

ADDENDUM NO. 01

Project No.24075

Project Name: TFSD Harrison HVAC Replacement
Address: Twin Falls, Idaho

Owner:
Name: Twin Falls School District
Address: 201 Main Ave. W
City, State, Zip: Twin Falls, ID 83301

CMGC:
Name: STARR CORP
Address: 2995 E. 3600 N.
City, State, Zip: Twin Falls, ID 83301



Architect: Hummel Architects
205 N. 10th Street, Suite 300
Boise, Idaho 83702

Date Issued: February 5, 2025

Addendum No. 01

Notice to Bidders:

You are notified of the following Changes, Deletions, Corrections, Additions, Revisions, and/or Modifications to the Drawings, Specifications/Project manual and instructions to Bidders Dated: January 30, 2025 for the above-mentioned project which is made a part thereof. You must acknowledge receipt of this Addendum in the appropriate space provided on the Bid Proposal Form.

The Items of this Addendum are as follows:

Project Manual:

- **None**

Drawings:

S2.01: Roof Framing Plan

1. Roof tie anchor location shown on drawings near grid 1.2 & C.5. New 6x10 support beam was added to support tie anchor, along with 4x blocking and strapping. Key-note 24 was added to the drawings.

S3.02: Retrofit Details

1. Roof tie anchor support detail, 8/S3.02 was added.

M0.02: MECHANICAL SCHEDULES

1. Revised powered exhaust fan data per manufacturer information.
2. Revised total weight to include powered exhaust accessory.

M3.11: MECHANICAL CONTROLS

1. Added factory packaged refrigerant monitor and safeties per code.

ADDENDUM NO. 01

Attachments:

S2.01: Roof Framing Plan

S3.02: Retrofit Detail

M0.02: MECHANICAL SCHEDULES

M3.11: MECHANICAL CONTROLS

Approvals:

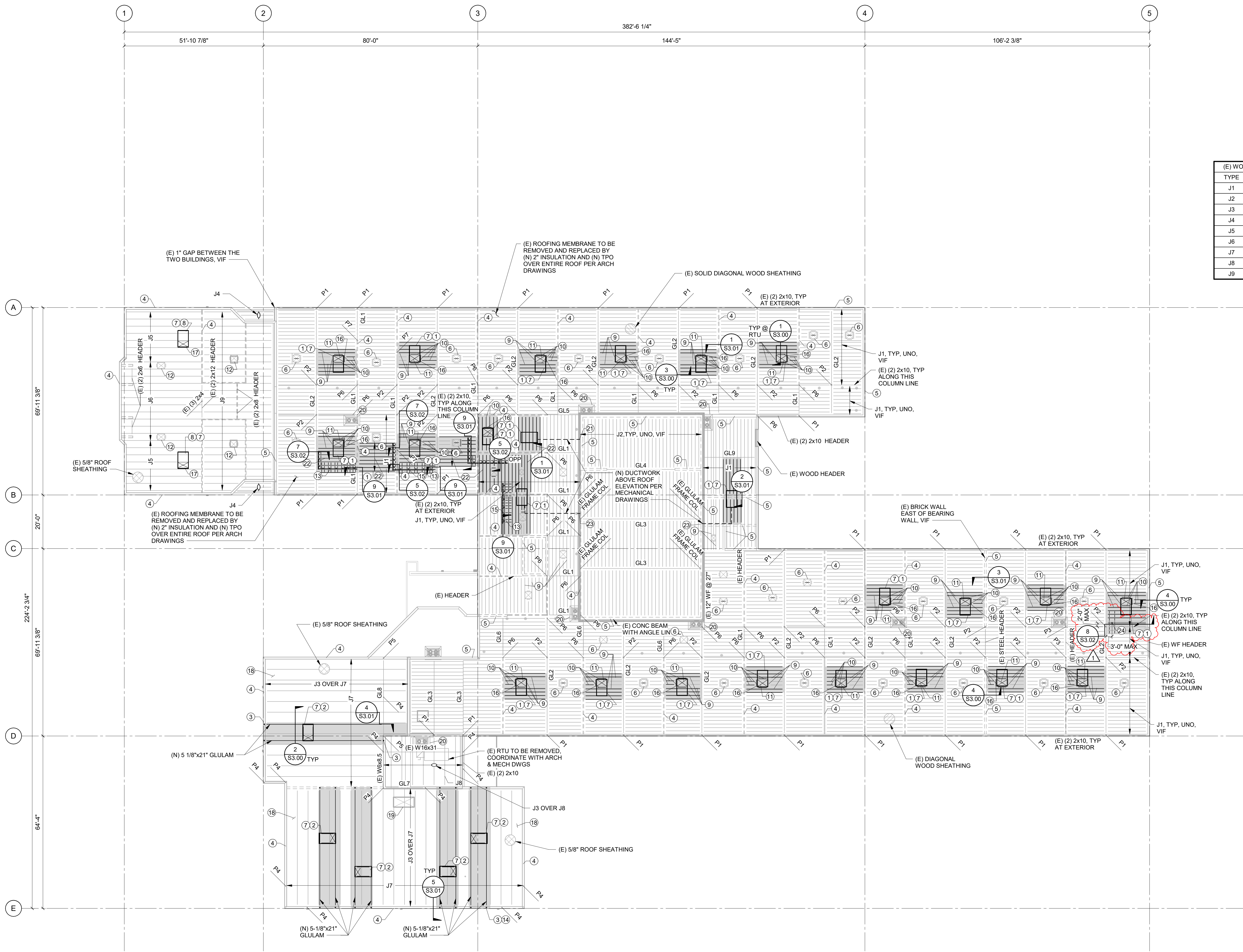
None

Clarifications:

None

End of Addendum No. 01

A
B
C
D
E



GENERAL PLAN NOTES:

G1 REFERENCE DRAWINGS:
S0.00 - ABBREVIATIONS, SYMBOLS AND SHEET INDEX
S1.0X - GENERAL STRUCTURAL NOTES
S2.01 - ROOF FRAMING PLAN
S3.0X - RETROFIT DETAILS

G2 SEE SHEET S0.00 FOR TYPICAL SYMBOLS

G3 CONTRACTOR SHALL FIELD VERIFY EXISTING STRUCTURAL CONDITIONS. IF ANY DISCREPANCY OCCURS BETWEEN EXISTING CONDITIONS AND PROPOSED ALTERATIONS, CONTRACTOR SHALL CONTACT ARCHITECT AND STRUCTURAL ENGINEER BEFORE PERFORMING ALTERATION WORK.

PLAN NOTES:

S1 [Shaded Area] INDICATES AREA WHERE RETROFITS TO (E) ROOF FRAMING IS REQUIRED. (E) SHEATHING TO BE REMOVED FOR JOIST RETROFITS IN SHADED AREA. REPLACE WITH (N) 5/8\"/>

S2 [Symbol] (E) BEAM/JOIST. SEE SCHEDULE.

S3 [Symbol] (E) POST. SEE SCHEDULE.

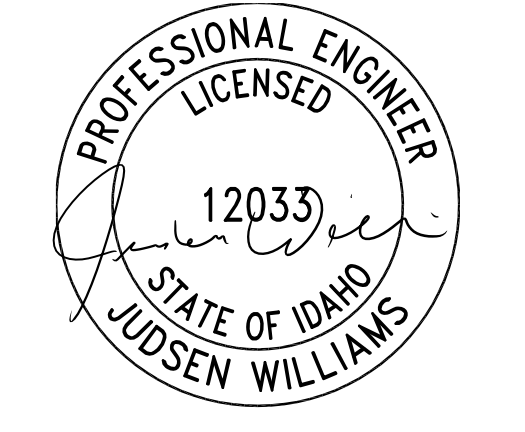
S4 [Symbol] (N) BEAM/JOIST.

