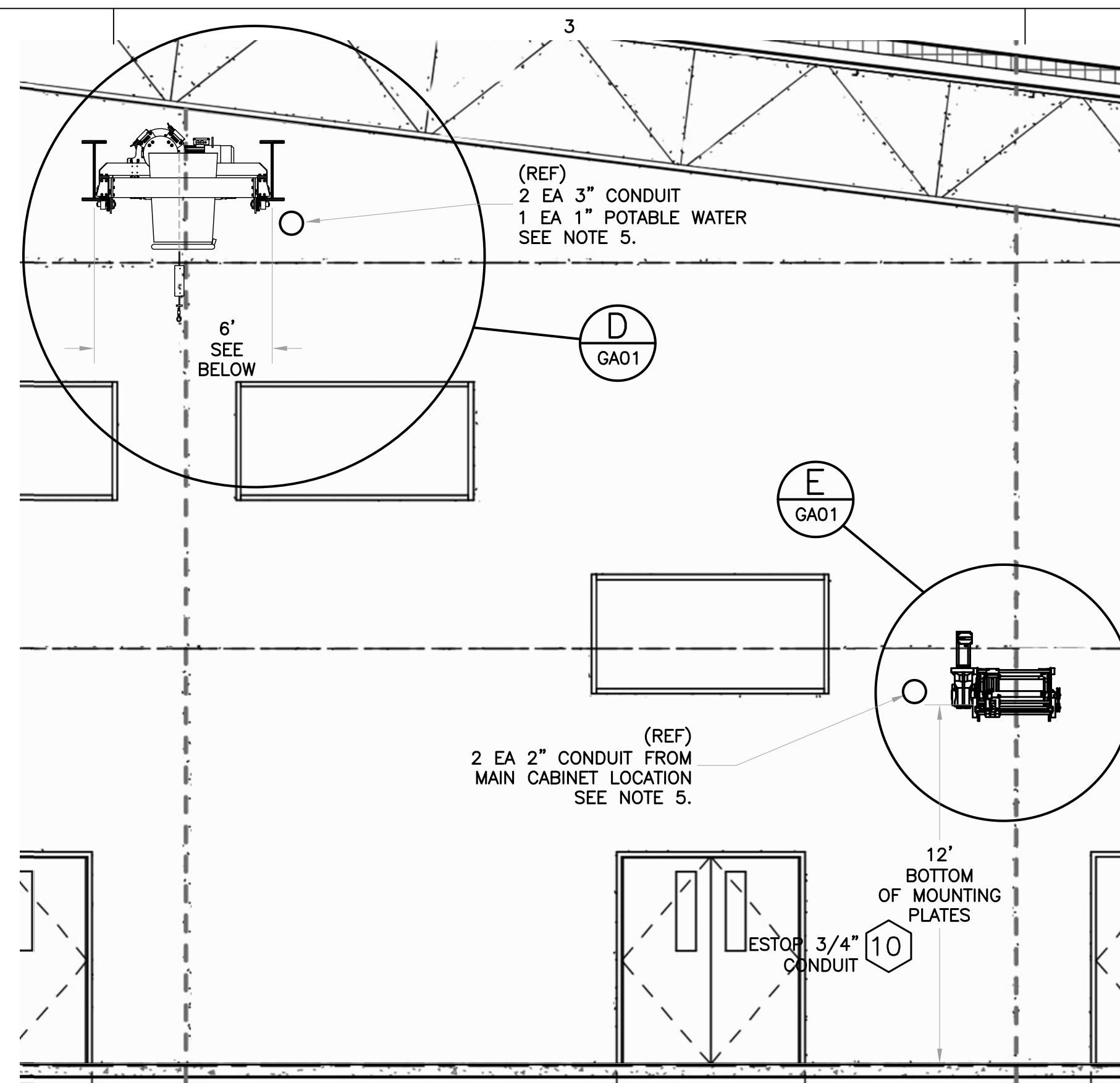
- THIS DRAWING IS INTENDED TO SHOW THE INTERFACE REQUIREMENTS IMPLEMENTING RESCUE HOISTING AND PARACHUTE DRAG TRAINING SIMILAR TO USAF FAIRCHILD IN THIS FACILITY. DRAWING IS APPROXIMATE SCALE ONLY. THE RESCUE TROLLEY IS SHOWN WITH A ROTORWASH FAN C/W WATER NOZZLES AS USED IN BOTH RESCUE HOISTING AND PARACHUTE DISENTANGLEMENT ACTIVITIES. MOTORIZED TROLLEY ENABLES DEPLOYMENT OUT TO TRAINING AREA, AND RETURN ABOVE DECK FOR MAINTENANCE/SERVICE.
- RESCUE TROLLEY BEAM GAUGE AS SHOWN. ESSENTIAL FOR PROPER OPERATION IS INSIDE TO INSIDE RUNNING FLANGE, CLEARANCE AND STABILITY. SEE DETAIL D & F.
- RESCUE TROLLEY BEAM LENGTH, SUGGESTED FOR FURTHER SHARING IN CEILING TRUSSES. (2 TRUSSES PAST WORKING POINT)
- ACCESS DOOR SIZE FOR FORKLIFT AND SCISSOR LIFTS IS ESSENTIAL. 80" HEIGHT, AND FULL DOUBLE DOOR ACCESS IS REQUIRED FROM OUTSIDE THE FACILITY TO THE POOL DECK.
- MAIN ELECTRICAL CABINET FOR THIS SYSTEM IS 72" WIDE X 18" DEEP X 84" TALL. FLOOR SPACE IS REQUIRED FOR THIS CABINET ADJACENT TO POOL AREA, INCLUDING FRONT CLEARANCE FOR DOORS. FEEDER IS 80A, 480V, 3 PHASE. ELECTRICAL FEEDER LOCATION IS TOP RIGHT ENTRY TO CABINET. LOCKABLE DISCONNECT MEANS IS PROVIDED. ELECTRICAL CONDUITS PATH SHOWN ON DRAWING ARE REQUIRED FOR INTERCONNECTIVITY. ALL SYSTEM ELECTRICAL PROTECTION (EARTH FAULT, INSULATION MONITORING, SELV 24VDC ARE PROVIDED INSIDE CABINET). WATER SUPPLY FOR ROTORWASH, TYPICAL POTABLE WATER 20 GPM, END LINE IN MANUAL VALVE. 20A 120V DEDICATED CIRCUIT IS REQUIRED FOR A LP AIR COMPRESSOR ADJACENT TO MAIN CABINET. (REQUIRED FOR THE RESCUE HOIST EMERGENCY LOWERING SYSTEM. POWER LOSS)
- OPERATOR INTERFACE LOCATION TBD BY END USER TO COINCIDE WITH CENTRAL INSTRUCTOR STATION.

**INTERFACE ITEMS FOR EQUIPMENT**

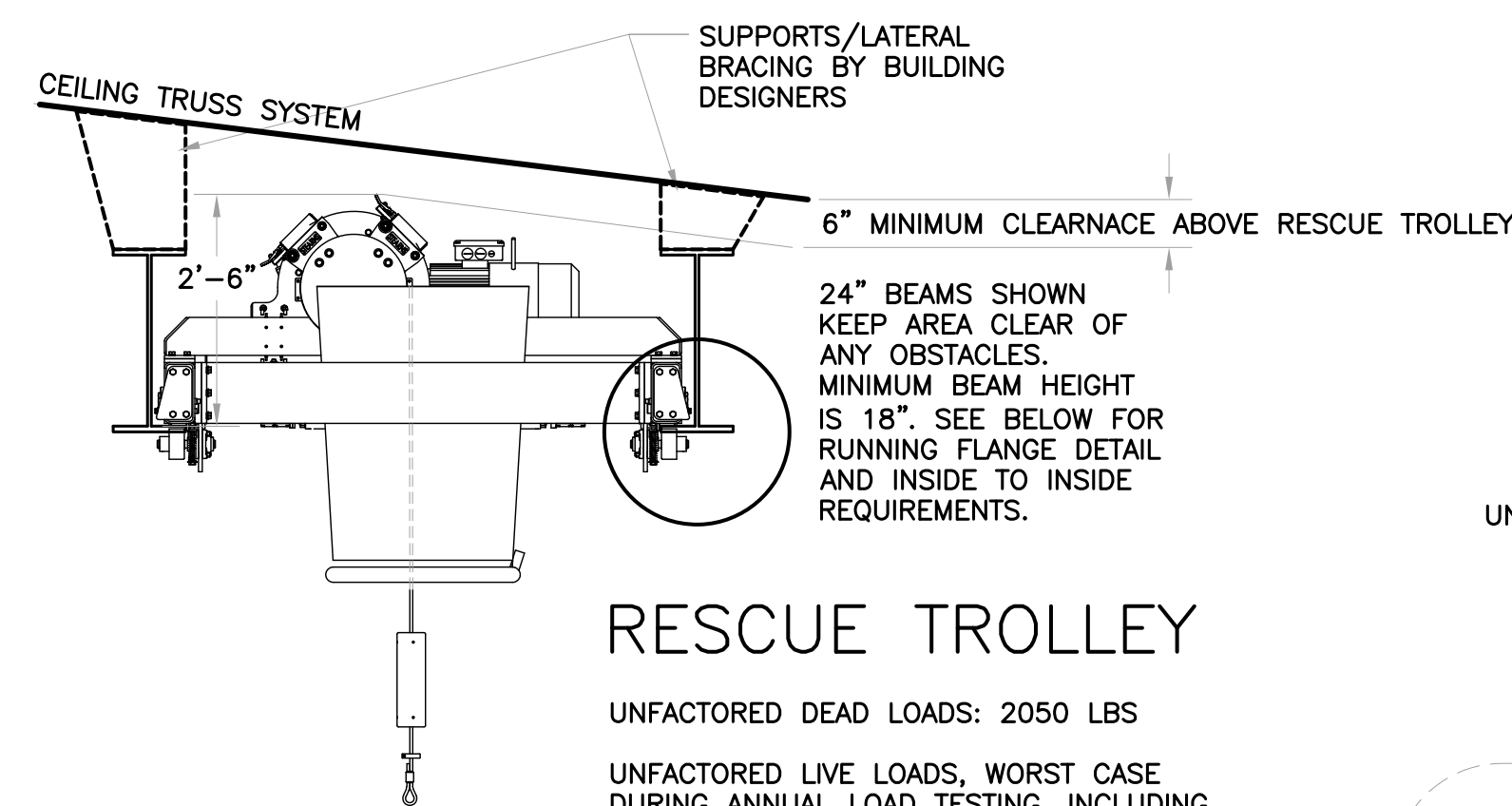
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1	RESCUE TROLLEY BEAMS - DESIGN AND INSTALLATION	1
2	MOUNTING POINTS FOR DUAL WINCH DRAG - DESIGN/INSTALL	2
3	SPACE/ELECTRICAL FEEDER FOR SYSTEM MAIN CABINET (NOTE 5)	1
4	CONDUITS FROM MAIN CABINET TO RESCUE TROLLEY BEAMS	2
5	CONDUITS FROM MAIN CABINET TO NORTH WINCH	2
6	CONDUITS FROM MAIN CABINET TO SOUTH WINCH	2
7	CONDUITS FROM MAIN CABINET TO OPERATOR INTERFACE	1
8	POTABLE WATER LINE TO RESCUE TROLLEY BEAMS	1
9	ACCESS DOOR SIZE FOR SMALL FORKLIFT / SCISSOR LIFTS	1
10	CONDUIT FROM MAIN CABINET TO EMERGENCY STOP STATION	3
11	20A DEDICATED CIRCUIT FOR LP AIR COMPRESSOR ADJACENT MAIN CABINET (NOTE 5)	1
12	RESERVED	1

**SALIENT CHARACTERISTICS:**

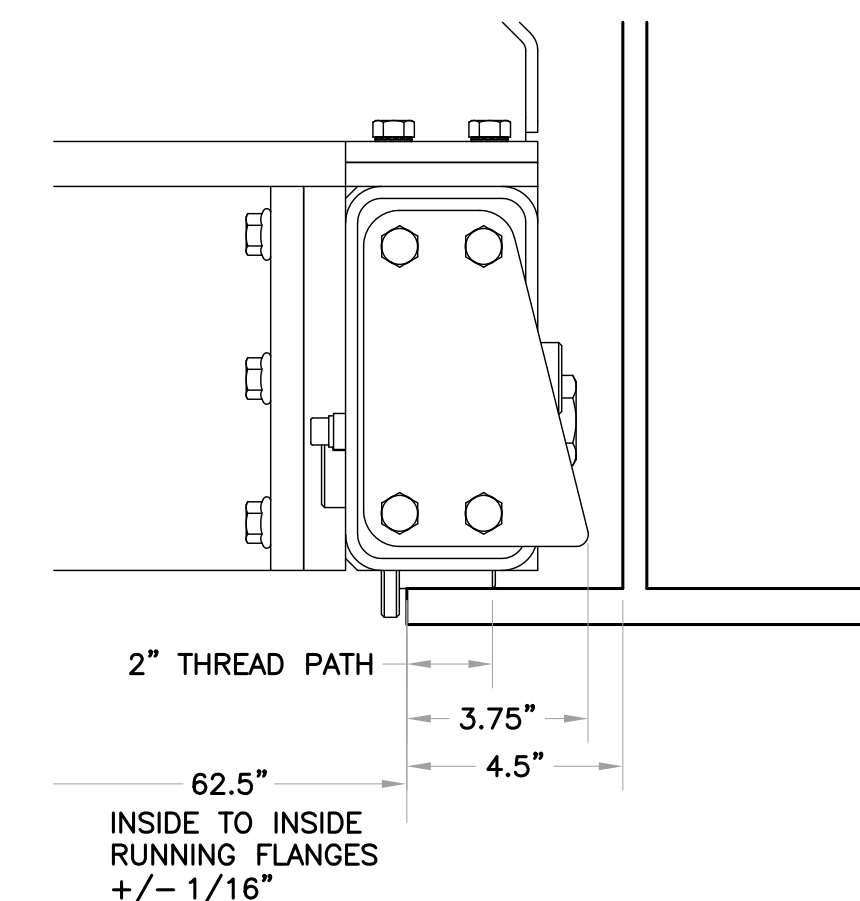
- MAIN CABINET FED AND CONTROLLED FROM THE SAME CABINET LOCATION, RESCUE HOIST AND DRAG TRAINERS WILL OPERATE INDEPENDENTLY AT THE SAME TIME WITH SEPARATE REMOTE CONTROL TRANSMITTERS.
- DRAG WINCH ROPE IS DISCONNECTED AND STOWED WHEN NOT IN USE. (SETUP TIME 5 MINUTES, 2 PERSONS)
- RESCUE HOIST CHARACTERISTICS : 750LBS PERSONNEL RATED LIFTING. VARIABLE SPEED 0-40M/MIN. PNEUMATICALLY OPERATED EMERGENCY LOWERING SYSTEM (POWER LOSS BACKUP), CORROSION RESISTANT CONSTRUCTION, STAINLESS WIREROPE, INTEGRATED EARTH FAULT AND INSULATION MONITORING SYSTEMS, 24VDC CONTROLS, DEDICATED REMOTE TRANSMITTER (DISTINCT FROM DRAG SYSTEM).
- DUAL WINCH DRAG CHARACTERISTICS : STOWABLE (DISCONNECT AND STOW ROPE ON BOTH SIDES WHEN NOT IN USE). PROGRAMMABLE, VARIABLE SPEED, DRAG STUDENTS IN EITHER DIRECTION, 3 FEET PER SECOND NOMINAL RATE. SYSTEM CAPACITY ENABLES INSTRUCTOR TO RIDE ALONG FOR DIRECT COMMUNICATION, SWIVEL HARNESS, CORROSION RESISTANT CONSTRUCTION, AMSTEEL SYNTHETIC ROPE SYSTEM (3/8" INCH), INTEGRATED EARTH FAULT AND INSULATION MONITORING SYSTEM, 24VDC CONTROLS, REMOTE TRANSMITTER DISTINCT FROM RESCUE HOISTING SYSTEM.



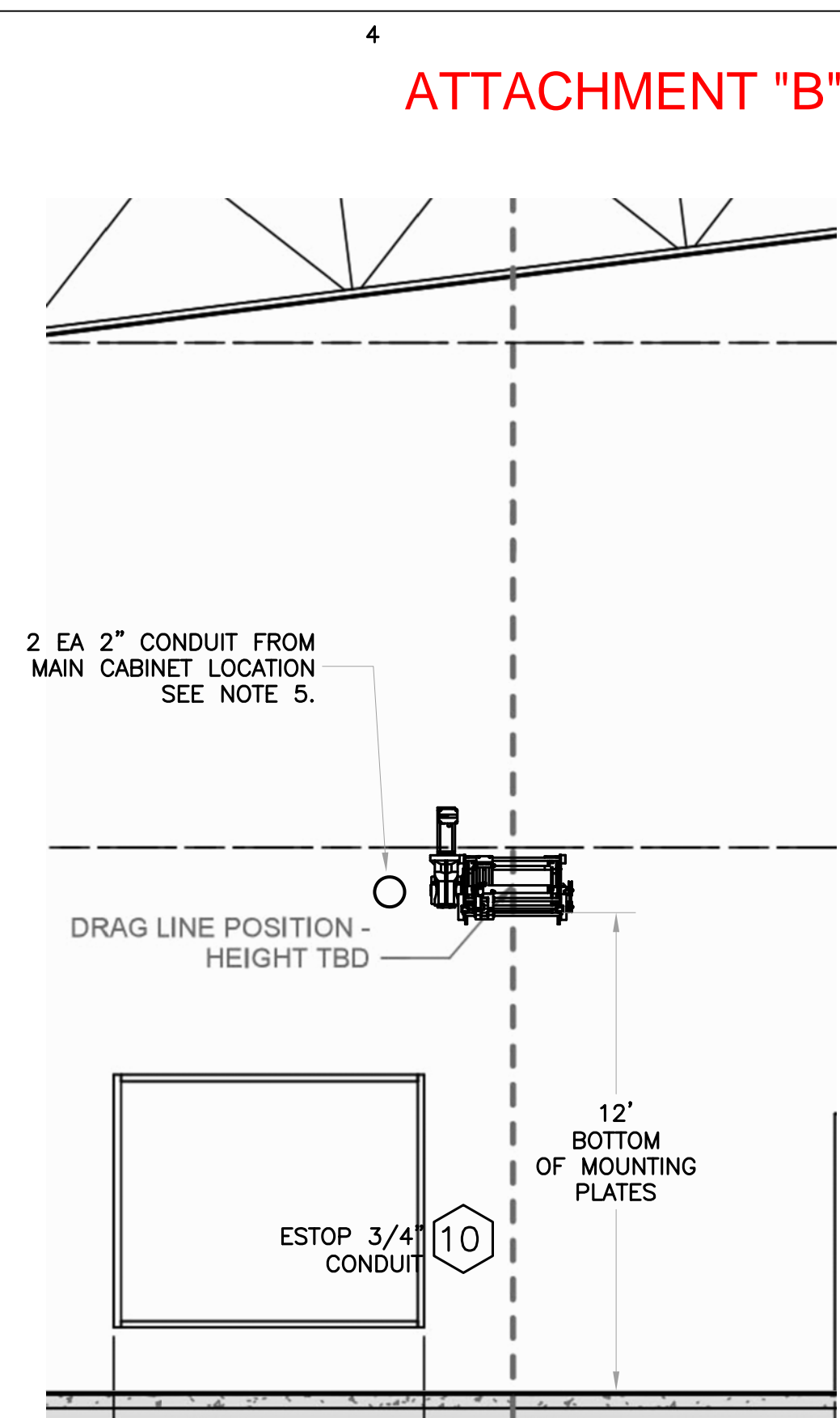
**B PARTIAL ELEVATION NORTH**  
GA01 SCALE 1/4" = 1'