S5 [Symbol] (N) WOOD POST/COLUMN.

(E) WOOD JOIST SCHEDULE		(E) GLULAM SCHEDULE	
TYPE	SIZE	TYPE	SIZE
J1	2x10 @ 16\"/>		

(E) POST SCHEDULE	
TYPE	SIZE
P1	4x6
P2	5 1/4x5 1/4
P3	5 1/4x3 5/8
P4	3\"/>

KEY VALUE	KEYNOTE TEXT
1	SISTER (E) 2x JOIST WITH (N) 2x PER 1/S3.00, TYP BELOW (N) RTU UNITS.
2	(N) GLULAM/LVL BEAMS BELOW (N) RTU UNITS. SEE DETAIL 2/S3.00.
3	(N) 4x6 WOOD POSTS IN (E) WALL AT EA END OF (N) GLULAM BEAM, TYP. UNO.
4	(E) WOOD BEARING WALL BELOW, 2x4 @ 16\"/>
5	(E) UNREINFORCED BRICK WALL BELOW, 8 1/4\"/>
6	(E) SKYLIGHTS NOT BEING USED AS A (N) RTU DUCT PENETRATION OPENING TO BE IN-FILLED AND COVERED. SEE DETAIL 5/S3.00.
7	(N) RTU, MAX WEIGHT = 850 LBS.
8	LOCATE RTU SUCH THAT IT IS SUPPORTED BY MINIMUM OF 3 TRUSSES BELOW. PROVIDE 2x6 BLOCKING ALIGNED BELOW ROOF CURB. BLOCKING TO ATTACH TO (E) TRUSS WITH SIMPSON LB26 TOP MOUNT HANGERS.
9	(E) 2x10, AROUND (E) SKYLIGHTS OPENING, TYP. UNO.
10	(N) 2x10, ATTACH TO (E) OR (N) 2x WITH SIMPSON LUS210 FACE MOUNT HANGER.
11	(E) SKYLIGHT OPENING TO BE ENLARGED FOR (N) RTU DUCT PENETRATIONS. SEE DETAIL 6/S3.00.
12	(E) ROOF OPENING BELOW (E) MECH UNIT OPENING TO BE IN-FILLED AND COVERED. SEE DETAIL 5/S3.00.
13	SCREEN WALL FRAMING AND ATTACHMENT PER 9/S3.01.
14	WOOD POST CONNECTION AT BASE PER 1/S3.02.
15	(N) 2x10 WOOD BLOCKING BETWEEN (E) SISTERED JOISTS, EITHER SIDE OF (N) HSS SCREEN WALL SUPPORT POST.
16	(N) 2x10, ATTACH TO (E) 2x WITH SIMPSON LUS210 FACE MOUNT HANGER.
17	(N) OPENING IN (E) ROOF FOR RTU DUCT PENETRATIONS PER 3/S3.02. (N) OPENING TO BE LOCATED BETWEEN (E) ROOF TRUSSES. DO NOT DAMAGE (E) ROOF TRUSSES. CONTRACTOR TO FIELD VERIFY LOCATION PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES OR INCONSISTENCIES.
18	IN THE SW ADDITION BUILDING, (E) COOLING UNITS TO BE REMOVED AND ROOF OPENINGS BELOW TO BE IN-FILLED AND COVERED. TYP WITH 5/8\"/>
19	(E) SKYLIGHT TO REMAIN.
20	(N) ROOF DRAINS, COORDINATE WITH ARCHITECTURAL & PLUMBING DRAWINGS. LOCATE BETWEEN (E) JOISTS/BEAMS. DO NOT DAMAGE (E) JOIST/BEAMS DURING PLACEMENT.
21	SEE 6/S3.02 FOR STACKED MECHANICAL OPENING IN (E) BRICK WALL DETAIL.
22	0.148\"/>
23	(N) MECH OPENING IN (E) STUD WALL PER DETAIL 4/S3.02.
24	(N) HARDY SADDLE TYPE ROOF TIE ANCHOR, (PART # - HTB-S24) CAPABLE TO RESIST MIN 5000 LBS LRFD LOAD IN ANY DIRECTION PER OSHA REQUIREMENTS. ANCHOR TO BE CENTERED BETWEEN (E) 2x JOISTS. PROVIDE (N) 6x10 BEAM BELOW TIE ANCHOR. CONTRACTOR TO FIELD VERIFY & LOCATE. SEE DETAIL 3/S3.02.



kpff 412 E. ParkCenter Blvd, Suite 200, Boise, ID 83706, 208.336.6985, www.kpff.com

HUMMEL ARCHITECTS
205 N. 10th Street, Suite 300, Boise, Idaho 83702, 208.343.7923
482 Constitution Way, Suite 111, Idaho Falls, ID 83402, 208.343.7923, hummelarch.com