**D RESCUE TROLLEY DETAIL**  
GA01 SCALE 1/2" = 1'



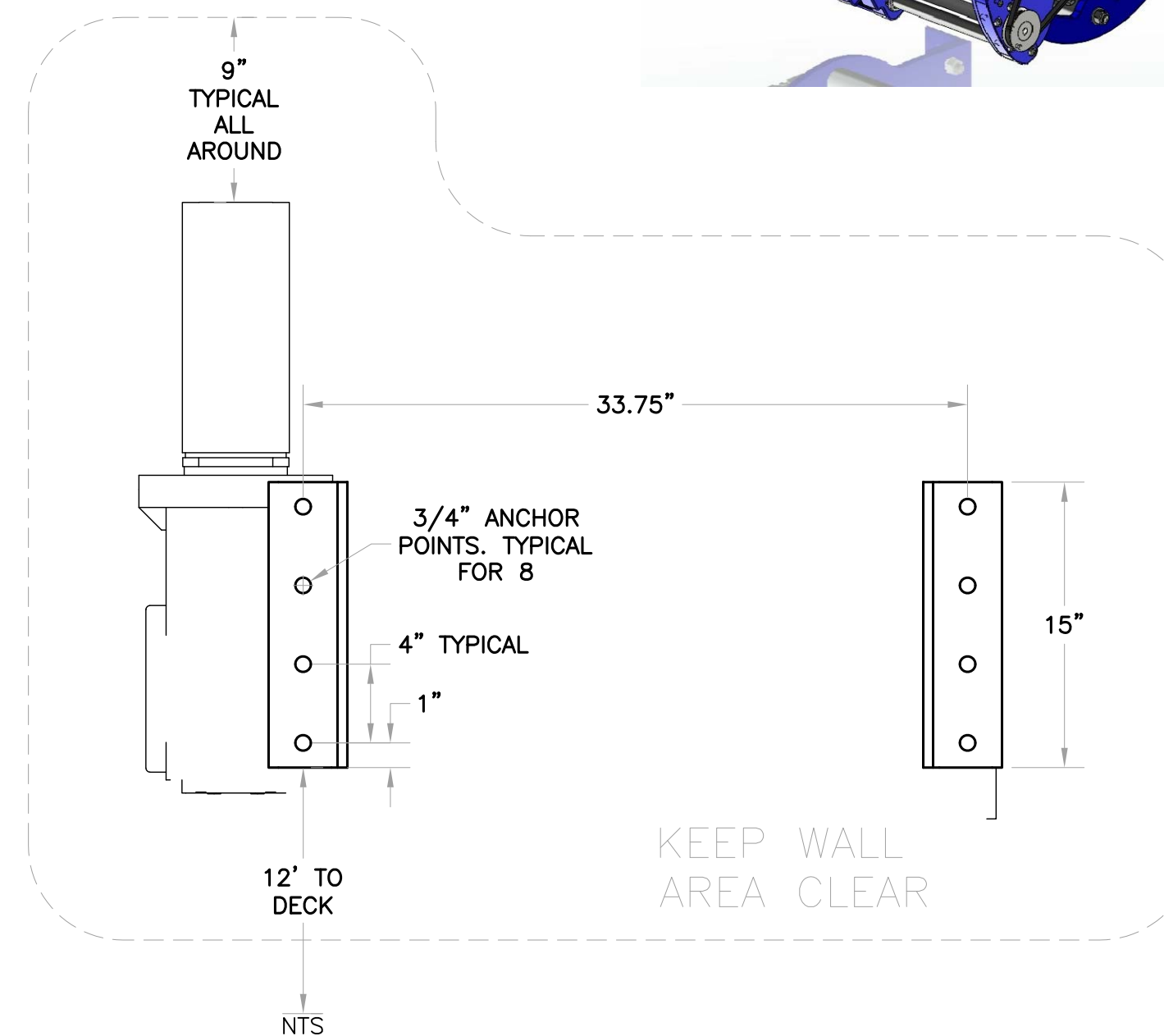
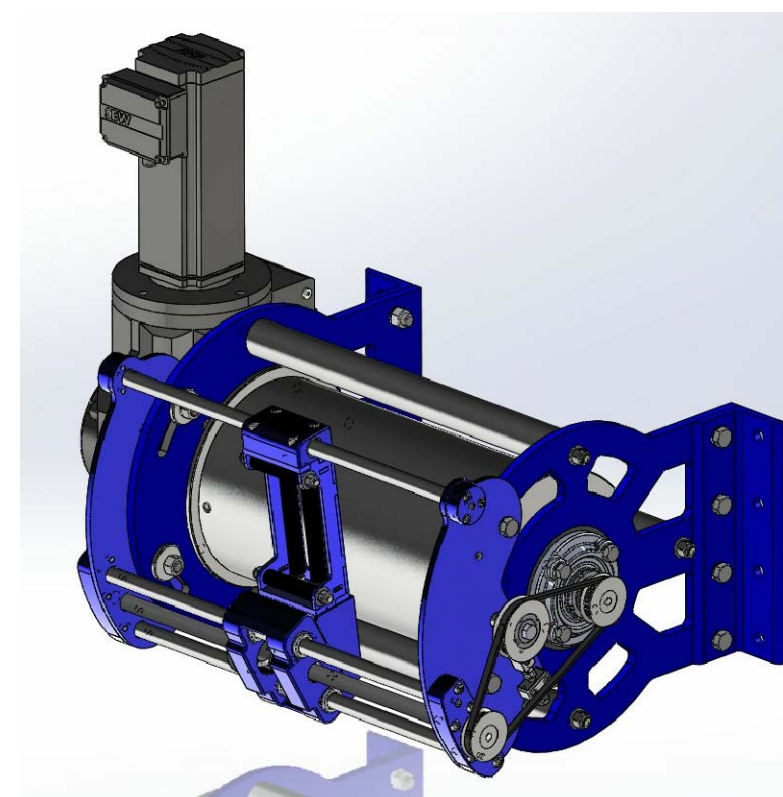
**F RESCUE TROLLEY BEAMS**  
GA01 SCALE 3" = 1'



**C PARTIAL ELEVATION SOUTH**  
GA01 SCALE 1/4" = 1'

**DRAG WINCH**

UNFACTORED DEAD LOADS: 700 LBS  
UNFACTORED LIVE LOADS, WORST CASE FOR FULL SPEED ESTOP AT FULL TENSION: 4400 LBS  
TYPICAL LATERAL LIVE LOADS IN ALL DIRECTIONS: 10%



**E WINCH WALL MOUNT DETAIL**  
GA01 SCALE 1-1/2" = 1'

**ATTACHMENT "B"**

KEYPLAN

PROPOSAL CONSTRUCTION

**SERE**  
WATER SURVIVAL TRAINING

REVISION HISTORY		
REV	DATE	DESCRIPTION
01	16/06/21	SUBMITTED FOR INFORMATION

USAF PROJECT NO: TBD  
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DRAWN BY: SSL  
EDITED BY: SSL  
DIMS: IMPERIAL

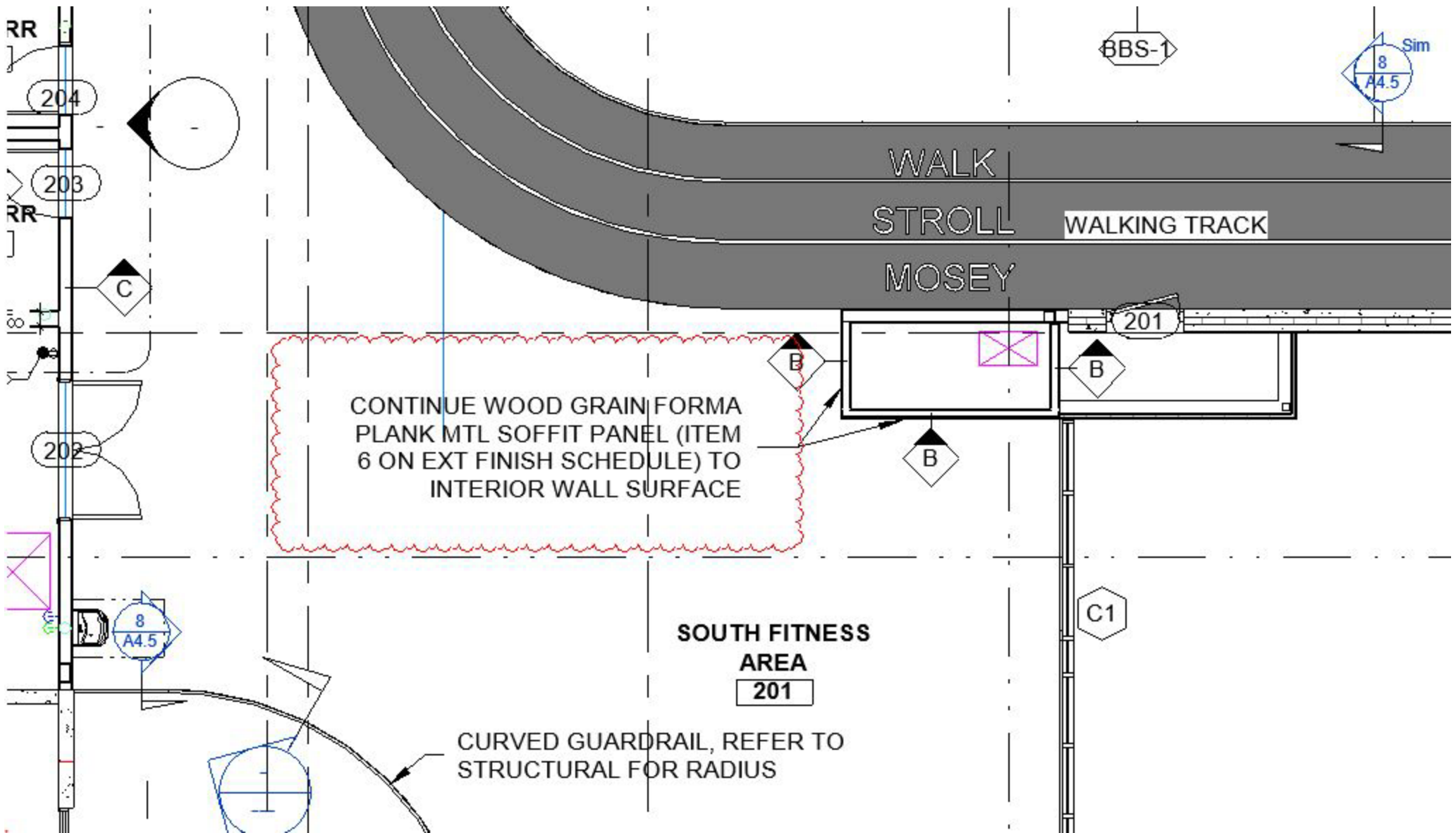
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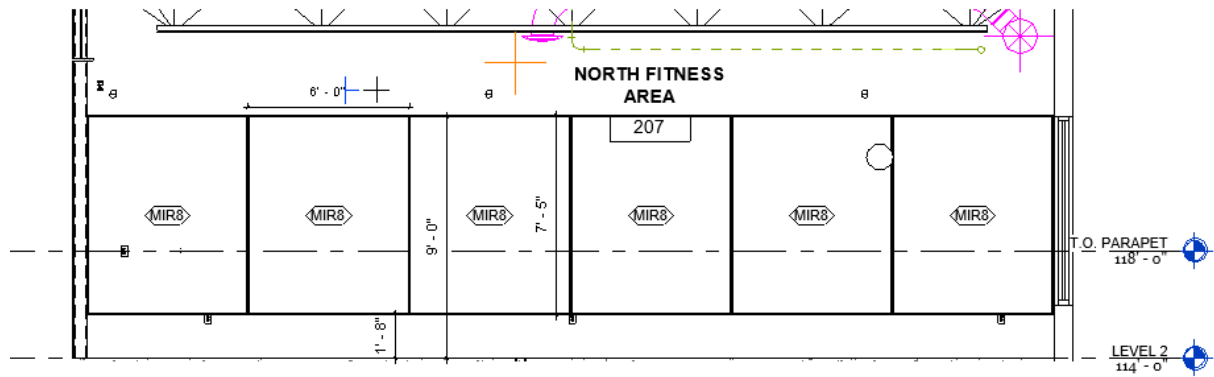
**INTERFACE INFORMATION**  
**RESCUE HOIST AND PARACHUTE DRAG TRAINER SYSTEMS**

PROJECT NUMBER	DRAWING NUMBER
TBD	GA01

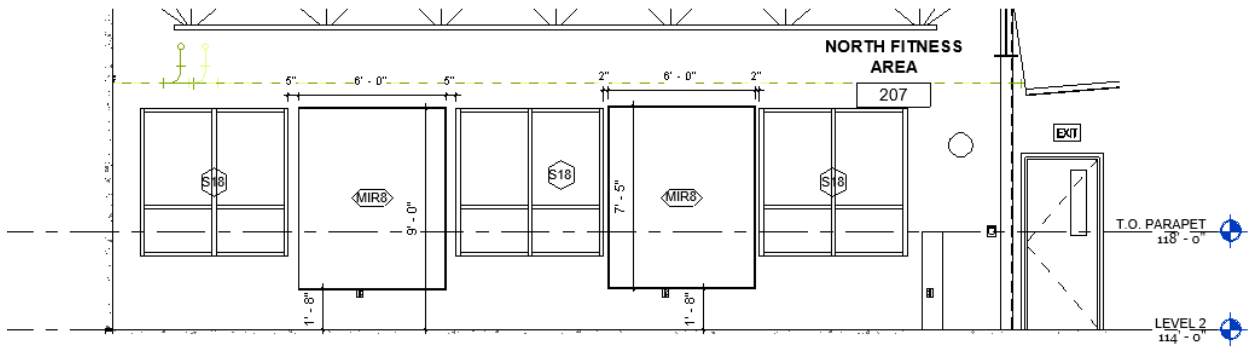
DISCIPLINE/SYSTEM: GENERAL ARRANGEMENT  
SHEET 1 OF 1





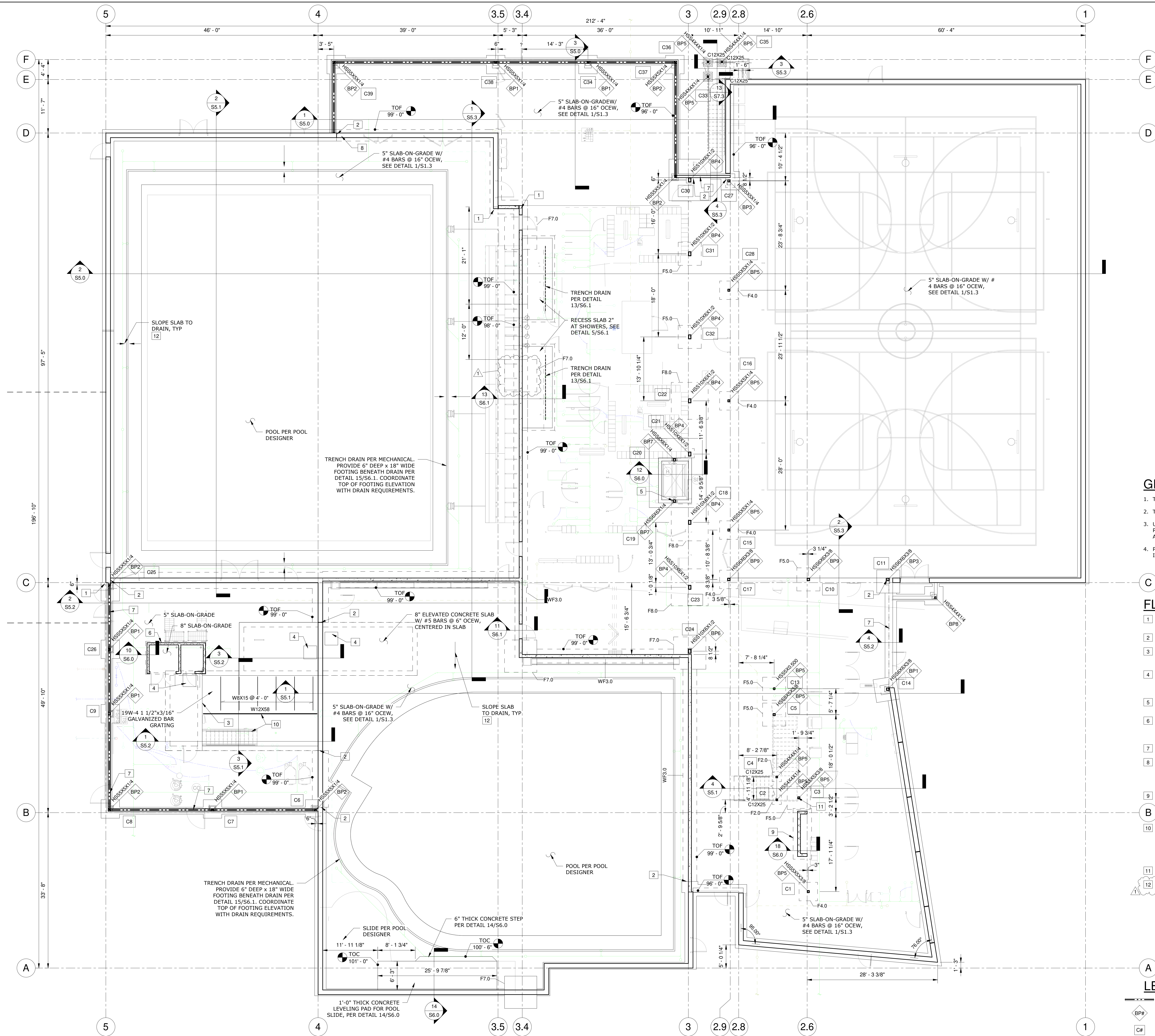


23 207 - S  
1/4" = 1'-0"



24 207 - N  
1/4" = 1'-0"





**GENERAL NOTES**

1. TOP OF INTERIOR FOOTINGS = 99'-0", UNO.
2. TOP OF INTERIOR SLAB = 100'-0".
3. USE CLASS A1 MIX DESIGN FOR ALL SURGE TANK AND PUMP PIT COMPONENTS INCLUDING SLABS, WALLS AND ELEVATED CONCRETE DECK.
4. PROVIDE LIGHT BROOM FINISH ON CONCRETE SLABS IN POOL AREAS.

**FLAG NOTES**

- 1 EXTEND FOOTING BEYOND PRECAST WALLS 3" TYP, PER DETAIL 7/S6.0
- 2 FOOTING STEP
- 3 L4x4x1/4" GALVANIZED GRATING SUPPORT ANGLE AT PERIMETER OF PUMP PIT. CONNECT TO CONCRETE WALLS WITH 3/4" x 6" LONG GALVANIZED SIMPSON TITEN HD ANCHORS @ 24" OC.
- 4 ACCESS HATCH, PROVIDE (3) ADDITIONAL #5 BARS ALL SIDES OF OPENING. EXTEND BARS A MINIMUM OF 3'-0" PAST OPENING SIMILAR TO DETAIL 2/S1.4. VERIFY HATCH LOCATION WITH POOL DESIGNER.
- 5 COORDINATE FINAL HSS LOCATION WITH ELEVATOR SUBMITTAL. LOCATE AT ELEVATOR RAILS.
- 6 PROVIDE PRECAST LID FOR TOP OF CMU CAPABLE OF SUPPORTING 20PSF SUPERIMPOSED DEAD LOAD AND 100PSF SUPERIMPOSED LIVE LOAD. SEE DETAIL 7/S7.1 FOR CONNECTION TO CMU WALL.
- 7 SLAB POUR OVER AT DOORWAY PER DETAIL 17/S6.0
- 8 PRECAST MANUFACTURER TO INCLUDE EMBED PLATES FOR ATTACHMENT OF WALL MOUNTED WINCH. WINCH VERTICAL DEADLOAD = 700 LBS. WINCH LATERAL LIVE LOAD ON WALL = 4400 LBS. WINCH LATERAL LOAD = 440 LBS. COORDINATE LOCATION WITH ARCH.
- 9 11'-0"x4'-0"x1'-0" THICKENED SLAB BENEATH FIREPLACE.
- 10 ALL STAIRS, BEAMS, BAR GRATING AND STEEL HARDWARE ON MAIN LEVEL OF MECHANICAL PIT SHALL BE HOT-DIP GALVANIZED PER ASTM A123 AND ASTM A153. STEEL DECK, ROOF JOISTS AND HOIST BEAMS AT THE ROOF LEVEL IN THIS SPACE SHALL BE COVERED BY HIGH PERFORMANCE COATINGS, SEE ARCH.
- 11 CONNECT STAIRS TO HSS COLUMN PER DETAIL 1/S7.3
- 12 SLAB SLOPE TO BE A MINIMUM OF 1/4":12".

**LEGEND**

- STEEL STUD SHEAR WALL PER DETAIL 18/S1.4
- ◆# BASE PLATE, SEE 1/S6.1
- # COLUMN PER SCHEDULE, SEE S1.5
- ▭ RECESSED SLAB PER DETAIL 5/S6.1
- CROSS-BRACING PER DETAIL 3/S5.3

**1 MAIN FLOOR FRAMING PLAN**  
 1/8" = 1'-0"

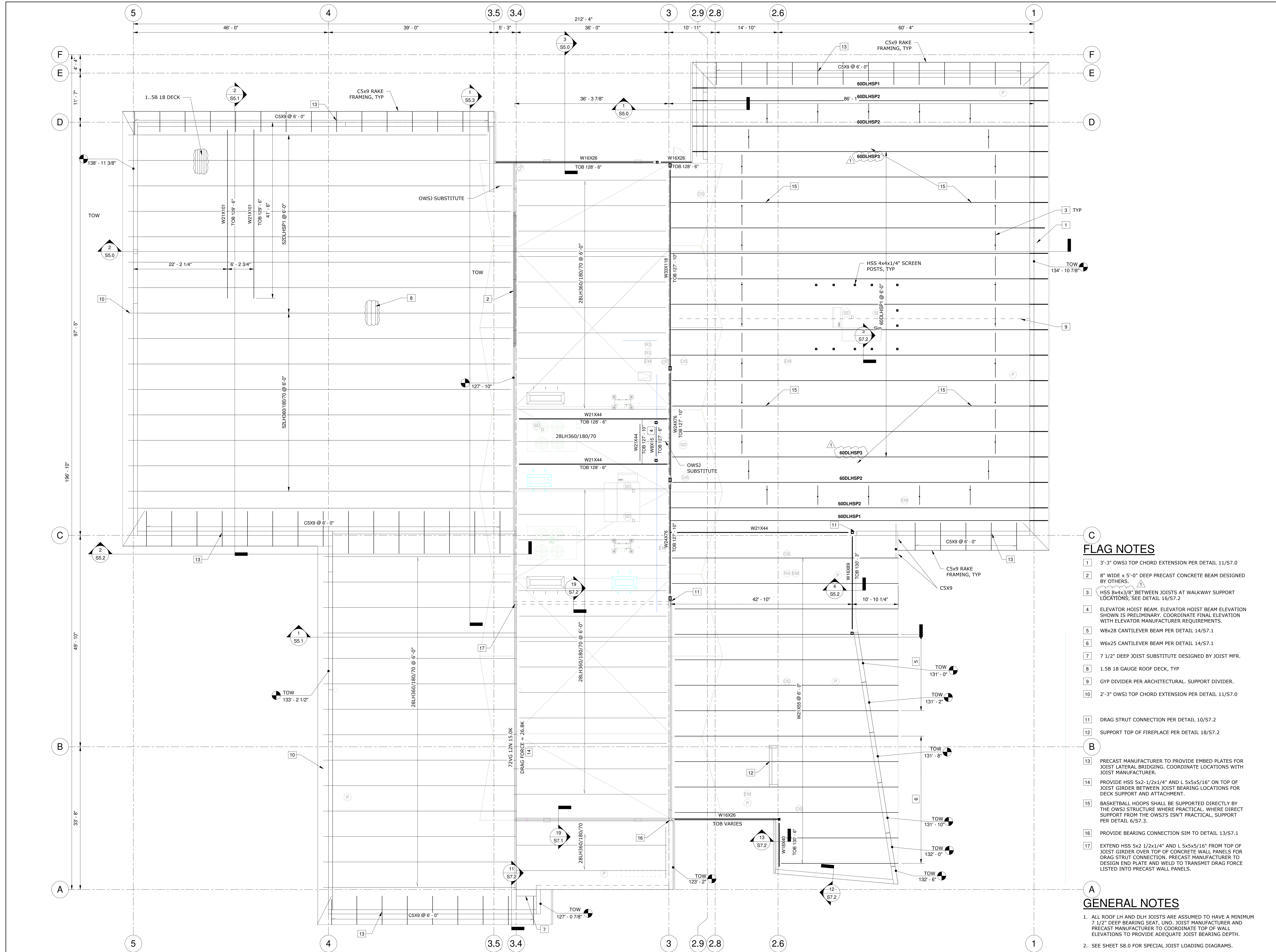
Revision Schedule		
No.	Revision	Date
1	APPROXIMATE	08/20/21

Submittals		
No.	Description	Date
1	100% EDC SUBMITTAL	08/20/21
2	PERMIT SET	08/20/21
3	RFI SET	08/20/21

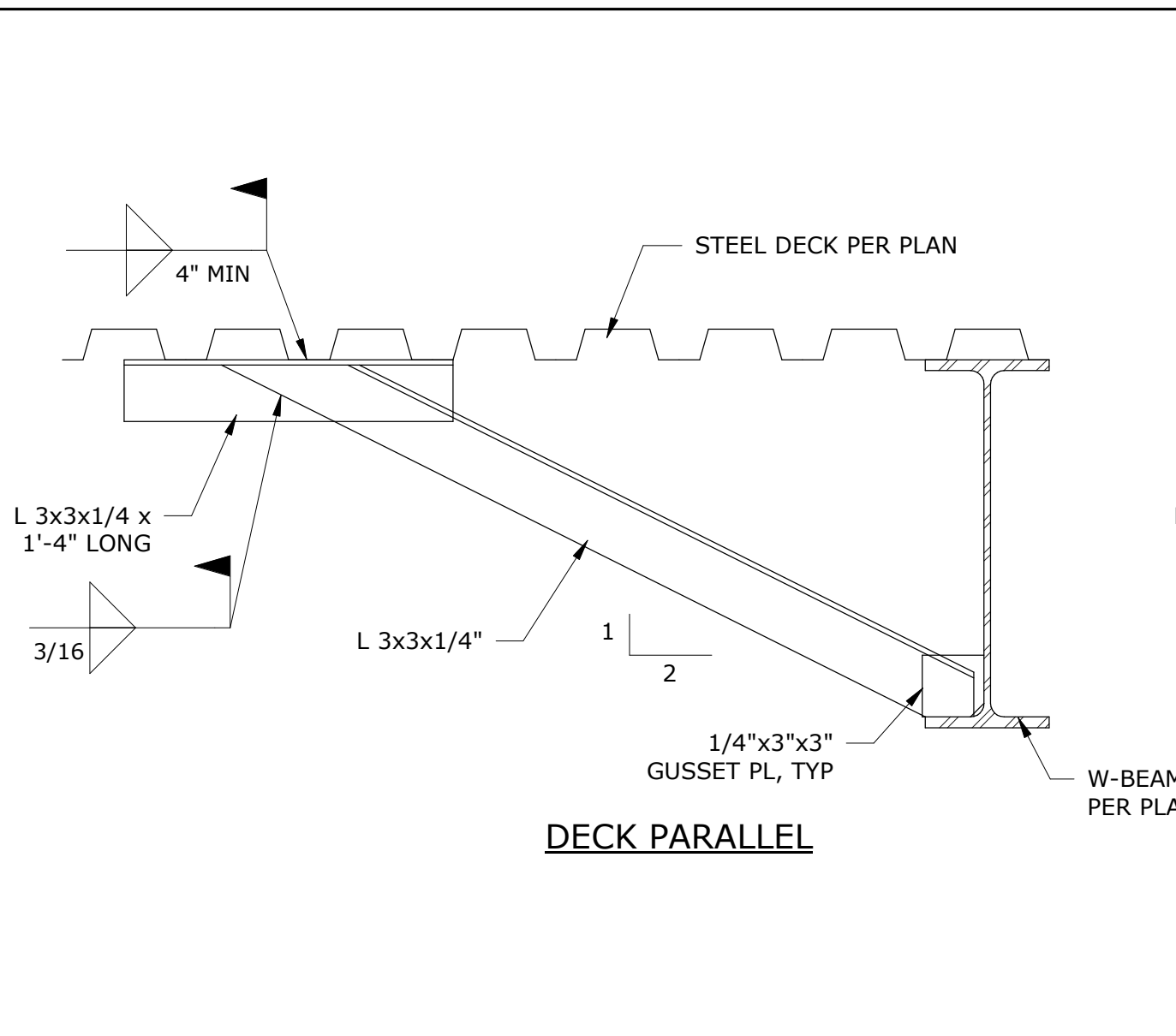
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CHECKED BY:	SWM
DATE:	08/06/2021
PROJECT NUMBER:	20-019
SHEET NUMBER:	<b>S3.0</b>

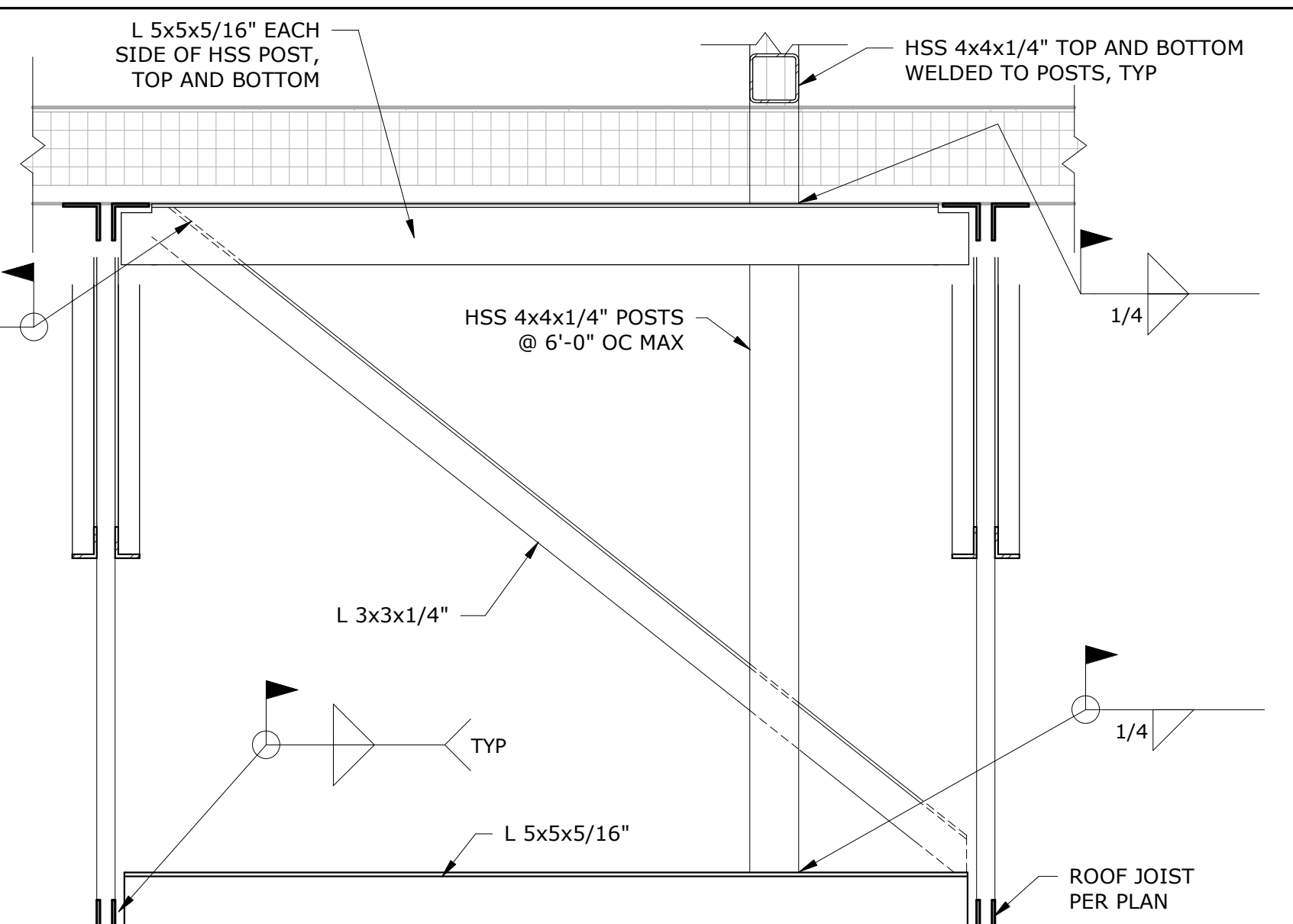
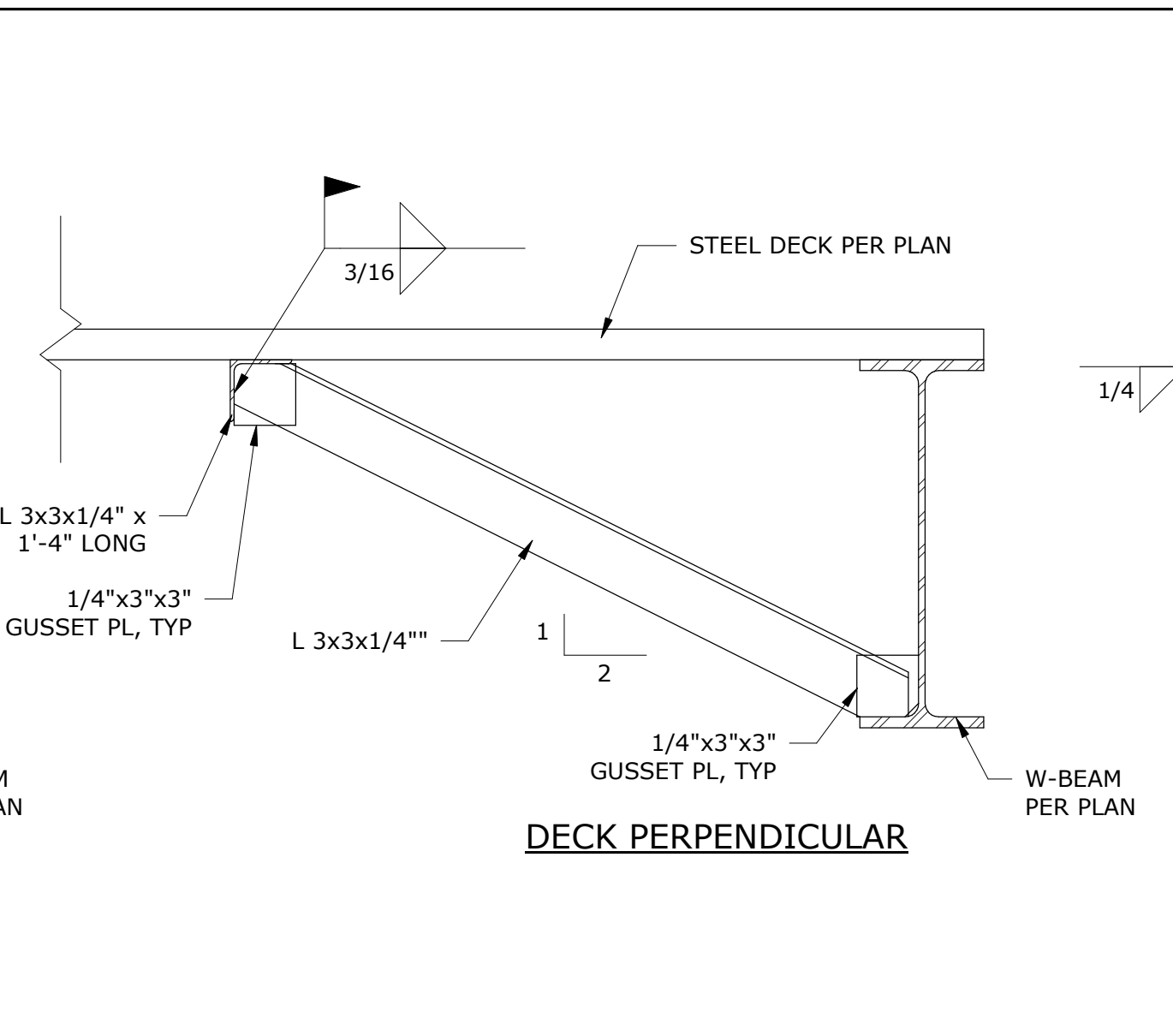