Project:
HARRISON ELEMENTARY SCHOOL

Harrison Elementary School
600 Harrison St
Twin Falls, ID 83301

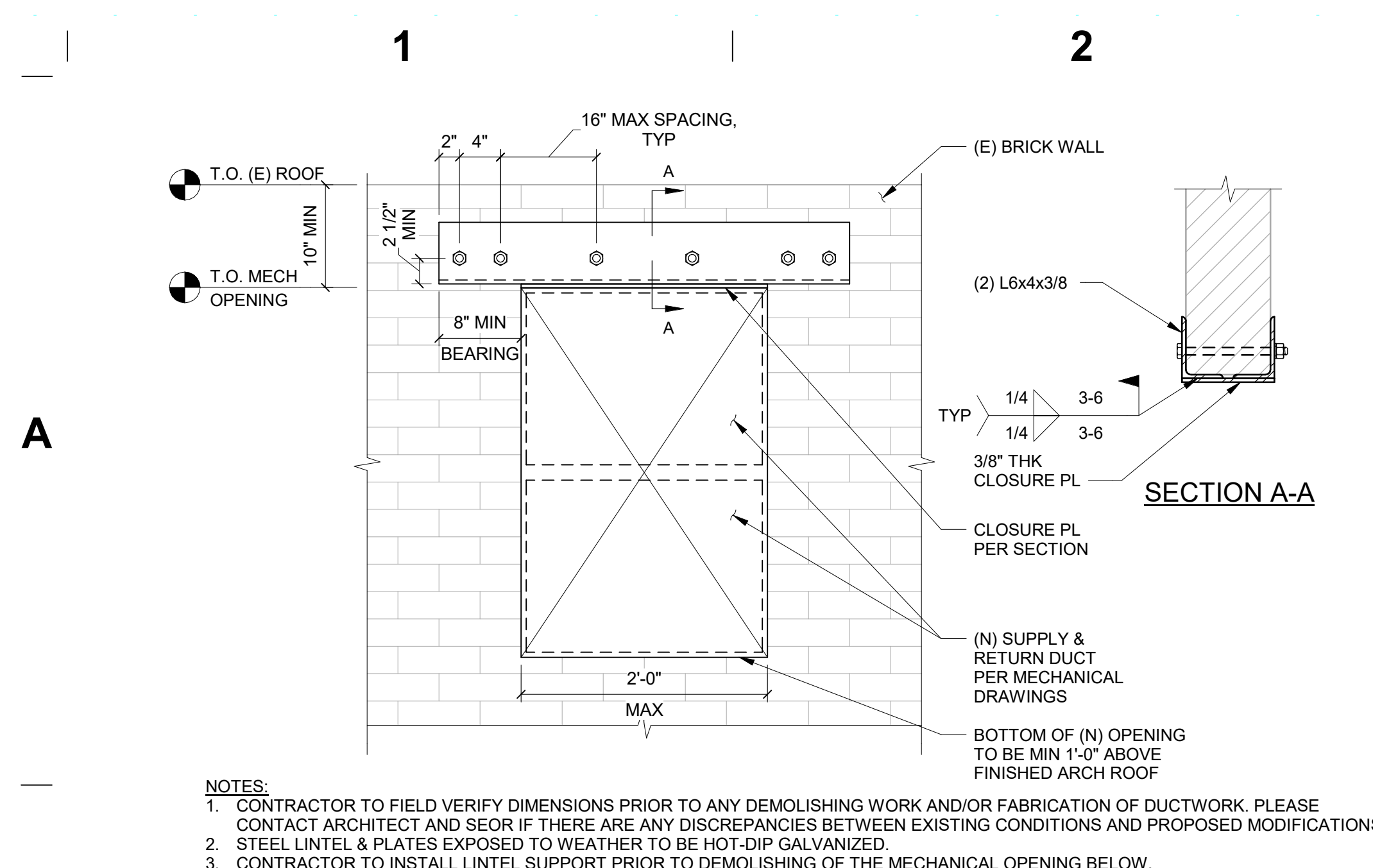
Sheet:
ROOF FRAMING PLAN

BID SET

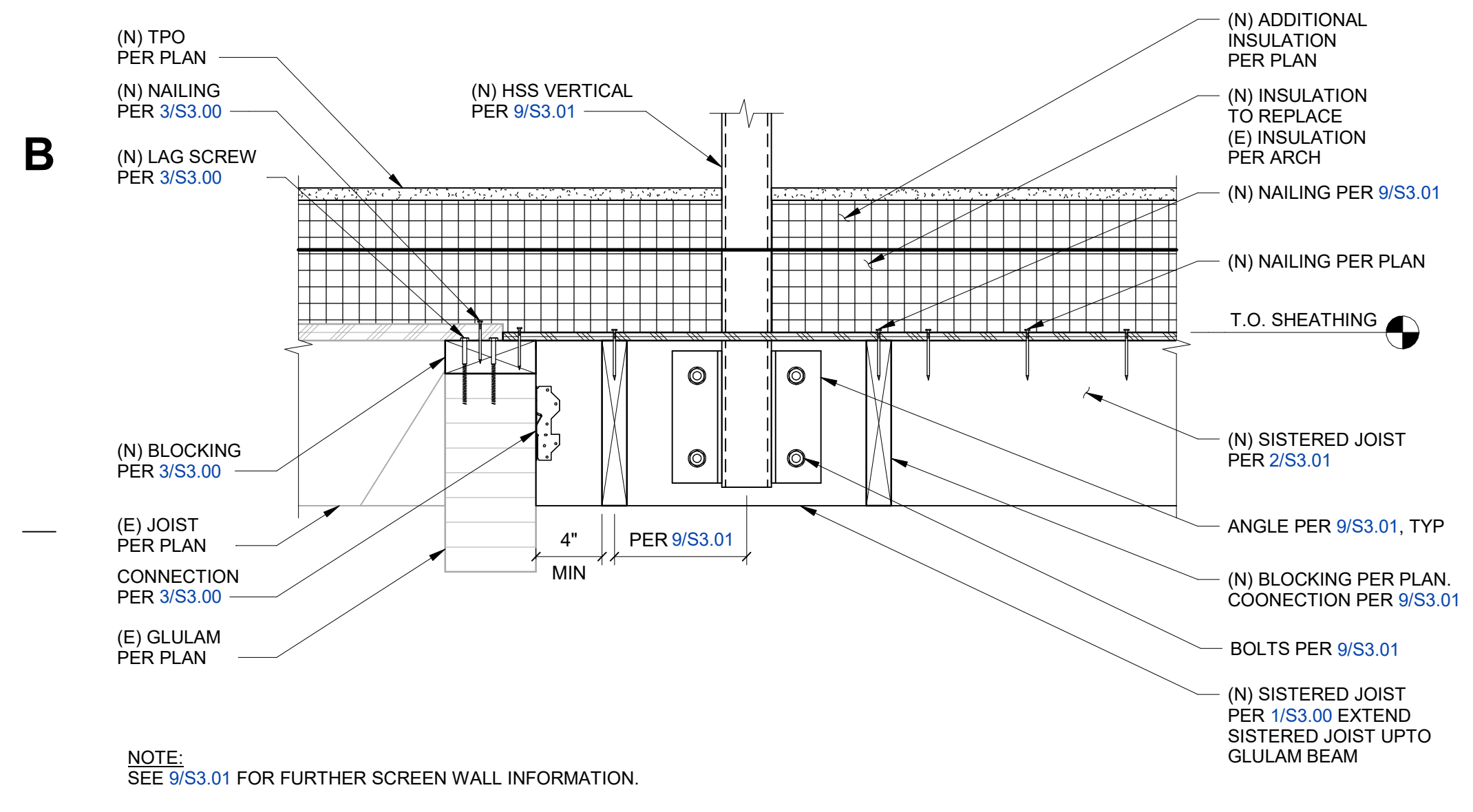
Revisions:	
1	Addendum 1 02/05/25

Project No: 1021240109
Drawn By: DPC/K
Checked By: JW
Date: 01/15/2025