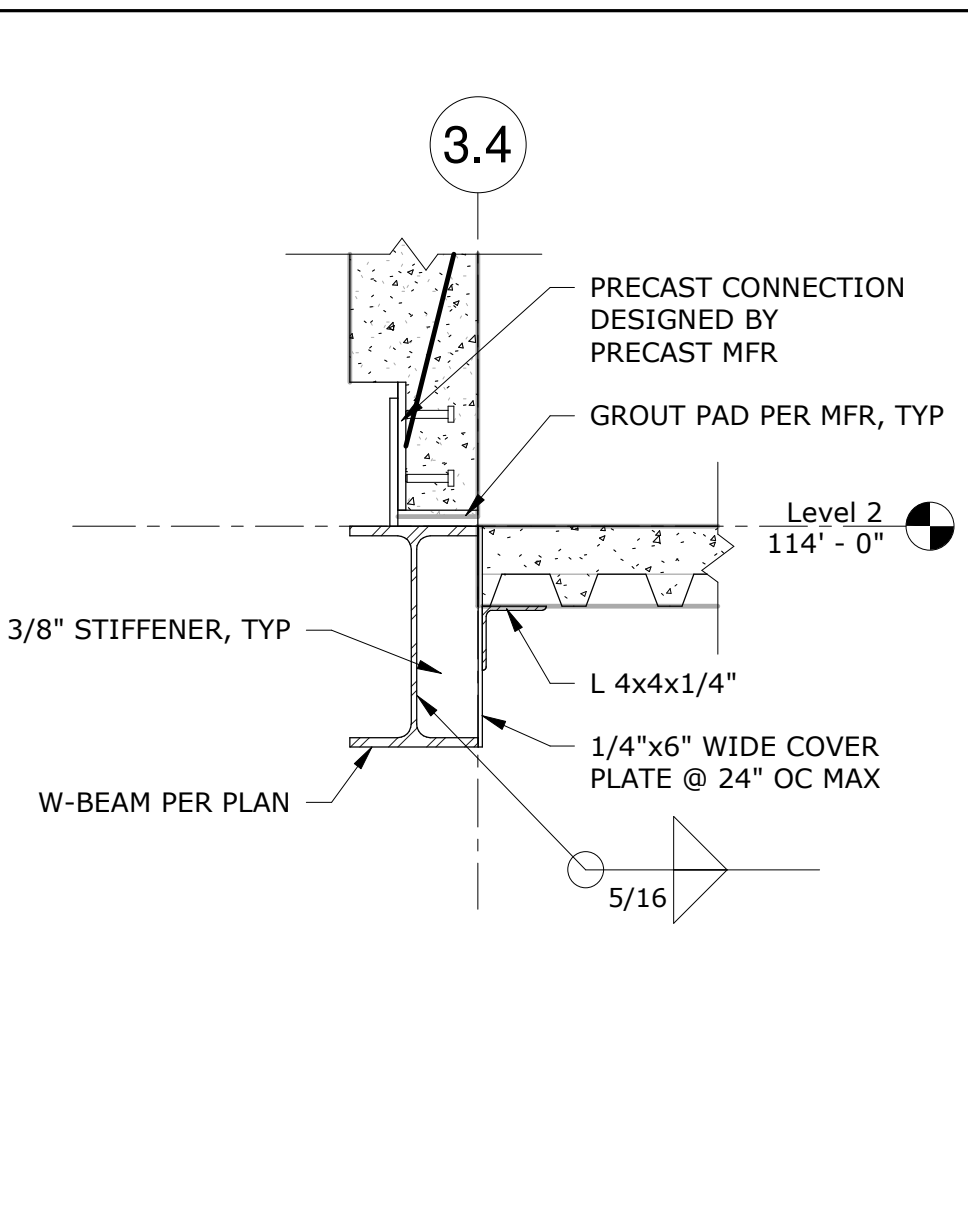




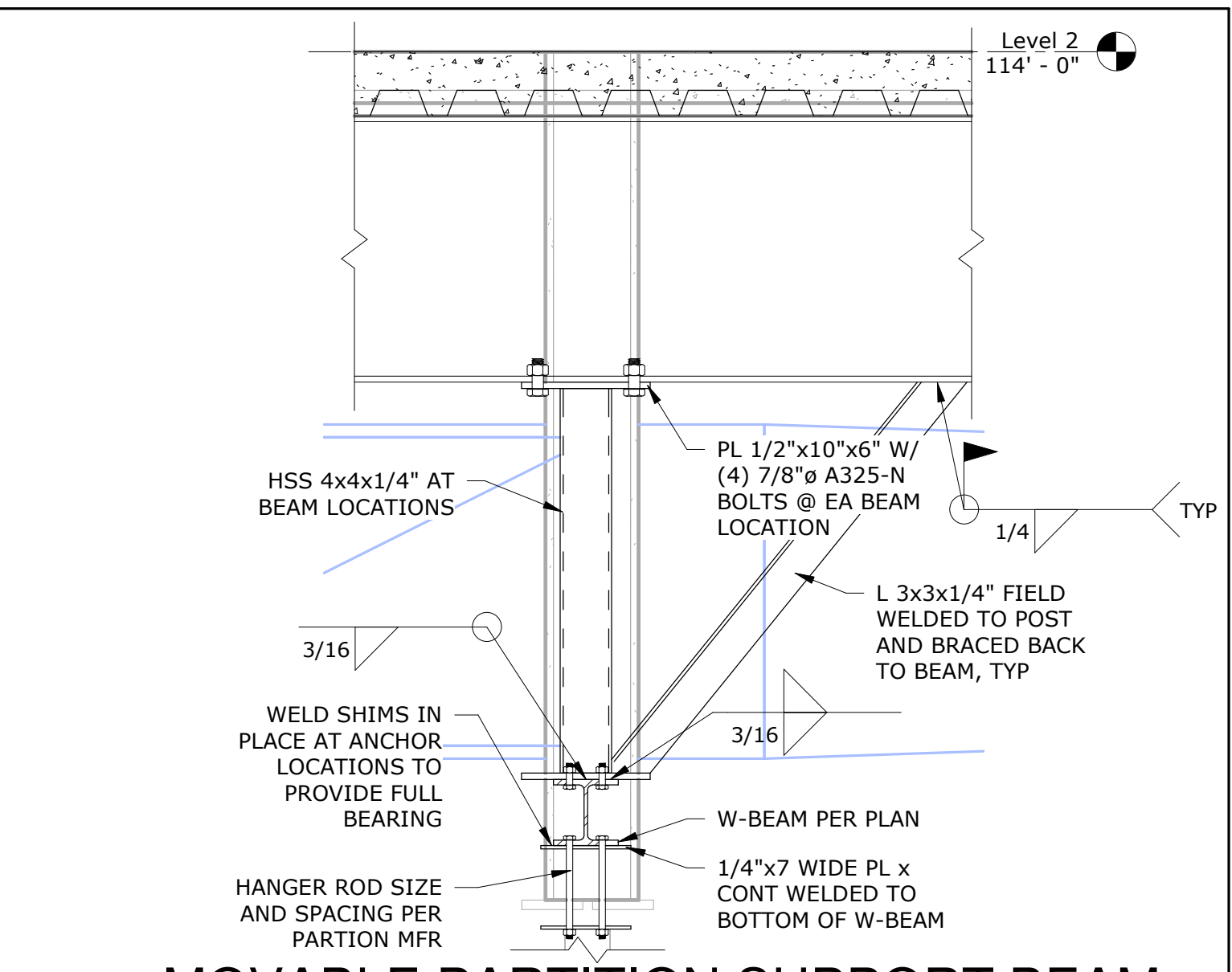
**1** TYPICAL KICKER DETAIL  
1 1/2" = 1'-0"



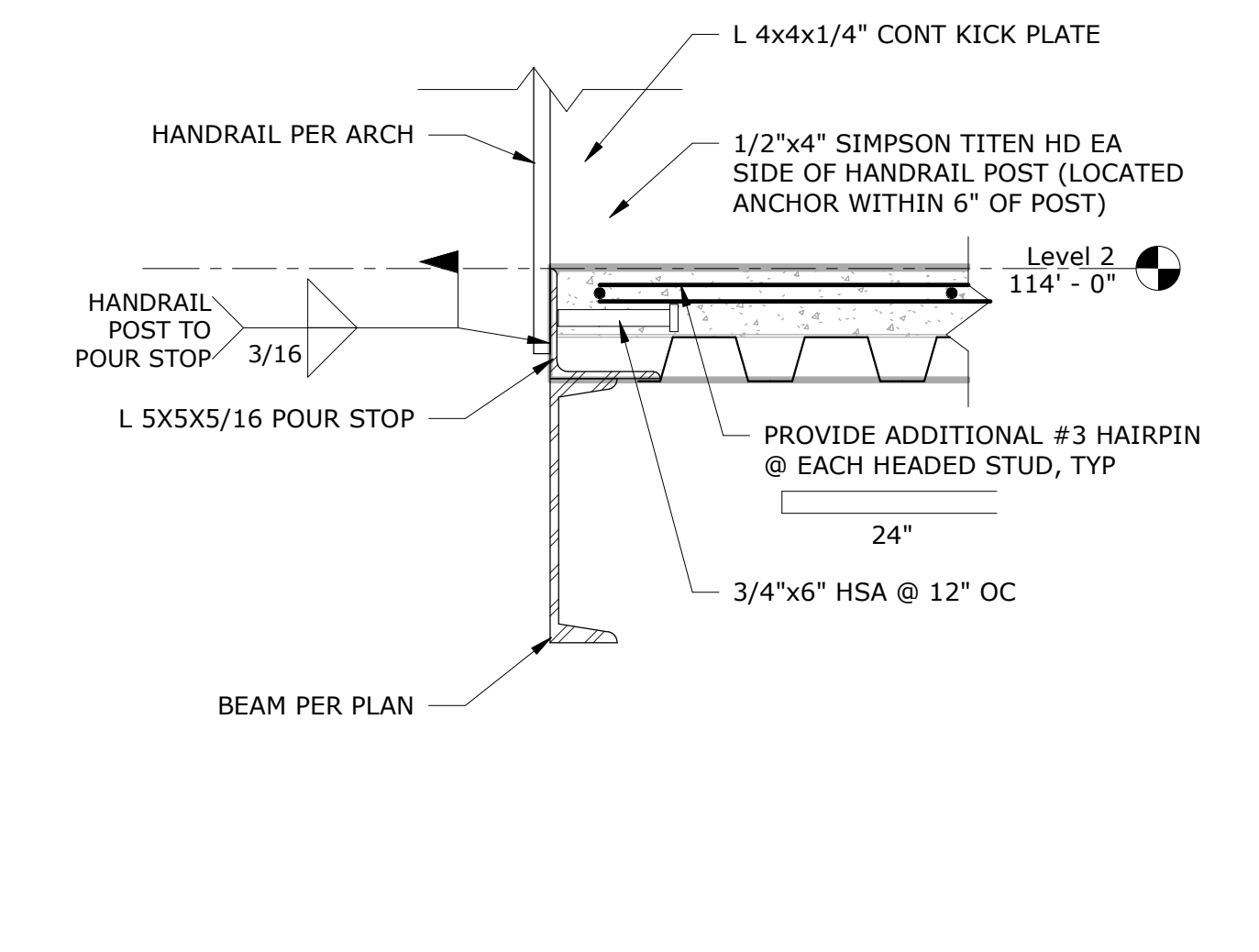
**3** CONNECTION DETAIL  
1" = 1'-0"



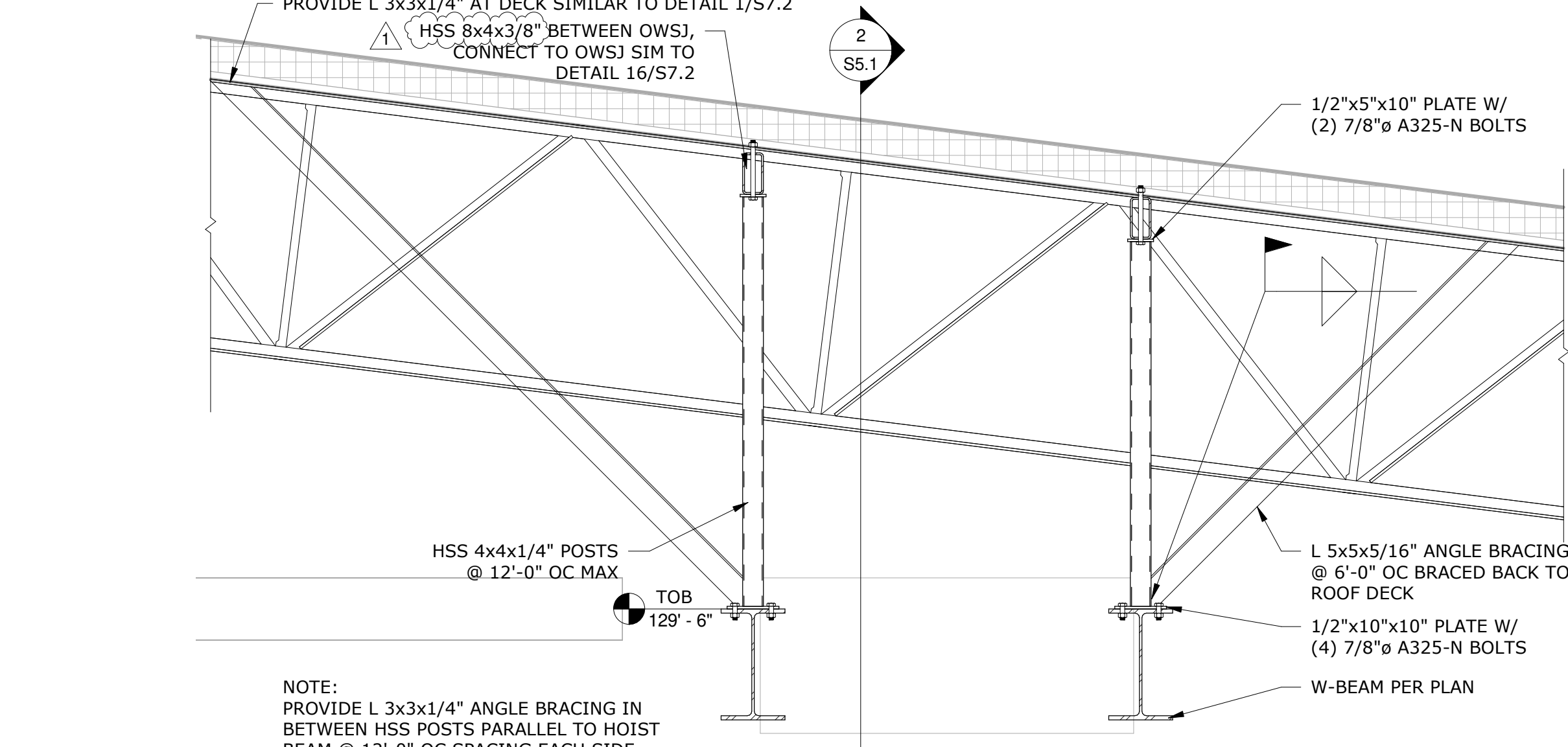
**4** CONNECTION DETAIL  
1" = 1'-0"



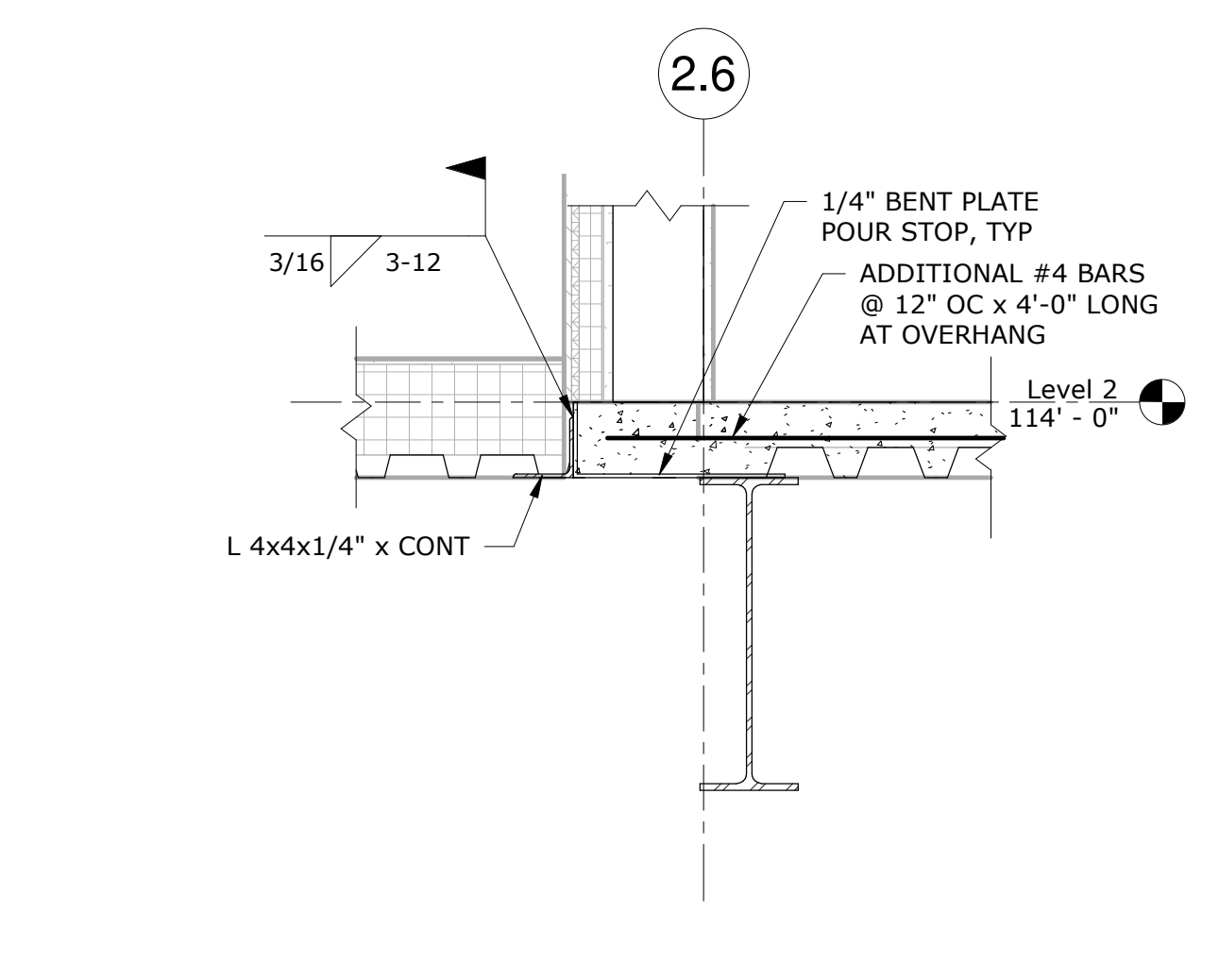
**5** DETAIL  
1" = 1'-0"



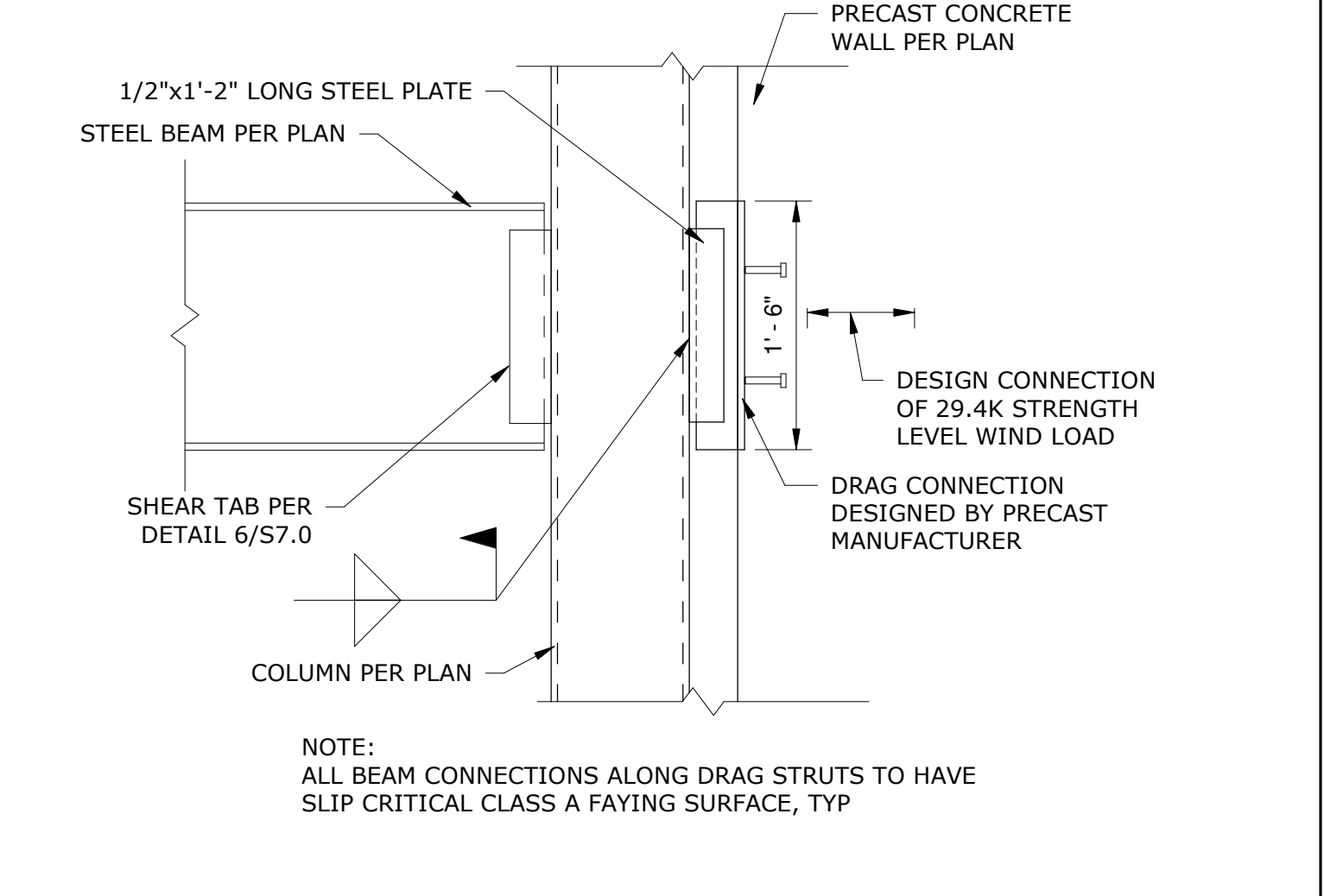
**6** HANDRAIL CONNECTION DETAIL  
1 1/2" = 1'-0"



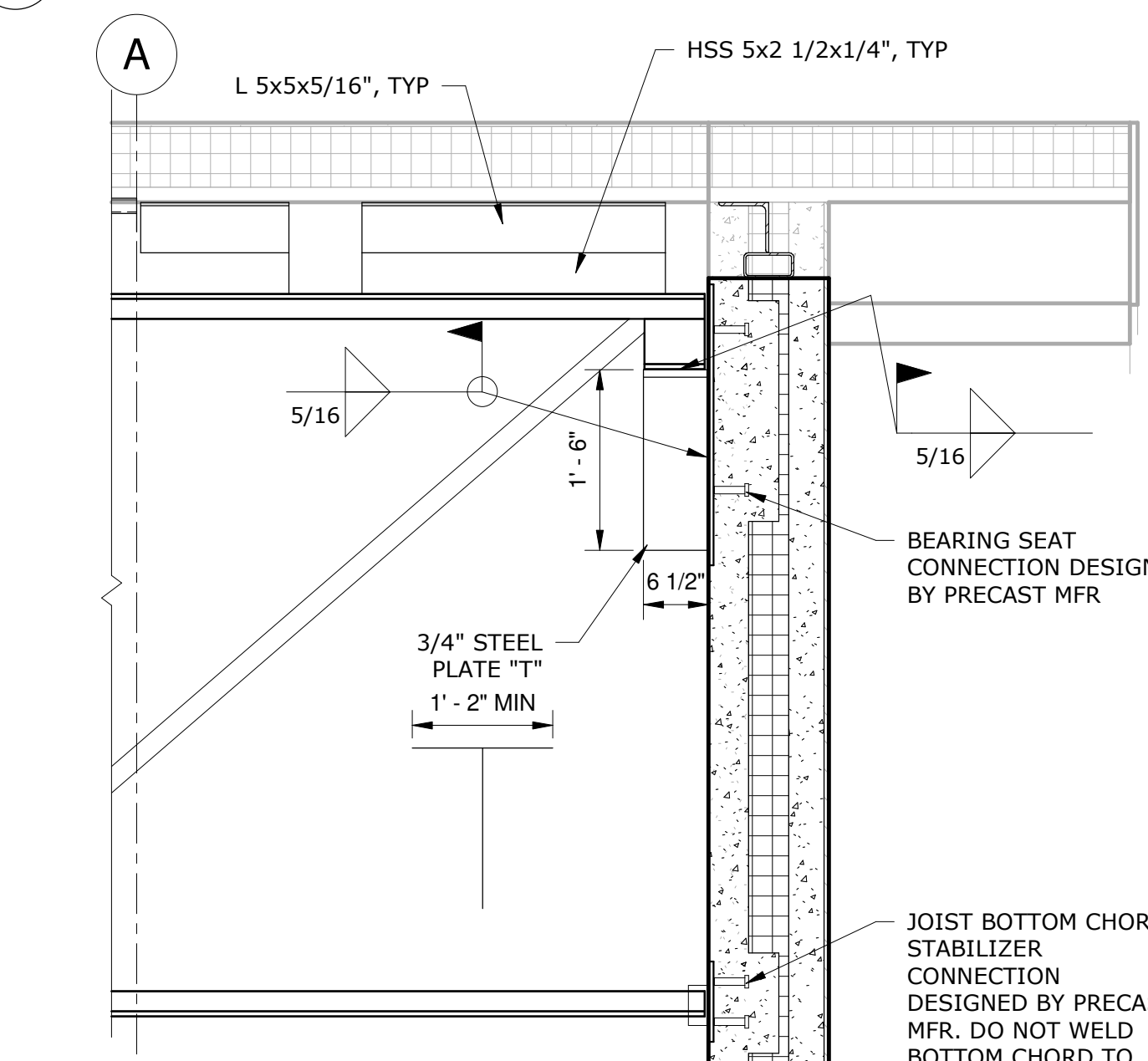
**7** CRANE SUPPORT DETAIL  
1/2" = 1'-0"



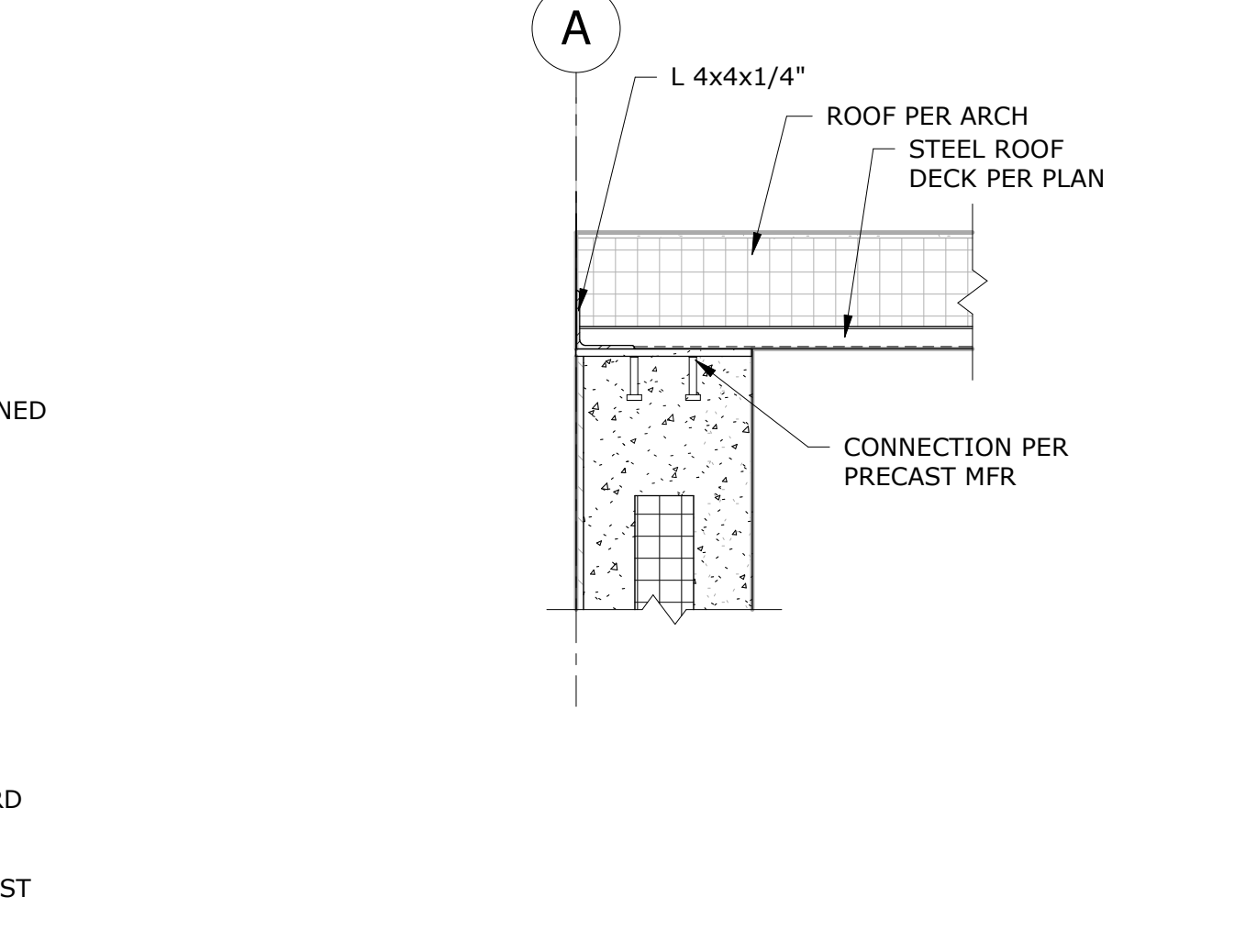
**9** CONNECTION DETAIL  
1" = 1'-0"



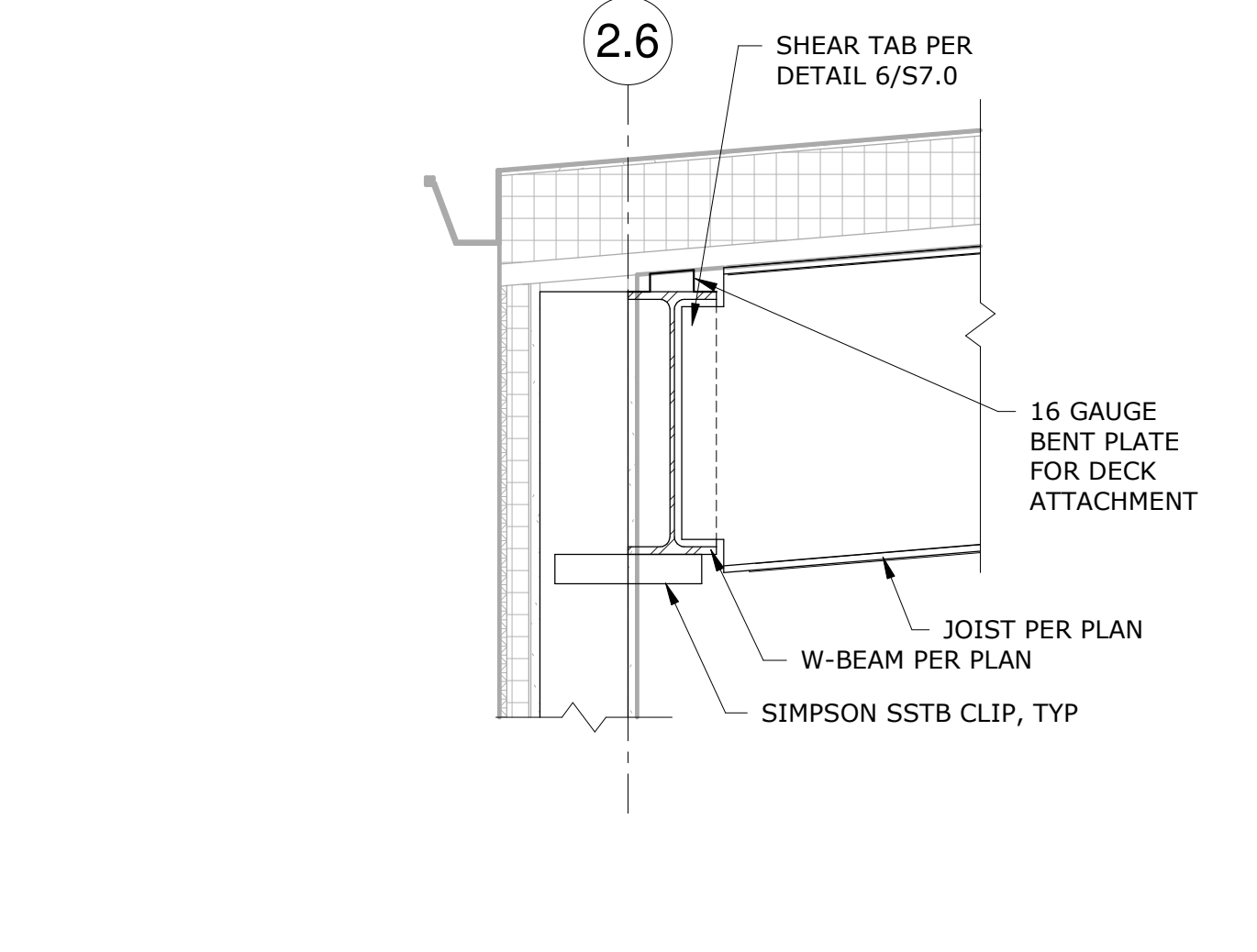
**10** DRAG STRUT CONNECTION DETAIL  
1" = 1'-0"



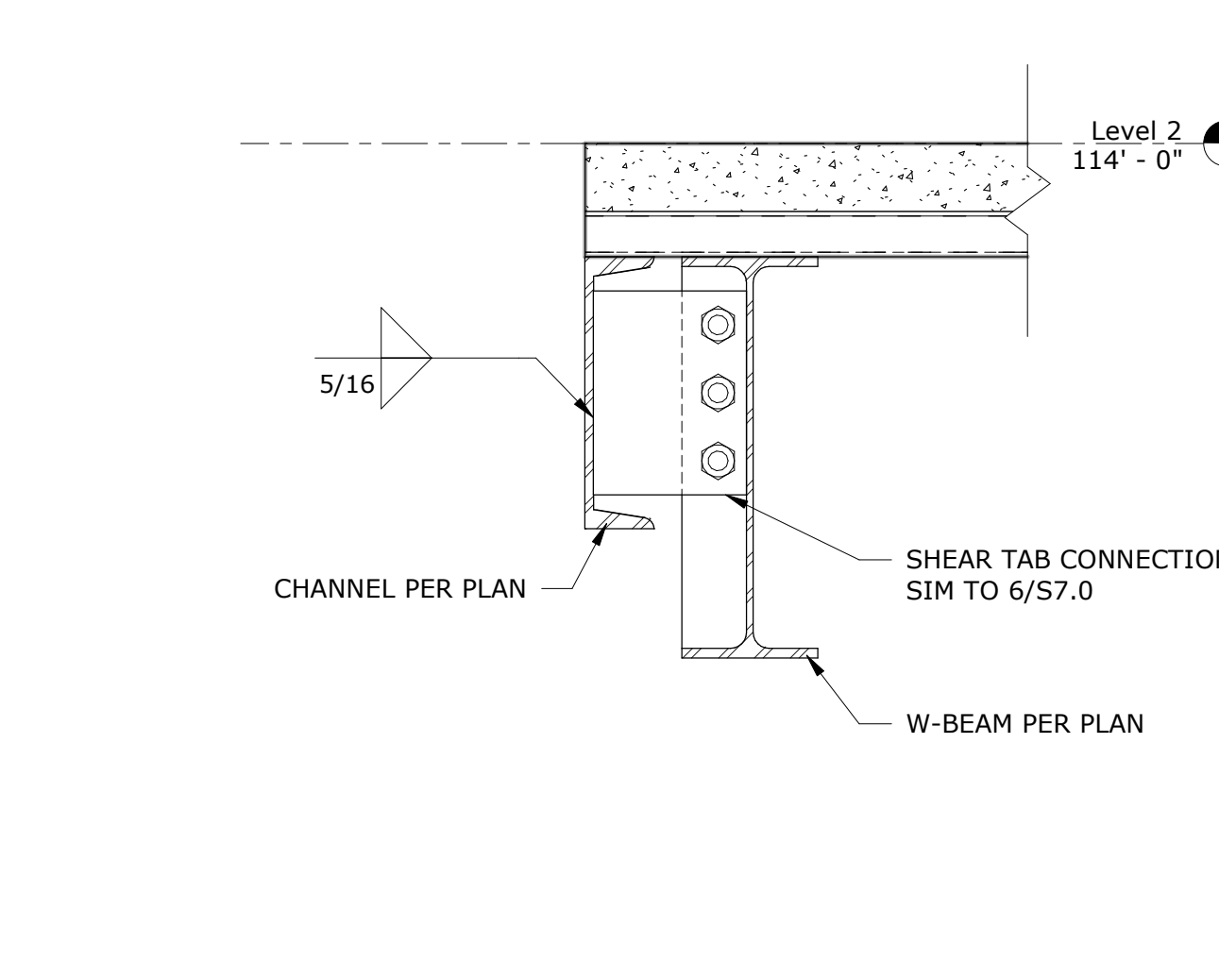
**11** CONNECTION DETAIL  
3/4" = 1'-0"



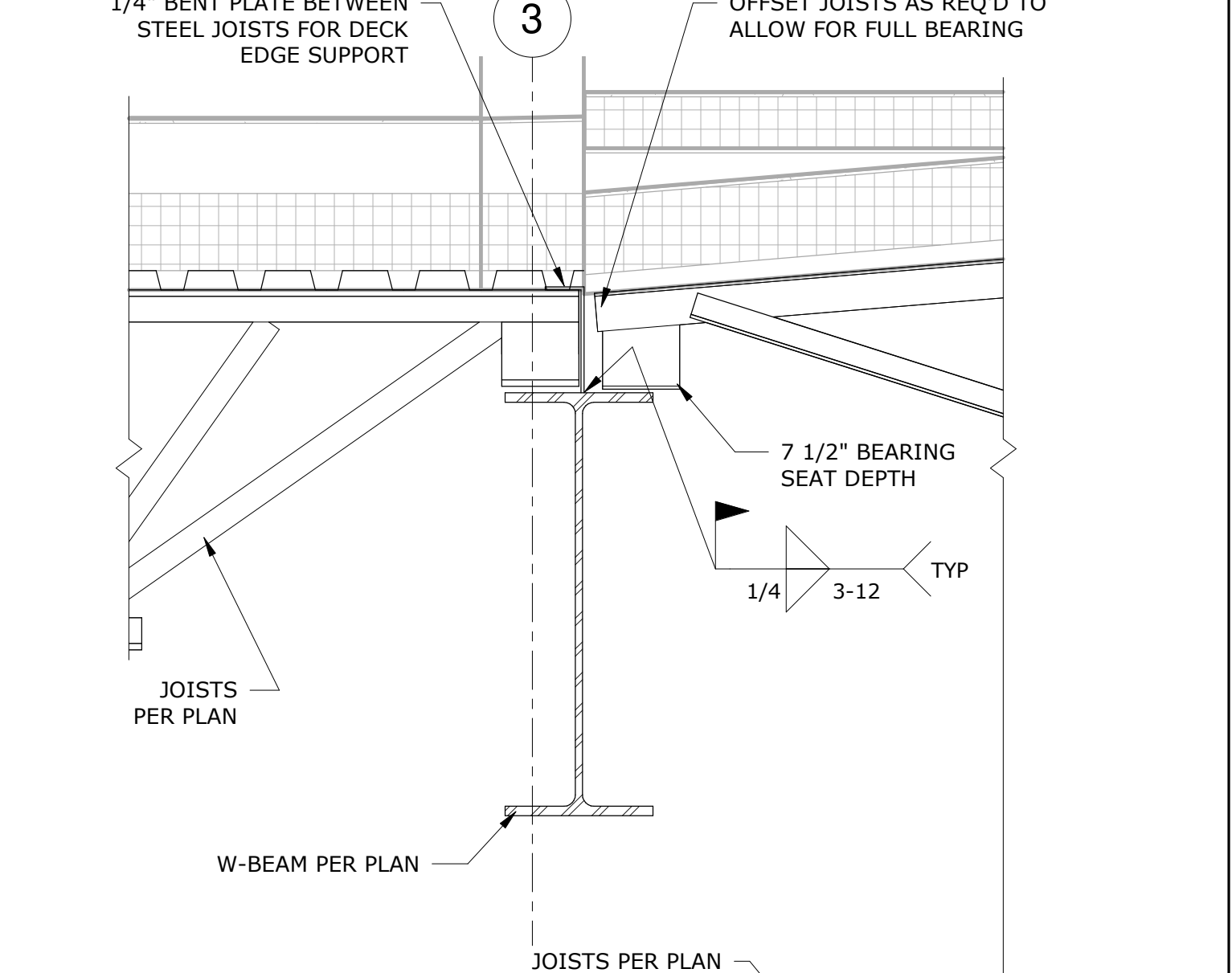
**12** CONNECTION DETAIL  
1" = 1'-0"