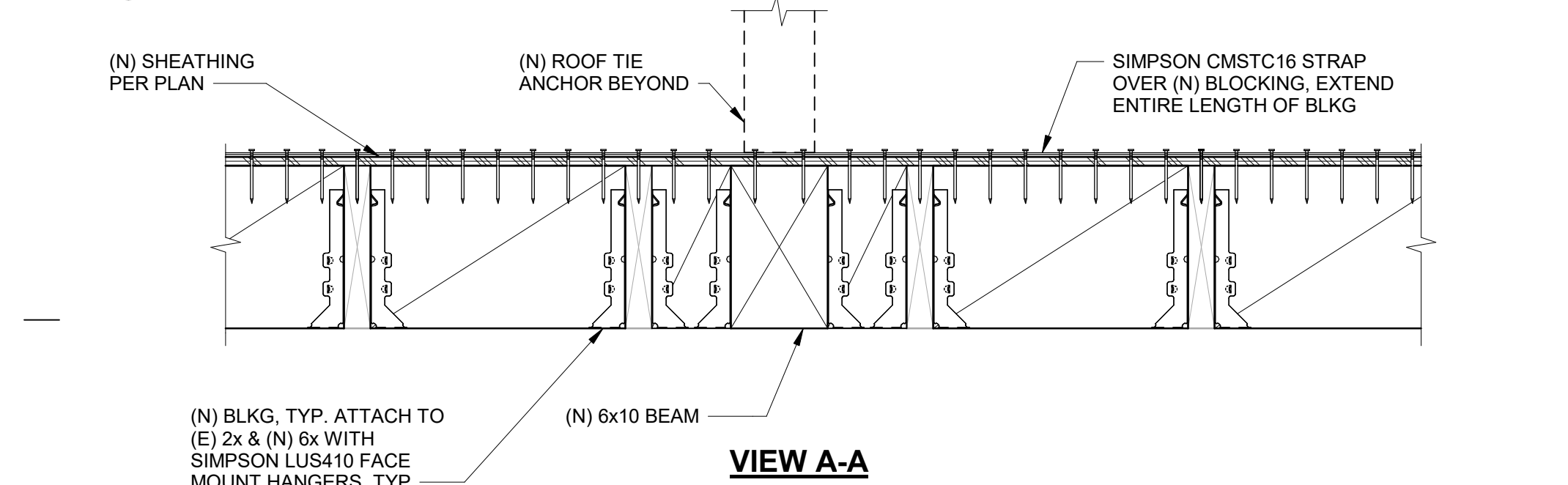
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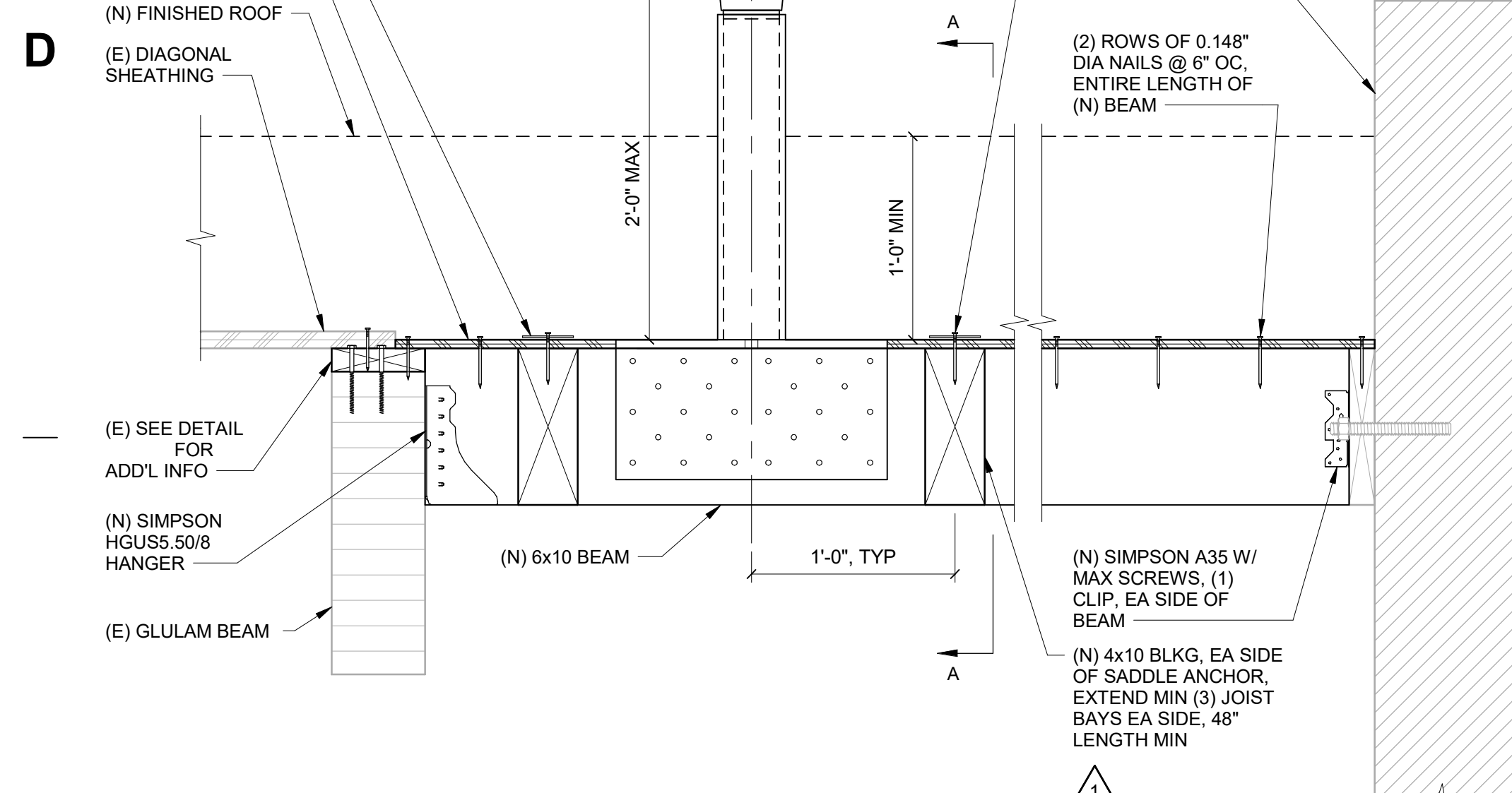
6 STACKED MECHANICAL OPENING IN (E) BRICK WALL
S3.02 1" = 1'-0"



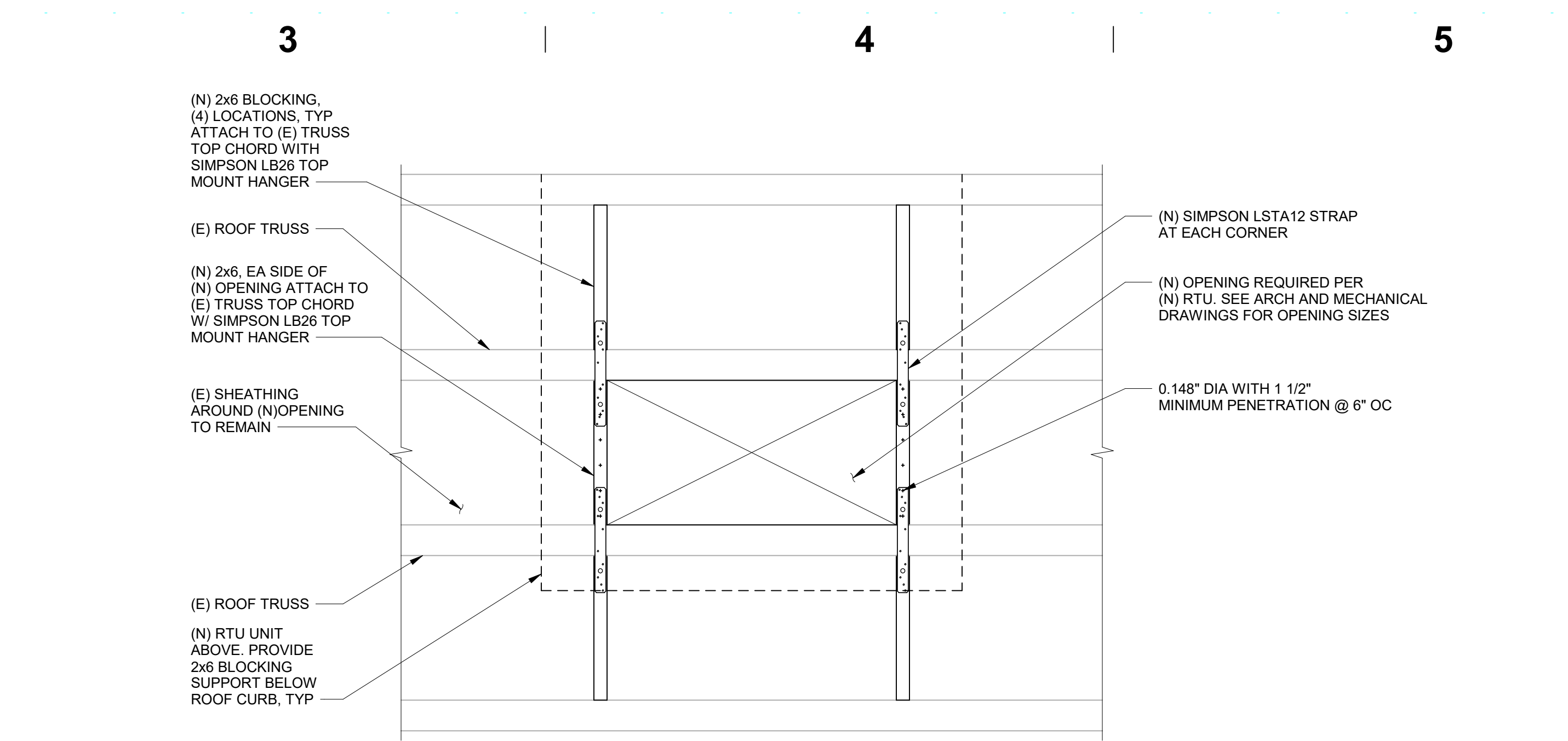
7 SCREEN WALL POST CONNECTION NEAR PARALLEL GLULAM
S3.02 1 1/2" = 1'-0"