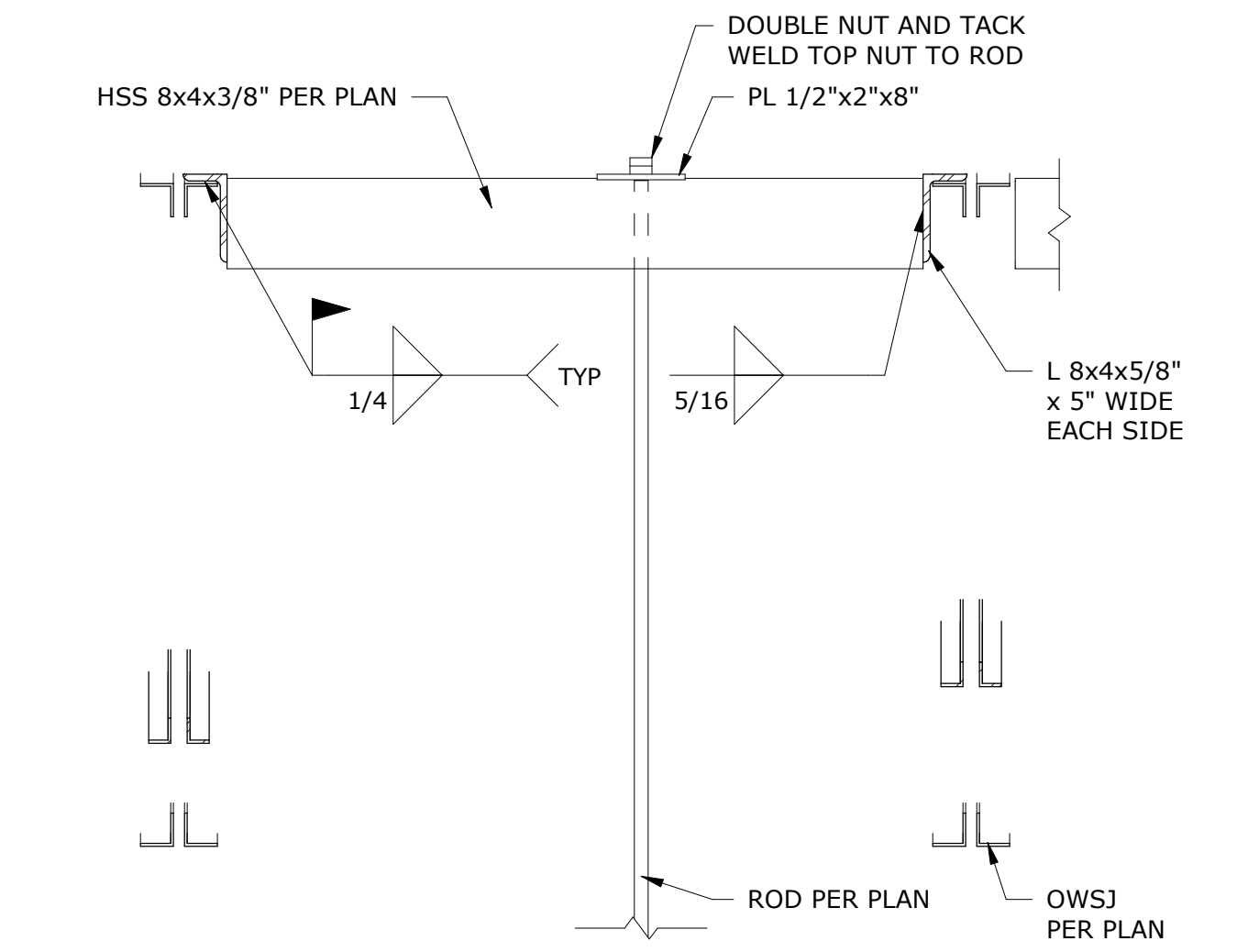
**13** CONNECTION DETAIL  
1" = 1'-0"



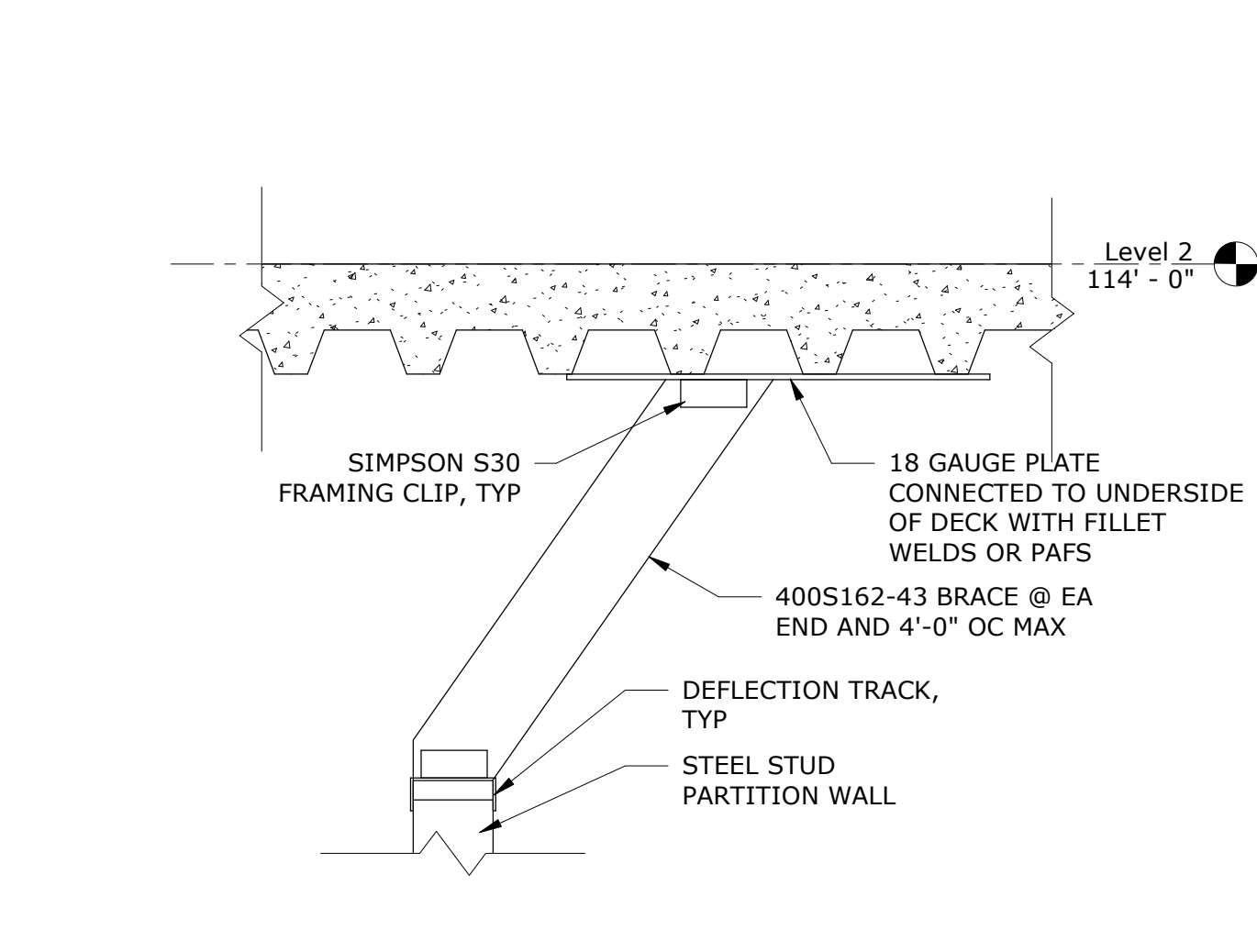
**14** CONNECTION DETAIL  
1 1/2" = 1'-0"



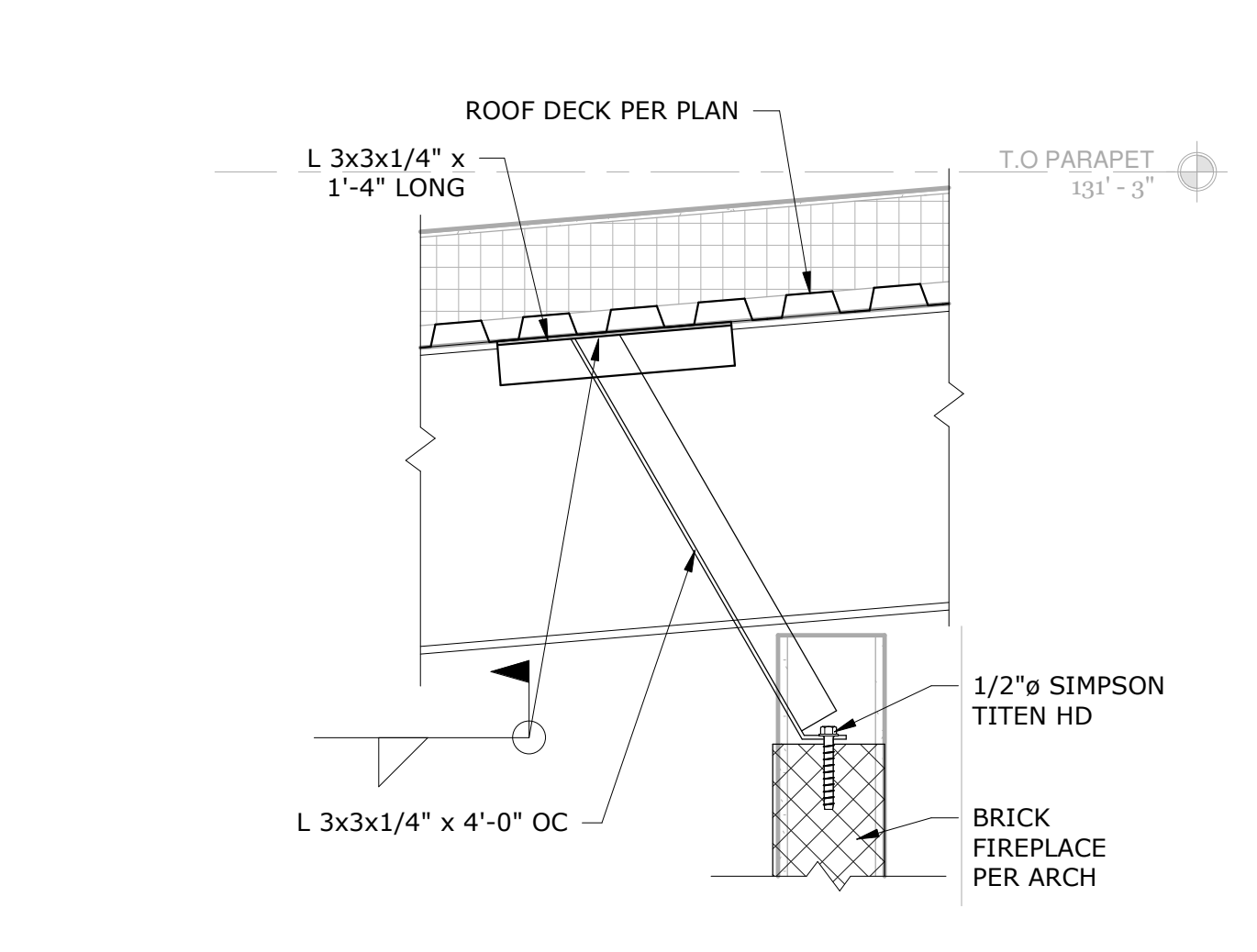
**15** FRAMING DETAIL  
1" = 1'-0"



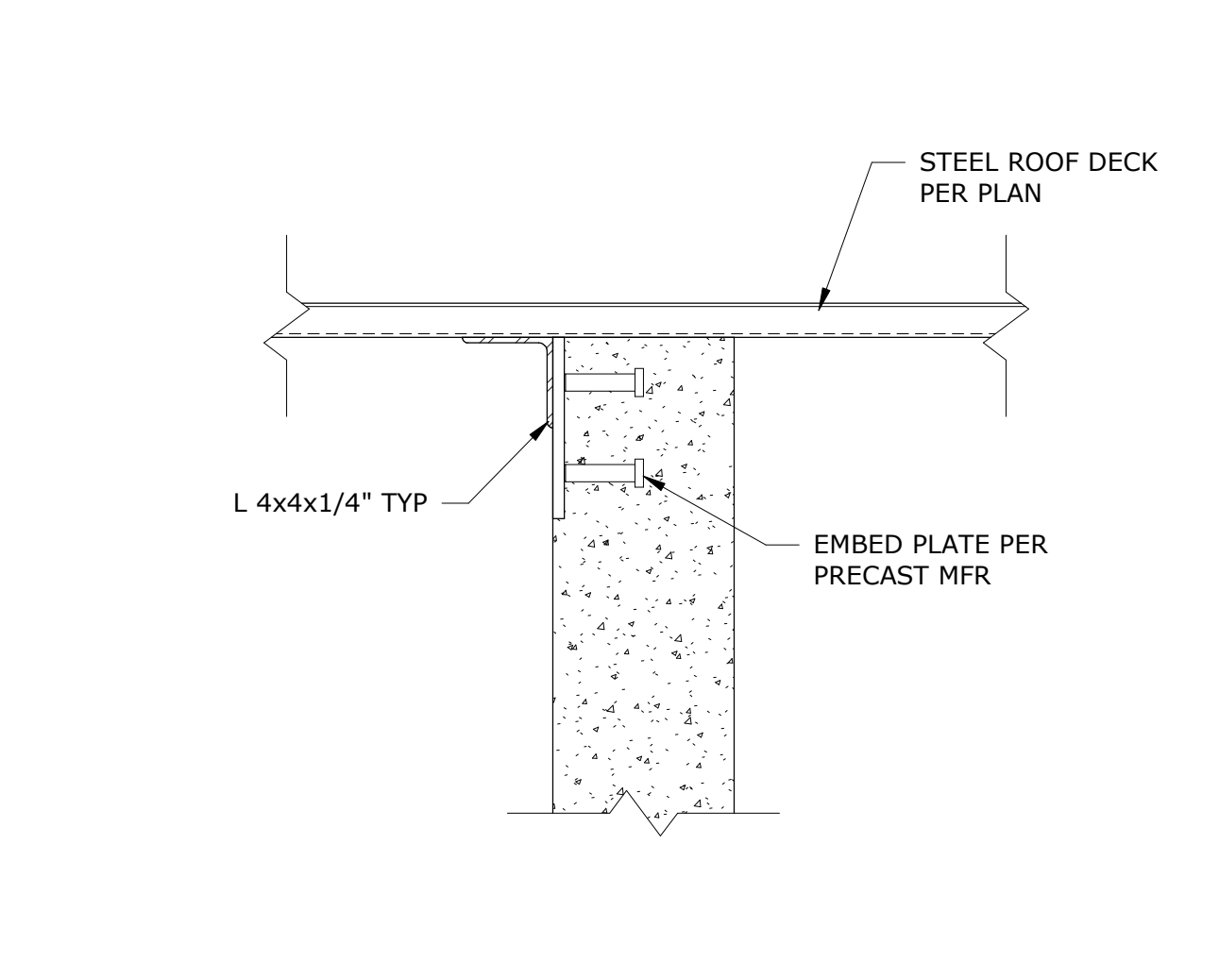
**16** CONNECTION DETAIL  
3/4" = 1'-0"



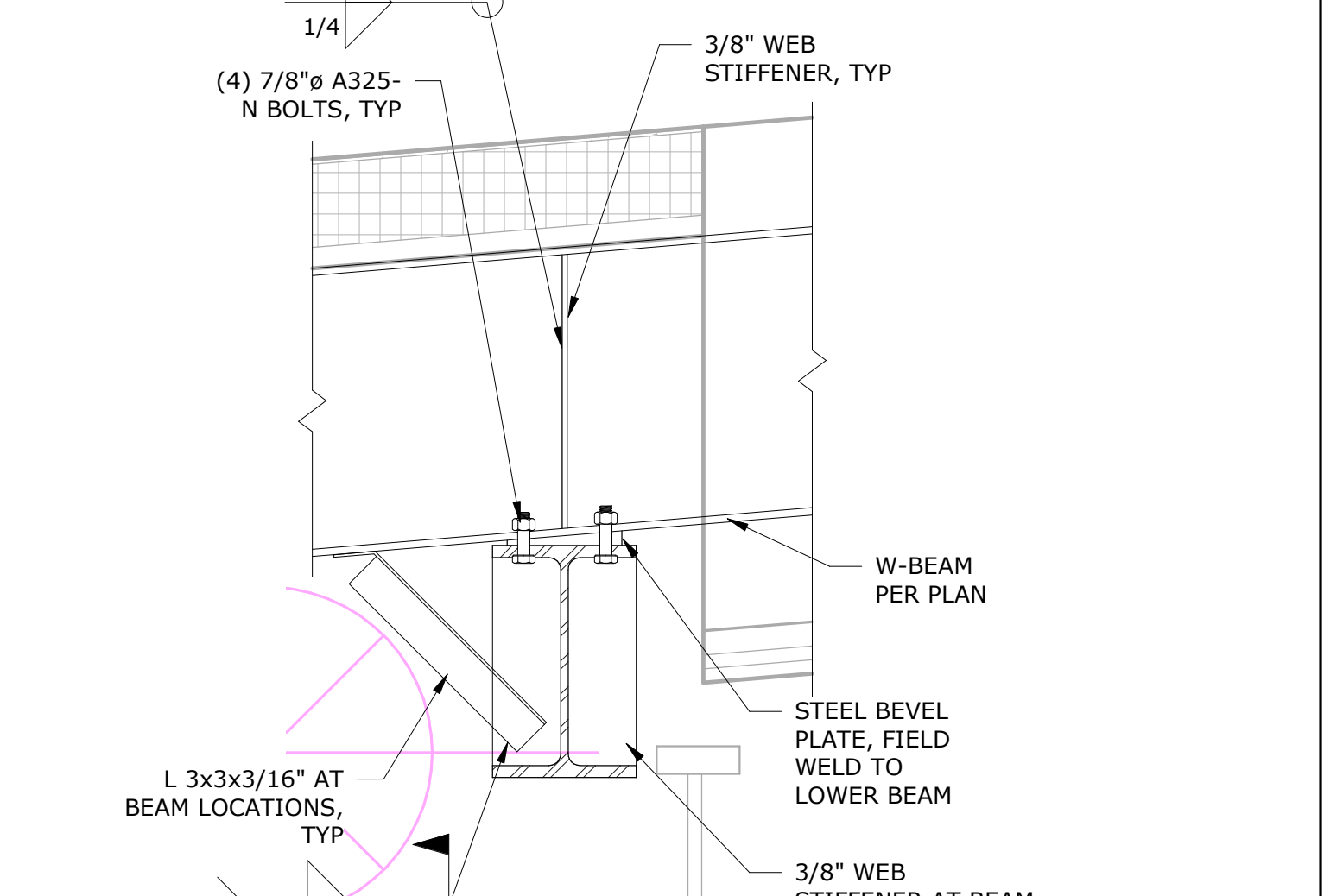
**17** CONNECTION DETAIL  
1 1/2" = 1'-0"



**18** CONNECTION DETAIL  
1" = 1'-0"



**19** CONNECTION DETAIL  
1 1/2" = 1'-0"



**20** CONNECTION DETAIL  
1" = 1'-0"

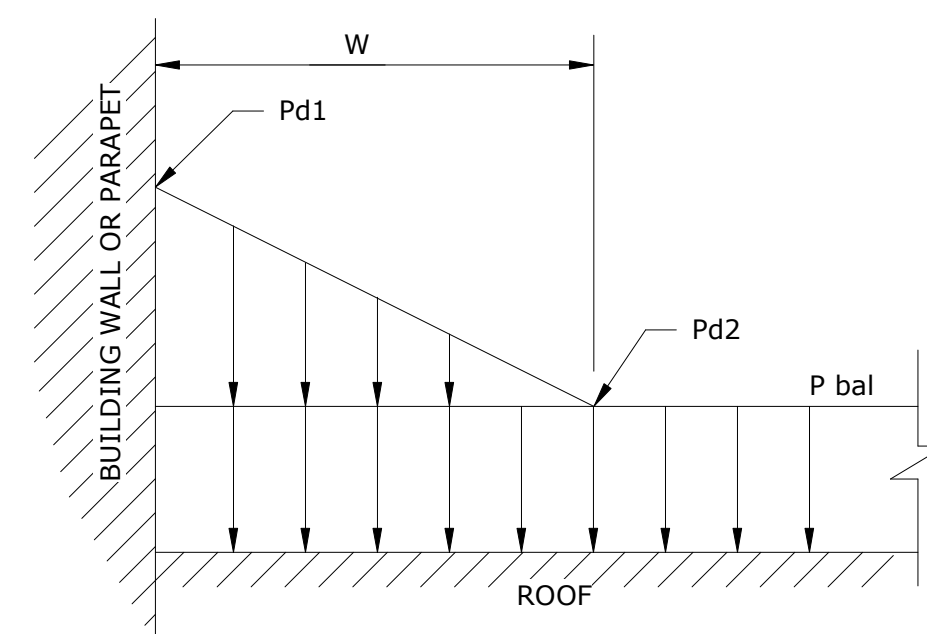
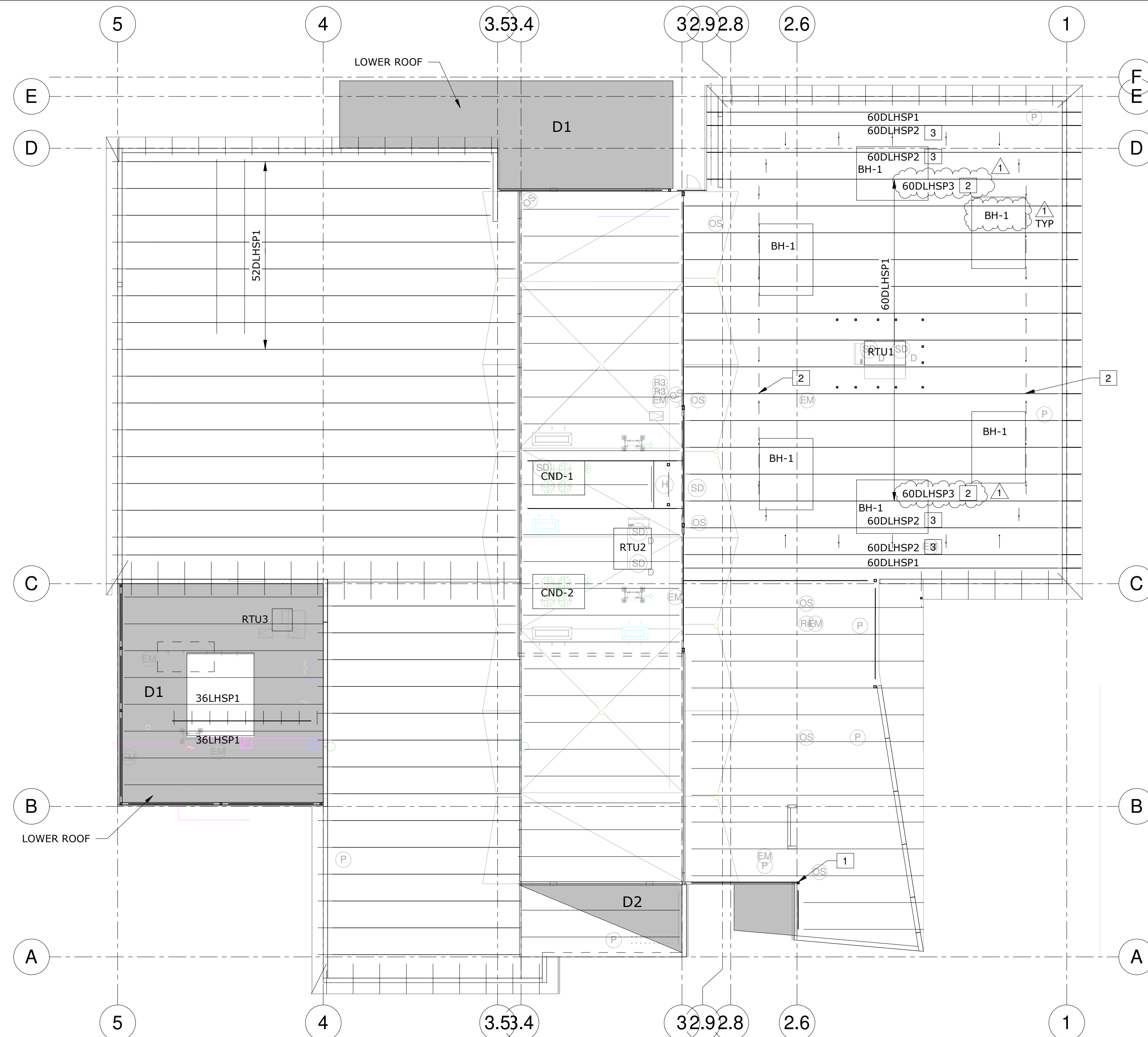
Revision Schedule		
No.	Revision	Date
1	APPROXIMATE	8/20/21

Submittals		
No.	Date	Date
1	100% EDC SUBMITTAL	08-03-21
2	PERMIT SET	08-06-21
3	BID SET	08-23-21

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DESIGNED BY:	RLT
CHECKED BY:	SWM
DATE:	08/06/2021
PROJECT NUMBER:	20-019
SHEET NUMBER:	<b>S7.2</b>





DRIFT	P bal (PSF)	Pd1 (PSF)	Pd2 (PSF)	W
D1	30	105	30	15'-6"
D2	30	115	30	18'-6"

NOTE: SNOW DRIFTING LOADS ARE IN ADDITION TO LOADING INFORMATION PROVIDED ON JOIST CALLOUTS OR SPECIAL JOIST LOADING DIAGRAMS.

4 SNOW LOAD WITH DRIFT DETAIL  
NTS

MECHANICAL EQUIPMENT AND BASKETBALL HOOP WEIGHTS		
VERIFY ALL SIZES, WEIGHTS AND LOCATIONS OF MECHANICAL EQUIPMENT WITH THE MECHANICAL ENGINEER AND ARCHITECT		
MARK	EQUIPMENT WEIGHT	REMARKS
RTU1	3,100 LBS	N/A
RTU2	3,100 LBS	N/A
RTU3	650 LBS	N/A
CND-1	1,600 LBS	N/A
CND-2	1,700 LBS	N/A
BH-1	2,500 LBS	ASSUME A POINT LOAD FROM THE BASKETBALL HOOP AT ANY POINT IN AREA

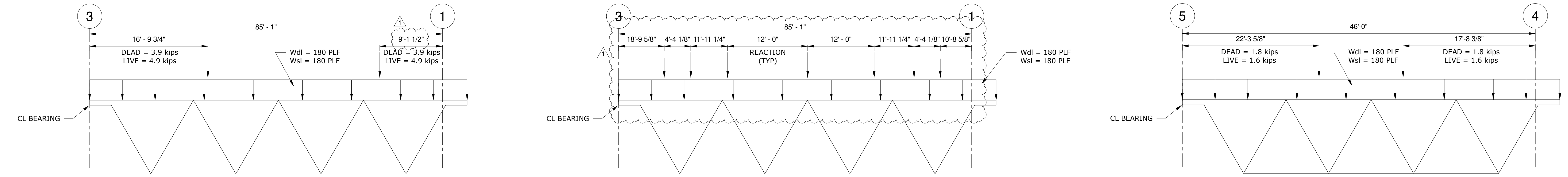
NOTE: JOIST MANUFACTURER TO INCLUDE MECHANICAL UNIT LOADS IN FINAL JOIST DESIGN.

5 MECHANICAL EQUIPMENT WEIGHTS  
NTS

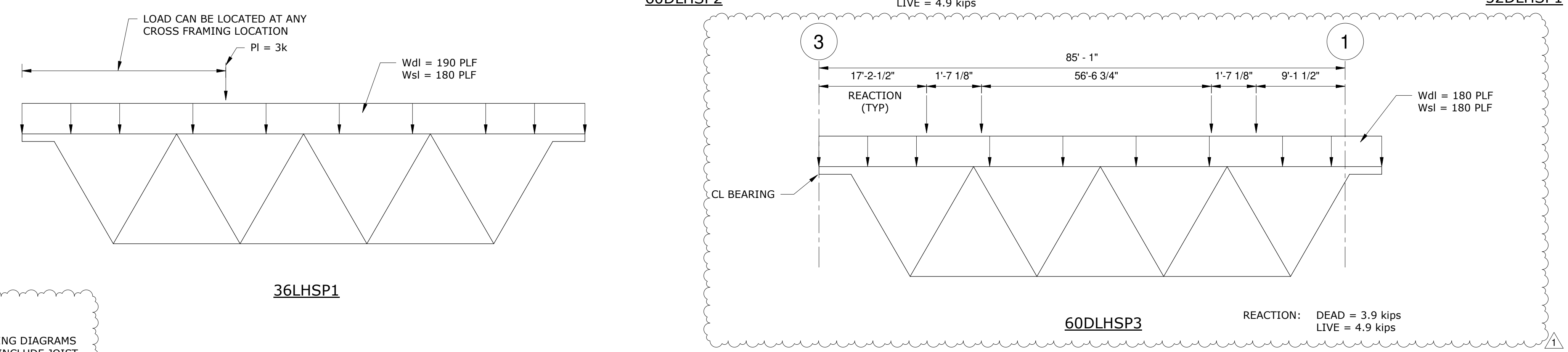
FLAG NOTES

- 100PSF UNIFORM SNOW LOAD DUE TO DRIFTS.
- JOIST MANUFACTURER TO LIMIT DEFLECTION FROM LIVE AND SNOW LOADS AT HANGER LOCATIONS TO 1/2" MAXIMUM.
- JOIST MANUFACTURER TO LIMIT DEFLECTION ALONG 60DLHSP2 FROM LIVE AND SNOW LOADS TO 1/2" MAXIMUM AT ANY POINT ALONG JOIST SPAN. DOUBLE UP JOISTS AT THIS LOCATION IF NECESSARY.

1 ROOF LIVE LOAD DIAGRAM  
1/16" = 1'-0"



2 SPECIAL JOIST DIAGRAM  
NTS



**NOTE**  
1. JOIST SELF WEIGHT IS NOT INCLUDED ON LOADING DIAGRAMS FOR SPECIAL JOISTS. JOIST MANUFACTURER TO INCLUDE JOIST SELF WEIGHT FOR ALL SPECIAL JOIST DESIGNATIONS FOR THE JOIST DESIGN.

Revision Schedule		
No.	Revision	Date
1	APPROVAL SET	08/23/21

Submittals		
No.	Item	Date
1	100% EDC SUBMITTAL	08-01-21
2	PERMIT SET	08-05-21
3	BID SET	08-23-21

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CHECKED BY:	SWM
DATE:	08/06/2021
PROJECT NUMBER:	20-019
SHEET NUMBER:	<b>S8.0</b>



**CITY OF GREAT FALLS INDOOR AQUATIC AND RECREATION FACILITY  
GREAT FALLS, MONTANA**

**SECTION 23 31 14  
NON-METAL DUCTS**

**PART 1 - GENERAL**

1.1 SUMMARY

- A. Section includes non-metal ducts for underground installation.
- B. Related Requirements:
  - 1. Section 22 00 00

1.2 SUBMITTALS

- A. See section 22 00 00 "General Conditions of Mechanical and HVAC" for submittal requirements.
- B. Shop Drawings:
  - 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
  - 2. Burial and supports, including methods for duct burial and internal and external bracing if recommended by the manufacturer.
- C. Manufacturer Installation Certificates:
  - 1. The installing contractor shall submit evidence of completion of installation training by the duct manufacturer.

1.3 QUALITY ASSURANCE

- A. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and System Start-Up."
- B. The installing contractor must be trained and certified by the duct manufacturer to properly install the duct system.

**PART 2 - PRODUCTS**

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. The BlueDuct by AQC Industries.
  - 2. Prior approved equal.

2.2 UNDERGROUND DUCT SYSTEM

- A. Complete duct system (including: plenums, round duct, run-outs, diffuser boots, etc.) must be from one manufacturer and be of the same material, construction and connection method throughout. Field made duct components are NOT acceptable.
- B. Include the complete underground duct system including plenums and diffuser boots.

**CITY OF GREAT FALLS INDOOR AQUATIC AND RECREATION FACILITY  
GREAT FALLS, MONTANA**

- C. Unless otherwise noted, all duct and fittings shall be constructed per SMACNA's Duct Construction Standards (+10 w.g.).
- D. Provide elbows, duct, diffusers, plenum, clamp & gasket, boots, saddle registers, caulk as required by drawings for underground installation.
- E. Ductwork shall be closed cell plastic material that is recyclable, does not emit volatile organic compounds, and conforms to ASTM-D2412. Ductwork shall be resistant to mildew, mold (UL 181B), and radon gas (BSS 7239-88). Ductwork shall not rust or crack under external stress or strain. Ductwork shall have R-10 thermal insulation value without the use of external insulation.
- F. All joints shall be gasket and sealed. Clamps and gaskets shall be used on ductwork without flanges. Clamps shall be polyethylene with stainless steel plates and stainless-steel screws. Gaskets shall comprise of ¼" thick butyl rubber sealant tape that is water and UV resistant and shall not stain. Gaskets shall comply with ASTM-E84 for flame and smoke spread.
- G. Flanged joints and duct branches shall use a co-polymer adhesive caulking sealant that is water and UV resistant. Flanges shall be connected with stainless steel bolts.
- H. Assembled ductwork shall be able to maintain +/- 10" static pressure with no leakage.
- I. Duct system shall be installed by an AQC Industries' trained installer.
- J. Fiberglass style ductwork or PVC coated galvanized steel ductwork shall NOT be acceptable.
- K. Duct system performance shall exceed SMACNA's Leakage Class 3 requirements at the system design static pressure.
- L. Duct system shall carry a 10-year Limited Warranty.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. Installing contractor must be trained and certified by the duct manufacturer.
- B. Follow manufacturer's installation instructions.
- C. Excavate a trench evenly as per The Blue Duct Installation Manual. No bedding is required except for cases of bedrock or clay where sand or light aggregate may be used.
- D. Backfill material must consist of pea gravel or dry silica sand.
- E. The sealant and gasket material provided by or approved by the duct and fitting manufacturer must be used as directed.
- F. The use of non-approved sealant or gasket will void warranty.

**3.2 TESTING**

**CITY OF GREAT FALLS INDOOR AQUATIC AND RECREATION FACILITY  
GREAT FALLS, MONTANA**

- A. Complete underground duct system shall be tested for leakage after final assembly.
- B. Follow SMACNA air duct leakage test standard.
- C. Allow 24 hours for The BlueDuct sealant to cure after final assembly before testing the duct system. Additional curing time may be required in high ambient conditions.

**3.3 CLEANING**

- A. Remove dust and debris from ductwork prior to occupancy.

**END OF SECTION**



### VAV BOX SCHEDULE

ADDITIONAL DETAILS:  
 1. BOXES ARE PRESSURE INDEPENDENT (REFER TO SPECIFICATIONS & CONTROL DRAWINGS FOR CONTROL TYPES).  
 2. SEE DDC POINTS AND SEQUENCES FOR CONTROL STRATEGY.  
 3. MAXIMUM INLET VELOCITY = 2100 FPM.  
 4. TRANSITION TO BOX INLET SIZE A MINIMUM OF 4X THE INLET DIAMETER AND A MAXIMUM OF 5X THE INLET DIAMETER UPSTREAM OF THE VAV BOX.

5. MINIMUM INLET STATIC PRESSURE REQUIRED TO OPERATE BOX SHALL NOT EXCEED THE VALUE LISTED IN SCHEDULE.  
 6. AREA ADJACENT TO VAV BOX SHALL REMAIN CLEAR OF OBSTRUCTIONS TO ALLOW FOR INSTALLATION, BALANCING, AND MAINTENANCE. FIELD COORDINATE WITH ALL OTHER TRADES TO CONFIRM CONFIGURATION (I.E. LH OR RH) PRIOR TO ORDERING EQUIPMENT.

7. VAV BOXES SHALL BE SELECTED TO ENSURE PROPER OPERATION AND CONTROL THROUGHOUT LISTED AIRFLOW RANGE. THE MAXIMUM ALLOWED DISCHARGE NOISE CRITERIA (NC) MUST BE BELOW NC = 23 THROUGHOUT LISTED AIRFLOW RANGE.

CONTROLS:  
 1. VAV BOX CONTROLLERS AND ACTUATORS TO BE PROVIDED AND INSTALLED BY TEMPERATURE CONTROLS CONTRACTOR.  
 2. PROVIDE PROTECTIVE SHROUD FOR CONTROLS WHEN ORDERING VAV BOXES.

MARK	MANUF.	MODEL	SIZE (IN)				AIRSIDE DATA				WETSIDE DATA										
			INLET DIAMETER	DISCHARGE WIDTH	DISCHARGE HEIGHT	COOLING (CFM)	HEATING (CFM)	MINIMUM VENTILATION (CFM)	MIN OPERATING PD (IN WC)	CAPACITY (MBH)	EAT (°F)	LAT (°F)	APD (IN WC)	FLOW RATE (GPM)	EWT (°F)	LWT (°F)	WPD (FT)	ROWS	CONFIG.	WORKING FLUID	PIPE DIAMETER (IN)
VAV-2A	PRICE	SDV	12	16	15	1190	640	470	0.34	20.7	55	90	0.33	1.25	160	123.1	0.44	2	RH	33% PG	3/4"ø
VAV-2B	PRICE	SDV	8	12	10	940	550	280	0.69	16.3	55	85	0.68	1.5	160	137.6	0.44	2	RH	33% PG	3/4"ø
VAV-2C	PRICE	SDV	16	24	18	3470	1610	1040	1.14	55.3	55	90	1.13	2.25	160	109.5	0.37	3	RH	33% PG	3/4"ø
VAV-2D	PRICE	SDV	8	12	10	520	300	300	0.26	8.9	55	85	0.25	0.50	160	122.3	0.05	2	RH	33% PG	1/2"ø
VAV-2E	PRICE	SDV	6	12	8	400	260	180	0.36	7.7	55	85	0.22	0.50	160	128.4	0.04	2	RH	33% PG	1/2"ø
VAV-2F	PRICE	SDV	6	12	8	260	200	100	0.17	7.4	55	90	0.11	0.50	160	130.7	0.04	2	RH	33% PG	1/2"ø
VAV-2G	PRICE	SDV	6	12	8	350	260	100	0.29	9	55	90	0.18	0.75	160	135.1	0.1	2	RH	33% PG	1/2"ø
VAV-2H	PRICE	SDV	6	12	8	260	200	80	0.17	7	55	90	0.11	0.50	160	130.3	0.04	2	RH	33% PG	1/2"ø
VAV-2I	PRICE	SDV	6	12	8	480	340	140	0.51	11.8	55	90	0.30	1.25	160	141.2	0.26	2	RH	33% PG	3/4"ø
VAV-2J	PRICE	SDV	9	14	12.5	700	530	210	0.24	18	55	90	0.23	1.25	160	129.5	0.39	2	RH	33% PG	3/4"ø
VAV-2K	PRICE	SDV	10	14	12.5	1000	680	300	0.42	23.4	55	90	0.41	2.0	160	136.1	0.96	2	RH	33% PG	3/4"ø
VAV-2L	PRICE	SDV	6	12	8	330	260	100	0.26	7.7	55	85	0.16	0.50	160	128.4	0.04	2	RH	33% PG	1/2"ø
VAV-2M	PRICE	SDV	6	12	8	370	260	110	0.31	9	55	90	0.19	0.75	160	135.1	0.1	2	RH	33% PG	1/2"ø
VAV-2N	PRICE	SDV	6	12	8	320	320	100	0.24	11.5	55	90	0.15	1.25	160	141.7	0.26	2	RH	33% PG	3/4"ø

### BOILER SCHEDULE

ACCESSORIES:  
 1. ZERO CLEARANCE INSTALLATION OPTION.  
 2. PROVIDE UNIT RATED FOR HIGH ALTITUDE OPERATION.