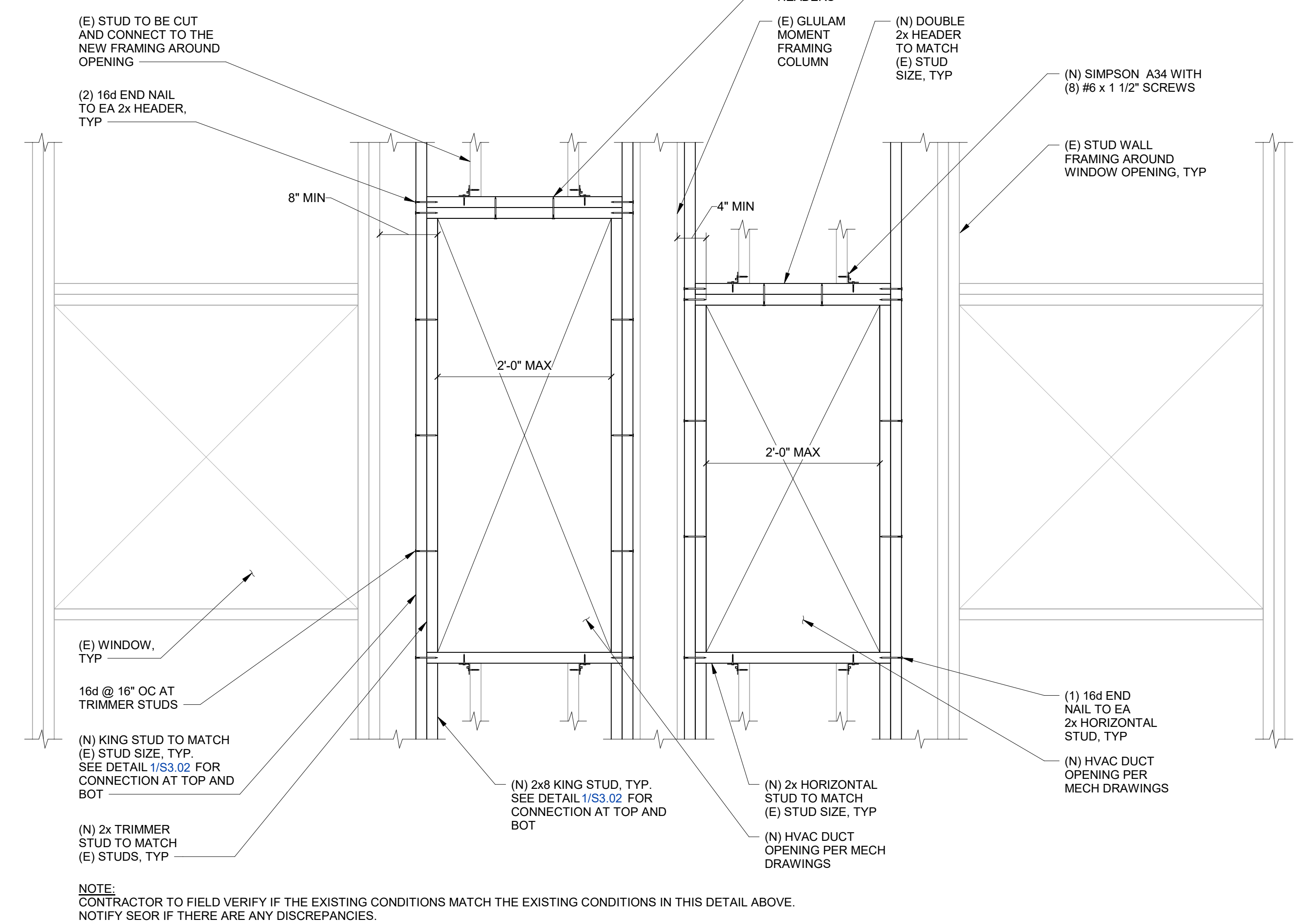
8 ROOF TIE ANCHOR SUPPORT DETAIL
S3.02 1 1/2" = 1'-0"



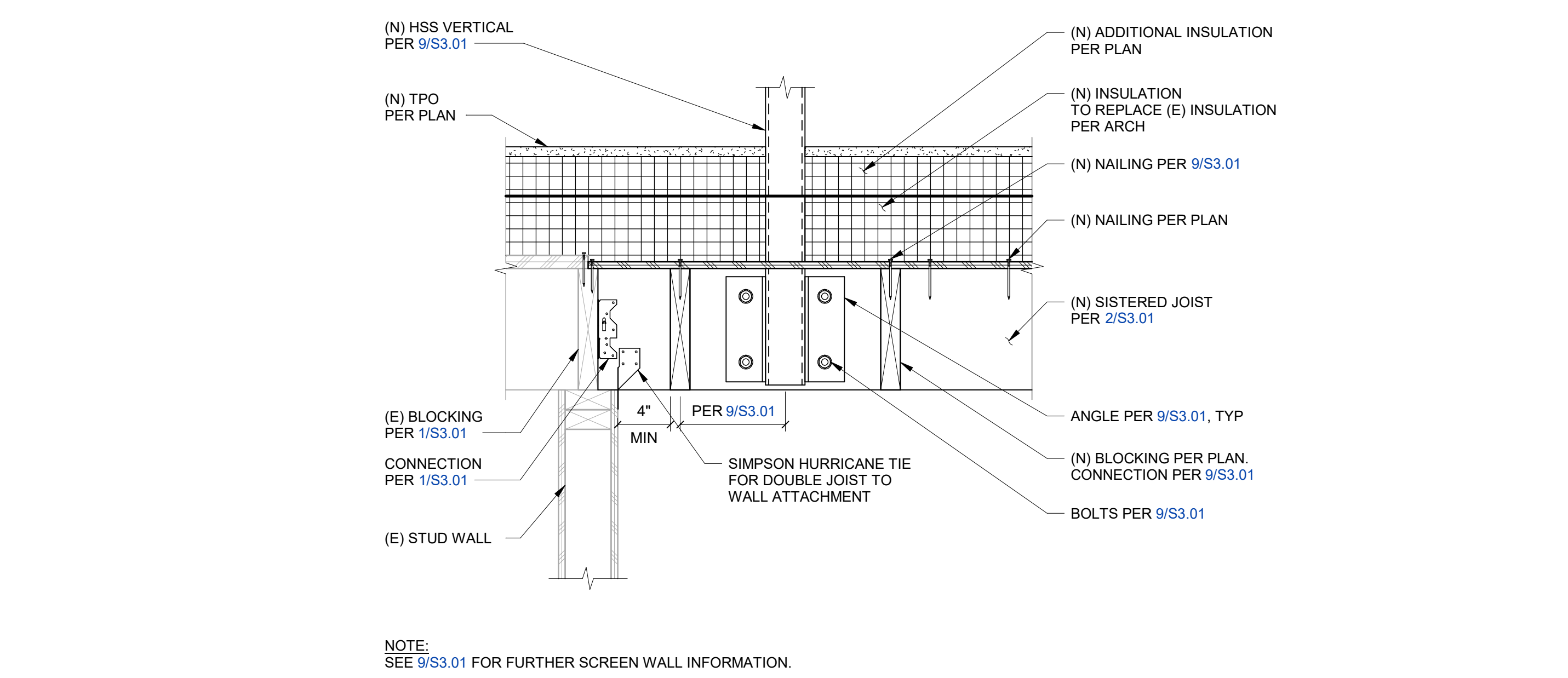
5 SCREEN WALL POST CONNECTION NEAR STUD WALL PARALLEL
S3.02 1 1/2" = 1'-0"



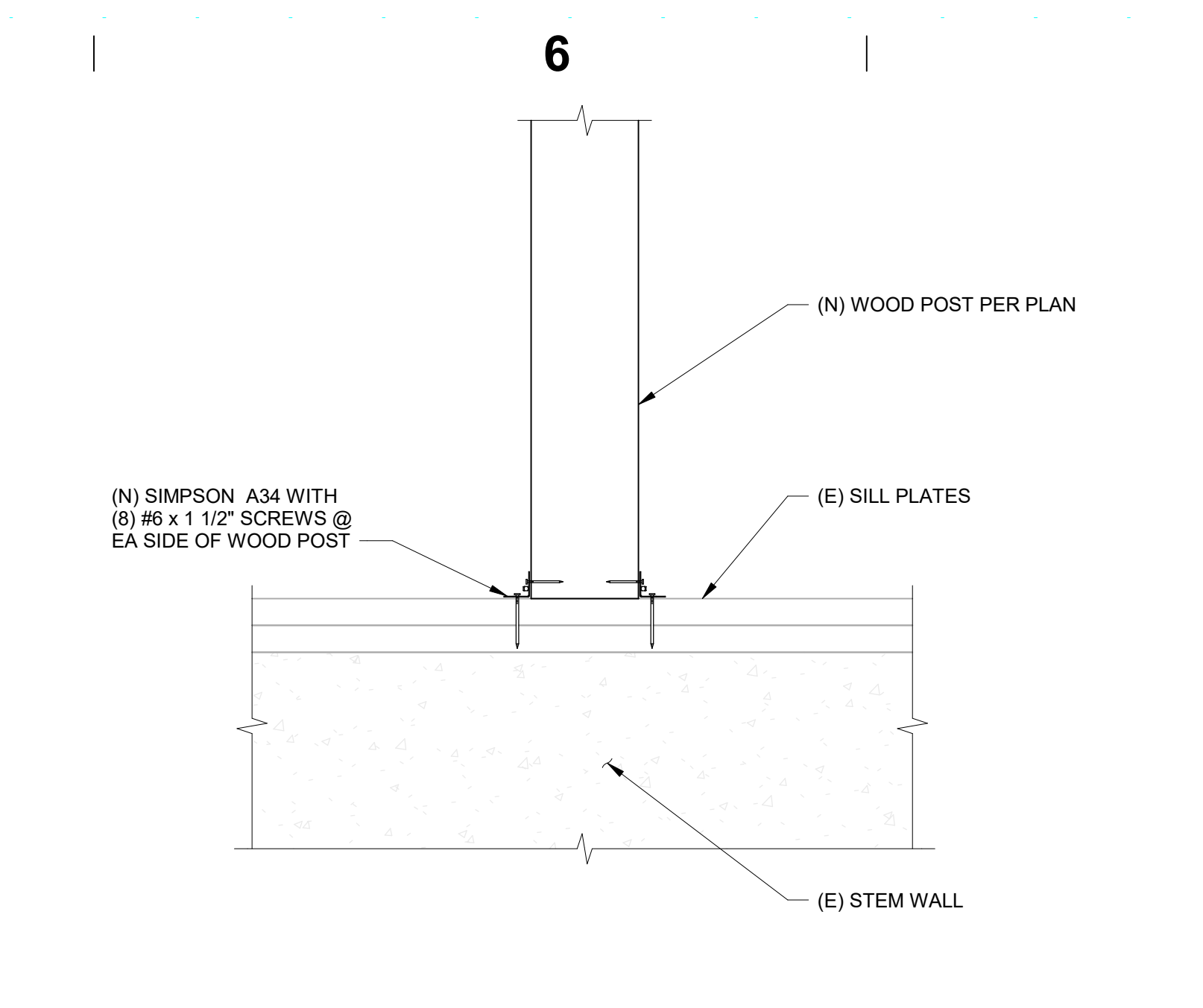
3 (N) MECHANICAL ROOF OPENING IN (E) ROOF WITH TRUSSES
S3.02 1" = 1'-0"



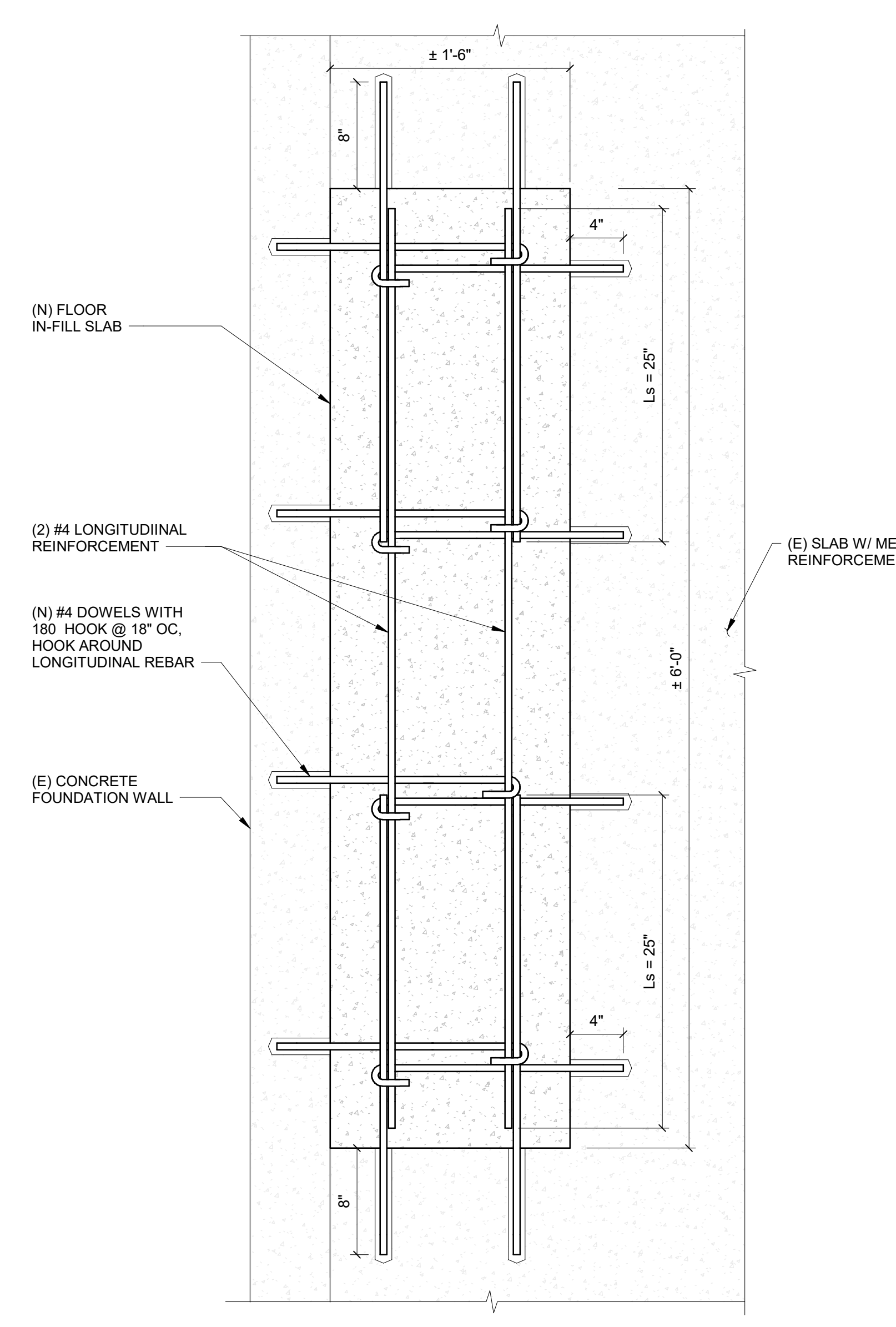
4 WALL OPENING - HVAC AT CAFETERIA - TYPICAL
S3.02 1" = 1'-0"