REMARKS:  
 1. ALL UNITS TO BE SEALED COMBUSTION. CONTRACTOR TO PROVIDE PIPING FOR COMBUSTION AIR AND VENT TO EXTERIOR. SEE PLANS FOR ROUTING.  
 2. FURNISH GAS REGULATOR AS REQUIRED - VENT TO EXTERIOR.  
 3. INSTALL VENT AIR AND COMBUSTION AIR PER MANUFACTURER'S SPECIFICATIONS.  
 4. PROVIDE 4" HOUSEKEEPING PAD 6" LARGER THAN EACH BOILER.  
 5. PROVIDE CONDENSATE PIPING TO NEAREST FLOOR SINK.  
 6. PROVIDE CONDENSATE NEUTRALIZER KIT.

SAFETIES:  
 ALL UNITS MUST CONFORM TO ASME STANDARD CSD-1 AND THE FOLLOWING:  
 1. PROVIDE TWO HIGH TEMPERATURE LIMIT CONTROLS - ONE WITH MANUAL RESET  
 2. PROVIDE HIGH AND LOW GAS PRESSURE CONTROLS WITH MANUAL RESET  
 3. PROVIDE LOW WATER FUEL CUTOFF SWITCH WITH MANUAL RESET.  
 4. IF LOW WATER FUEL CUTOFF SWITCH IS NOT POSSIBLE (FORCED CIRCULATION) PROVIDE FLOW SWITCH WITH MANUAL RESET....

CONTROLS:  
 1. UNIT TO BE CONTROLLED BY MANUFACTURER'S PACKAGED CONTROLLER. BAS TO PROVIDE HYDRONIC TEMPERATURE SETPOINT TO MANUFACTURER'S CONTROL BASED ON RESET SEQUENCE.

ELECTRICAL DATA:  
 SEE MEP COORDINATION SCHEDULE FOR STARTER/DISCONNECT AND ALL OTHER ELEC. DATA.

MARK	MANUF.	MODEL	TYPE	MIN INPUT (MBH)	MAX INPUT (MBH)	MAX OUTPUT (MBH)	TURNDOWN	AHRI EFFICIENCY	FLOW RATE (GPM)	WPD (FT)	EWT / LWT (°F)	COMB. AIR (IN)	VENT (IN)	FUEL TYPE	WORKING FLUID	OPERATING WEIGHT (LBS)
B-1	LOCHINVAR	FBN1001	FIRE-TUBE	50	1000	962	20:1	96.2%	91	1.9	138° / 160°	6"	6"	NG	33% PG	1838
B-2	LOCHINVAR	FBN1001	FIRE-TUBE	50	1000	962	20:1	96.2%	91	1.9	138° / 160°	6"	6"	NG	33% PG	1838

### PUMP SCHEDULE

REMARKS:  
 1. PROVIDE 4" CONCRETE HOUSEKEEPING PAD UNDER EACH MAIN CIRCULATOR PUMP.  
 2. PROVIDE MAIN CIRCULATOR PUMP COMPLETE WITH INTEGRAL VFD, CONTROLS, AND ALL ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION.

CONTROLS:  
 1. PROVIDE WHOLE BUILDING AUTOMATION SYSTEM (BAS) AS OUTLINED IN THE POINTS AND SEQUENCE OF OPERATION. SEE SPEC. SECTION 230000 "INSTRUMENTATION AND CONTROL FOR HVAC" FOR MORE INFORMATION.

ELECTRICAL DATA:  
 SEE MEP COORDINATION SCHEDULE FOR STARTER/DISCONNECT AND ALL OTHER ELEC. DATA.

MARK	MANUF.	MODEL	DESCRIPTION	WORKING FLUID	FLOW RATE (GPM)	PRESSURE DROP (FT)	MOTOR (HP)	RATED MOTOR SPEED (RPM)	EFFICIENCY	VARIABLE SPEED	FLOW RATE AT 25 HZ (GPM)
BP-1	BY BOILER MANUF.	BY BOILER MANUF.	BOILER PUMP	33% PG	91	4.0	--	--	--	YES	--
BP-2	BY BOILER MANUF.	BY BOILER MANUF.	BOILER PUMP	33% PG	91	4.0	--	--	--	YES	--
HWP-1	GRUNDFOS	TPE3 65-150-S	MAIN CIRCULATOR	33% PG	130	30	1.5	3862	69.9%	YES	35
HWP-2	GRUNDFOS	TPE3 65-150-S	MAIN CIRCULATOR	33% PG	130	30	1.5	3862	69.9%	YES	35

### CHEMICAL BYPASS FEEDER SCHEDULE

REMARKS:  
 1. PROVIDE WITH SHUT-OFF VALVE AT THE OUTLET AND SHUT-OFF AND DRAIN VALVES AT THE INLET. SEE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR MORE INFORMATION.

MARK	MANUF.	MODEL	MOUNTING	PRESSURE VESSEL VOLUME (GAL.)	MAX PRESSURE (PSI)	CONNECTION SIZE (IN)	PHYSICAL DATA
							HEIGHT (IN) DIAMETER (IN)
BF-1	AXIOM	CBF-2	WALL	2 GAL	285 PSI	3/4"ø	34" 6.25"

### CABINET HEATER (HOT WATER) SCHEDULE

REMARKS FOR CH-1:  
 1. WALL MOUNTED ARRANGEMENT 00  
 2. 3-ROW COIL  
 3. INSTALL ALL VALVING WITHIN CABINET.

ELECTRICAL DATA:  
 SEE MEP COORDINATION SCHEDULE FOR STARTER/DISCONNECT AND ALL OTHER ELEC. DATA.

MARK	MANUF.	MODEL	SUPPLY FAN			HEATING COIL				UNIT PHYSICAL DATA					
			AIRFLOW (CFM)	HP	EAT (°F)	VALVE	WORKING FLUID	CAPACITY (BTU/HR)	FLOW RATE (GPM)	WPD (FT)	EWT / LWT (°F)	WIDTH (IN)	DEPTH (IN)	HEIGHT (IN)	WEIGHT (LBS)
CH-1	MODINE	WCC 004	470	0.05	70°	2-WAY	33% PG	33,800	3.25	1.1	160.0 / 140.0	48-3/4"	9-3/4"	25"	115

### UNIT HEATER (HOT WATER) SCHEDULE

ACCESSORIES:  
 1. ALL STANDARD ACCESSORIES  
 2. FOUR-POINT CEILING SUSPENSION KIT  
 3. TOTALLY ENCLOSED FAN MOTOR

REMARKS:  
 1. MOUNT BOTTOM OF UNIT AT 13'-6" ABOVE FINISHED FLOOR LANDING.

CONTROLS:  
 1. WALL MOUNTED THERMOSTAT

ELECTRICAL DATA:  
 SEE MEP COORDINATION SCHEDULE FOR STARTER/DISCONNECT AND ALL OTHER ELEC. DATA.

MARK	MANUF.	MODEL	SUPPLY FAN			HEATING COIL				UNIT PHYSICAL DATA				
			MAX AIRFLOW (CFM)	HP	VALVE	WORKING FLUID	CAPACITY (BTU/HR)	FLOW RATE (GPM)	WPD (FT)	EWT / LWT (°F)	WIDTH (IN)	DEPTH (IN)	HEIGHT (IN)	WEIGHT (LBS)
UH-1	REZNOR	WS1824	400	0.04	2-WAY	33% PG	13,148	1.92	0.11	160.0 / 140.0	16-7/16"	18-5/16"	16-7/16"	37
UH-2	REZNOR	WS1824	400	0.04	2-WAY	33% PG	13,148	1.92	0.11	160.0 / 140.0	16-7/16"	18-5/16"	16-7/16"	37
UH-3	REZNOR	WS1824	400	0.04	2-WAY	33% PG	13,148	1.92	0.11	160.0 / 140.0	16-7/16"	18-5/16"	16-7/16"	37
UH-4	REZNOR	WS1824	400	0.04	2-WAY	33% PG	13,148	1.92	0.11	160.0 / 140.0	16-7/16"	18-5/16"	16-7/16"	37

### PENTHOUSE SCHEDULE

REMARKS:  
 1. 5" DEEP DRAINABLE LOUVER WITH BIRDSCREEN.  
 2. ARCHITECTURAL FIELD REPRESENTATIVE TO SELECT FINAL COLOR.  
 3. PROVIDE ROOF CURB SIZED FOR THE PENTHOUSE BOX AT THE SCHEDULED HEIGHT.  
 4. PROVIDE WATER CATCH ALL AROUND PENTHOUSE.

MARK	MANUF.	MODEL	PENTHOUSE			LOUVER									
			INSIDE CURB DIMENSIONS (CFM)	CURB HEIGHT (IN)	TOTAL AIRFLOW (CFM)	QTY	MODEL	WIDTH (IN)	HEIGHT (IN)	TYPE	MATERIAL	FUNCTION	AIRFLOW (CFM)	PRESSURE DROP (IN WC)	AIR VELOCITY (FPM)
PH-1A	RUSKIN	PHB	60" X 24"	24"	13200	2	ELF6375DX	60"	36"	STATIONARY	ALUMINUM	INTAKE	6600	0.10	793
PH-1B	RUSKIN	PHB	96" X 24"	24"	13200	1	ELF6375DX	96"	36"	STATIONARY	ALUMINUM	EXHAUST	13200	0.13	978
PH-2A	RUSKIN	PHB	60" X 24"	24"	13200	2	ELF6375DX	60"	36"	STATIONARY	ALUMINUM	INTAKE	6600	0.10	793
PH-2B	RUSKIN	PHB	96" X 24"	24"	13200	1	ELF6375DX	96"	36"	STATIONARY	ALUMINUM	EXHAUST	13200	0.13	978

### DUCTLESS MINI-SPLIT SYSTEM SCHEDULE

ACCESSORIES:  
 1. ALL STANDARD ACCESSORIES  
 2. FILTER KIT  
 3. ULTRA LOW AMBIENT KIT, COOLING OPERATING LIMIT -40°F TO 115°F

CONTROLS:  
 1. FACTORY PROVIDED CONTROLS - NO INTERCONNECTION TO THE DDC SYSTEM.  
 2. T.C.C. SHALL INDEPENDENTLY MONITOR THE SPACE TEMPERATURE. SEE POINTS/SEQUENCES FOR MORE INFORMATION.

ELECTRICAL DATA:  
 SEE MEP COORDINATION SCHEDULE FOR STARTER/DISCONNECT AND ALL OTHER ELEC. DATA.

INDOOR COOLING UNIT					OUTDOOR UNIT						
MARK	MANUF.	MODEL	TYPE	WEIGHT (LBS)	MARK	MANUF.	MODEL	TYPE	NOMINAL COOLING CAPACITY (MBH)	SEER	WEIGHT (LBS)
MS-1A	mitsubishi	TPKA0A018	HIGH-WALL	29	MS-1B	mitsubishi	TRUYA018	COOLING ONLY	18,000	18.5	99
MS-2A	mitsubishi	TPKA0A018	HIGH-WALL	29	MS-1B	mitsubishi	TRUYA018	COOLING ONLY	18,000	18.5	99
MS-3A	mitsubishi	TPKA0A018	HIGH-WALL	29	MS-1B	mitsubishi	TRUYA018	COOLING ONLY	18,000	18.5	99

### HYDRAULIC SEPARATOR SCHEDULE

REMARKS:  
 1. ASME RATED UNIT WITH AIR VENT AND DRAIN VALVE.  
 2. FACTORY PROVIDED INSULATION JACKET.

MARK	MANUF.	MODEL	SERVING	TYPE	FLOW RATE (GPM)	WORKING FLUID	WPD (FT)	CONNECTION (IN)	DIAMETER / HEIGHT (IN)
HS-1	CALEFFI	NA549102A	MAIN LOOP	AIR/DIRT	130	33% PG	0.4	4"	18" / 48.25"

### AUTOMATIC GLYCOL FEEDER SCHEDULE

REMARKS:  
 1. LOW LEVEL ALARM PANEL WITH REMOTE MONITORING, DRY CONTACTS AND SELECTABLE ADJUSTABLE ALARM.  
 2. CONNECT ALARM INTO BAS  
 3. LOW LEVEL PUMP SHUTOFF AND ALARM PRE-WIRED.

ELECTRICAL DATA:  
 SEE MEP COORDINATION SCHEDULE FOR STARTER/DISCONNECT AND ALL OTHER ELEC. DATA.

MARK	MANUF.	MODEL	TOTAL SYSTEM VOLUME	TANK VOLUME	WORKING FLUID	PRESSURE SETTING (PSI)
GF-1	AXIOM	SF100	650	55 GAL	33% PG	15 PSI

### EXPANSION TANK SCHEDULE

REMARKS:  
 1. THE LISTED SYSTEM FILL PRESSURE AND TOTAL SYSTEM VOLUME ARE ESTIMATES. IT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO FIELD VERIFY THE REQUIRED SYSTEM PRESSURE IN ORDER TO APPROPRIATELY CHARGE THE EXPANSION TANK.  
 2. PROVIDE SEISMIC BRACING AND SECURE EXPANSION TANK TO HOUSEKEEPING PAD PER SEISMIC CODE.  
 3. ASME RATED FULL ACCEPTANCE EXPANSION TANK WITH SCHRADER VALVE AND DRAIN CONNECTION.

MARK	MANUF.	MODEL	SERVES	SYSTEM PRESSURE (PSI)	SYSTEM VOLUME (GAL)	ACCEPTANCE VOLUME (GAL)	TOTAL VOLUME (GAL)	PHYSICAL DATA
								HEIGHT (IN) DIAMETER (IN)
ET-1	AMTROL	300-L	MAIN LOOP	15	650	106	106	52" 24"

### FIRE DAMPER SCHEDULE

REMARKS:  
 1. PROVIDE DUCT MOUNTED ACCESS DOOR ON EITHER SIDE OF ALL FIRE DAMPERS.  
 2. UL CLASSIFIED.

3. FAIL CLOSE  
 4. PROVIDE SLEEVE AS NECESSARY.

MARK	QTY	MANUF.	MODEL	TYPE	SIZE	MATERIAL	FIRE RATING (UL 655)	LEAKAGE CLASS	CLOSURE STYLE	SHAPE	STYLE
FD-1	3	RUSKIN	IBD23	FIRE	DIA + 2"	304 SS	3 HOUR	CLASS II	STATIC	ROUND TRANSITION	WR
FD-2	3	RUSKIN	IBD23	FIRE	DUCT SIZE	304 SS	3 HOUR	CLASS II	STATIC	RECTANG.	B

### FABRIC DUCT SCHEDULE

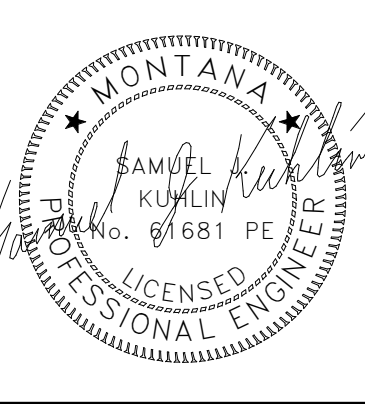
REMARKS:  
 1. ALL ALUMINUM COMPONENTS  
 2. ARCHITECT TO SELECT COLOR  
 3. FABRIC RATED FOR POOL ROOM APPLICATION  
 4. "SKELECORE" HANGING SYSTEM  
 5. ANTIMICROBIAL TREATMENT

6. VENT SIZE CORRELATES TO CFM/FT AT AN AVERAGE PRESSURE OF 0.5" W.C.  
 7. PROVIDE FABRIC DUCT ELBOWS WHERE INDICATED ON THE FLOOR PLANS AND AIR FLOW LIMITING DEVICES AT ALL ZIPPERED DUCT SECTIONS.

MARK	MANUF.	TYPE	LENGTH (FT)	DIAMETER (IN)	AIRFLOW (CFM)	ORIFICE ORIENTATION	ISOTHERMAL THROW @ 50 FPM (FT)
F-1A	DUCT SOX	VERONA	77'-2"	36"ø	5600	SIZE 25 VENT @ 4.00 SIZE 25 VENT @ 8.00	38'-6" 38'-6"
F-1B	DUCT SOX	VERONA	81'-4"	36"ø	5900	SIZE 25 VENT @ 4.00 SIZE 25 VENT @ 8.00	38'-0" 38'-0"
F-1C	DUCT SOX	VERONA	69'-0"	36"ø	5000	SIZE 25 VENT @ 4.00 SIZE 25 VENT @ 8.00	38'-0" 38'-0"
F-1D	DUCT SOX	VERONA	6'-6"	36"ø	475	SIZE 37 VENT @ 3.30 SIZE 16 VENT @ 4.30	49'-0" 27'-6"
F-1E	DUCT SOX	VERONA	1'-0"	36"ø	--	--	--
F-1F	DUCT SOX	VERONA	69'-4"	36"ø	5025	SIZE 33 VENT @ 3.30 SIZE 16 VENT @ 4.30	47'-0" 28'-0"
F-2A	DUCT SOX	VERONA	9'-1"	30"ø	165	--	--
F-2B	DUCT SOX	VERONA	31'-2"	30"ø	560	--	--
F-2C	DUCT SOX	VERONA	64'-9"	30"ø	5810	SIZE 14 VENT @ 3.30 SIZE 14 VENT @ 4.30 SIZE 7 VENT @ 7.00 SIZE 15 VENT @ 8.00 SIZE 15 VENT @ 9.00	26'-0" 26'-0" 16'-0" 27'-6" 27'-6"
F-2D	DUCT SOX	VERONA	52'-8"	36"ø	1175	--	--
F-2E	DUCT SOX	VERONA	30'-0"	26"ø	4730	SIZE 36 VENT @ 3.00 SIZE 15 VENT @ 4.00 SIZE 7 VENT @ 5.00 SIZE 36 VENT @ 6.30 SIZE 36 VENT @ 8.30	51'-0" 27'-6" 16'-0" 51'-0" 51'-0"
F-2F	DUCT SOX	VERONA	30'-0"	26"ø	4730	SIZE 36 VENT @ 3.00 SIZE 7 VENT @ 7.00 SIZE 15 VENT @ 8.00 SIZE 36 VENT @ 9.00	51'-0" 16'-0" 27'-6" 51'-0"
F-2G	DUCT SOX	VERONA	45'-0"	26"ø	4820	SIZE 18 VENT @ 3.00 SIZE 15 VENT @ 4.00 SIZE 7 VENT @ 5.00 SIZE 21 VENT @ 7.30 SIZE 21 VENT @ 8.30	32'-0" 28'-0" 16'-6" 35'-6" 35'-6"



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