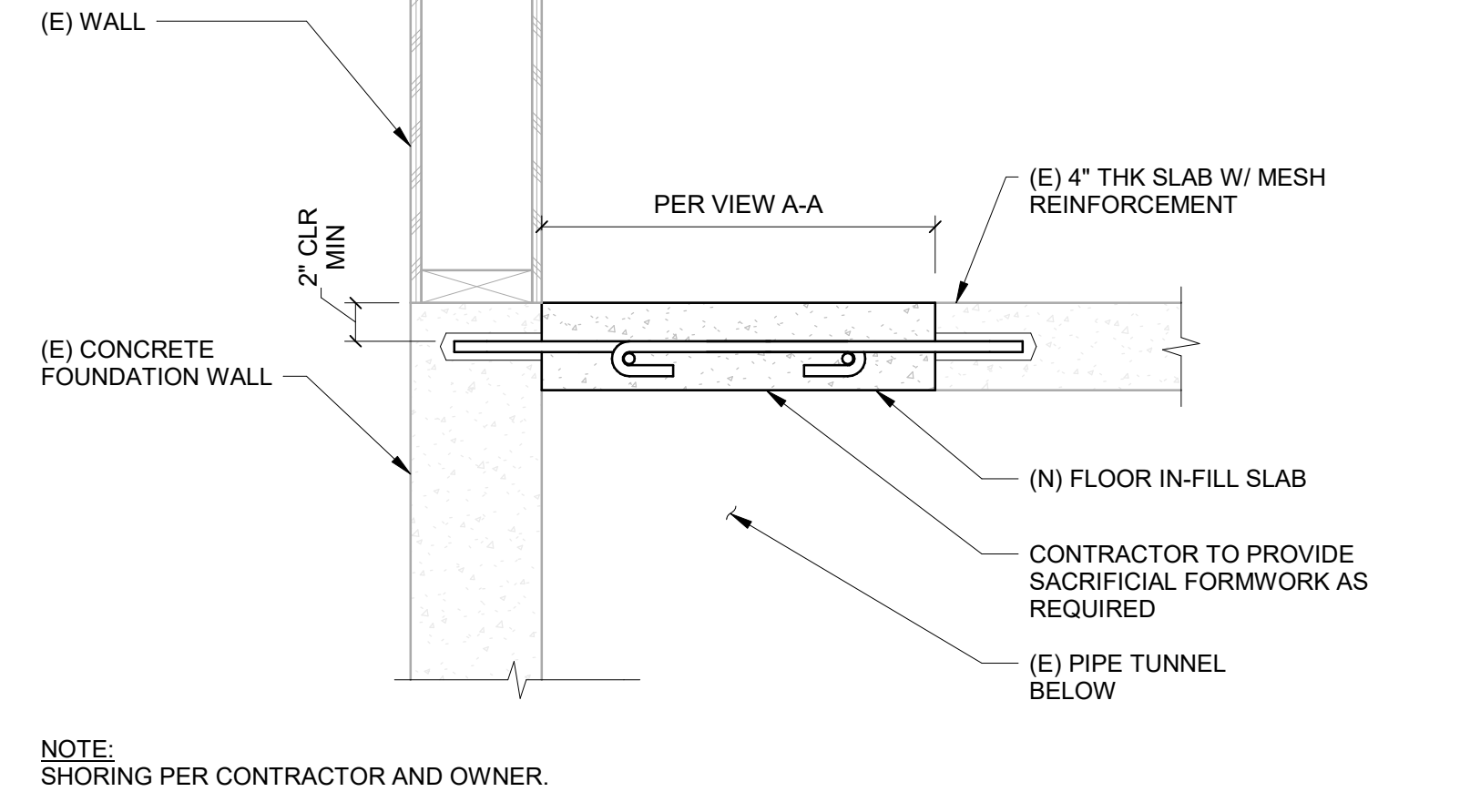
5 SCREEN WALL POST CONNECTION NEAR STUD WALL PARALLEL
S3.02 1 1/2" = 1'-0"



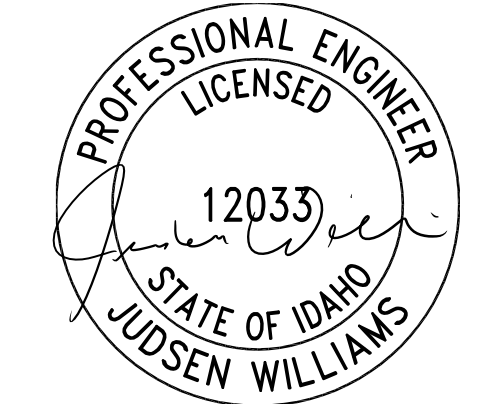
1 WOOD POST CONNECTION
S3.02 1 1/2" = 1'-0"



2 FLOOR INFILL AT (E) FCU LOCATION
S3.02 1 1/2" = 1'-0"



2 FLOOR INFILL AT (E) FCU LOCATION
S3.02 1 1/2" = 1'-0"



Project:
HARRISON ELEMENTARY SCHOOL

Harrison Elementary School
600 Harrison St
Twin Falls, ID 83301

Sheet:
RETROFIT DETAILS

BID SET

Revisions:		
1	Addendum 1	02/05/25

Project No: 1021240109
Drawn By: DPC/K
Checked By: JW
Date: 01/15/2025

Sheet No: S3.02

EQUIPMENT SOUND DATA SCHEDULE

REMARKS:
1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCRR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.

DESIG.	NAME	NO.	INLET NC (Hz)								OUTDOOR NC (Hz)								DISCHARGE NC (Hz)								SONES	REMARKS
			63	125	250	500	1K	2K	4K	8K	63	125	250	500	1K	2K	4K	8K	63	125	250	500	1K	2K	4K	8K		
RTU 1	632	75.4	67.2	58.1	66.6	56	47.5	44.7	61.8	61.8	77	73.3	68.9	64.4	58.3	65.6	89	1	80.7	79.9	65.5	63.1	62.5	59	56.0			
RTU 2	80.5	77.4	72.2	62.3	64.9	59.6	50	46.4	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.2	82.2	75.9	70	65.9	67.4	60.6	58.6	56.6			
RTU 3	80.5	77.4	72.2	62.3	64.9	59.6	50	46.4	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.2	82.2	75.9	70	65.9	67.4	60.6	58.6	56.6			
RTU 4	80.5	77.4	72.2	62.3	64.9	59.6	50	46.4	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.2	82.2	75.9	70	65.9	67.4	60.6	58.6	56.6			
RTU 5	80.5	77.4	72.2	62.3	64.9	59.6	50	46.4	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.2	82.2	75.9	70	65.9	67.4	60.6	58.6	56.6			
RTU 6	80.5	77.4	72.2	62.3	64.9	59.6	50	46.4	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.2	82.2	75.9	70	65.9	67.4	60.6	58.6	56.6			
RTU 7	80.5	77.4	72.2	62.3	64.9	59.6	50	46.4	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.2	82.2	75.9	70	65.9	67.4	60.6	58.6	56.6			
RTU 8	80.5	77.4	72.2	62.3	64.9	59.6	50	46.4	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.2	82.2	75.9	70	65.9	67.4	60.6	58.6	56.6			
RTU 9	81.6	78.8	72.9	64.3	66.6	61.3	51.6	47.9	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.8	83	77	71.7	67.9	69.5	62.2	59.6	56.6			
RTU 10	81.6	78.8	72.9	64.3	66.6	61.3	51.6	47.9	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.8	83	77	71.7	67.9	69.5	62.2	59.6	56.6			
RTU 11	81.6	78.8	72.9	64.3	66.6	61.3	51.6	47.9	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.8	83	77	71.7	67.9	69.5	62.2	59.6	56.6			
RTU 12	81.6	78.8	72.9	64.3	66.6	61.3	51.6	47.9	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.8	83	77	71.7	67.9	69.5	62.2	59.6	56.6			
RTU 13	81.6	78.8	72.9	64.3	66.6	61.3	51.6	47.9	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.8	83	77	71.7	67.9	69.5	62.2	59.6	56.6			
RTU 14	81.6	78.8	72.9	64.3	66.6	61.3	51.6	47.9	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.8	83	77	71.7	67.9	69.5	62.2	59.6	56.6			
RTU 15	81.6	78.8	72.9	64.3	66.6	61.3	51.6	47.9	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.8	83	77	71.7	67.9	69.5	62.2	59.6	56.6			
RTU 16	80.6	77.6	72	63	65.7	65.7	50.5	47.1	85.6	84.7	80.5	76	72.4	68	62.8	59.3	91.3	81.4	75.4	71	66.9	68.6	61.4	59	59			
RTU 17	80.6	77.6	72	63	65.7	65.7	50.5	47.1	85.6	84.7	80.5	76	72.4	68	62.8	59.3	91.3	81.4	75.4	71	66.9	68.6	61.4	59	59			
RTU 18	80.6	77.6	72	63	65.7	65.7	50.5	47.1	85.6	84.7	80.5	76	72.4	68	62.8	59.3	91.3	81.4	75.4	71	66.9	68.6	61.4	59	59			
RTU 19	80.6	77.6	72	63	65.7	65.7	50.5	47.1	85.6	84.7	80.5	76	72.4	68	62.8	59.3	91.3	81.4	75.4	71	66.9	68.6	61.4	59	59			
RTU 20	81.4	78.9	72.6	64.7	67.2	67.2	51.9	48.4	85.6	84.7	80.5	76	72.4	68	62.8	59.3	91.9	82.2	76.4	72.6	68.7	70.6	62.9	59.9	59.9			
RTU 21	81.4	78.9	72.6	64.7	67.2	67.2	51.9	48.4	85.6	84.7	80.5	76	72.4	68	62.8	59.3	91.9	82.2	76.4	72.6	68.7	70.6	62.9	59.9	59.9			
RTU 22	81.4	78.9	72.6	64.7	67.2	67.2	51.9	48.4	85.6	84.7	80.5	76	72.4	68	62.8	59.3	91.9	82.2	76.4	72.6	68.7	70.6	62.9	59.9	59.9			
RTU 23	81.4	78.9	72.6	64.7	67.2	67.2	51.9	48.4	85.6	84.7	80.5	76	72.4	68	62.8	59.3	91.9	82.2	76.4	72.6	68.7	70.6	62.9	59.9	59.9			
RTU 24	81.8	79.6	73	65.6	67.9	67.9	52.6	49.1	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.2	82.7	76.9	73.3	69.6	71.5	63.6	60.3	60.3			
RTU 25	81.8	79.6	73	65.6	67.9	67.9	52.6	49.1	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.2	82.7	76.9	73.3	69.6	71.5	63.6	60.3	60.3			
RTU 26	81.8	79.6	73	65.6	67.9	67.9	52.6	49.1	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.2	82.7	76.9	73.3	69.6	71.5	63.6	60.3	60.3			
RTU 27	81.8	79.6	73	65.6	67.9	67.9	52.6	49.1	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.2	82.7	76.9	73.3	69.6	71.5	63.6	60.3	60.3			
RTU 28	81.8	79.6	73	65.6	67.9	67.9	52.6	49.1	85.6	84.7	80.5	76	72.4	68	62.8	59.3	92.2	82.7	76.9	73.3	69.6	71.5	63.6	60.3	60.3			
RTU 29	83.6	82.1	74.4	68.5	70.4	70.4	54.9	51.2	85.6	84.7	80.4	76	72.4	68	62.8	59.3	93.9	84.8	79.2	75.7	72.4	74.4	65.8	61.8	61.8			
RTU 30	83.6	82.1	74.4	68.5	70.4	70.4	54.9	51.2	85.6	84.7	80.4	76	72.4	68	62.8	59.3	93.9	84.8	79.2	75.7	72.4	74.4	65.8	61.8	61.8			
RTU 31	83.6	82.1	74.4	68.5	70.4	70.4	54.9	51.2	85.6	84.7	80.4	76	72.4	68	62.8	59.3	93.9	84.8	79.2	75.7	72.4	74.4	65.8	61.8	61.8			

AIR DEVICE SCHEDULE

REMARKS:
GENERAL - APPLIES TO ALL AIR DEVICES: MANUAL VOLUME DAMPERS SHALL BE ACCEPTABLE IN DUCTWORK AT THE BRANCH POINT OF THE RUNOUT DUCT OR IN-LINE TO THE AIR DEVICE BY THE CONTRACTOR INSTALLING DUCTWORK. A DAMPER LOCATED AT THE AIR DEVICE SHALL BE ACCEPTABLE WHEN PERMITTED BY ENGINEER ON A CASE-BY-CASE BASIS OR WHEN THE MANUFACTURER REQUIRES AN INTEGRAL MANUAL VOLUME DAMPER.

- 1.

DESIG.	FUNCTION	STYLE	MFR.	MODEL	FRAME STYLE	MODULE SIZE	MATERIAL	FINISH	REMARKS
A	SIDEWALL SUPPLY	ADJUSTABLE VANES, DOUBLE DEFLECTION, 34" O.C.	PRICE	520	SURFACE	SEE PLANS	STEEL	WHITE	
B	SIDEWALL RETURN, TRANSFER	FIXED ANGLE VANES, 34" O.C.	PRICE	530	SURFACE	SEE PLANS	STEEL	WHITE	
C	CEILING SUPPLY	PLAQUE FACE FIXED PATTERN, RECTANGULAR DIFFUSER	PRICE	SPD	SEE PLANS	24X24	STEEL	WHITE	
D	CEILING RETURN	MODULAR PERFORATED FACE GRILLE	PRICE	PDOR	SEE PLANS	SEE PLANS	STEEL	WHITE	
E	SUPPLY RETURN	CONCENTRIC SUPPLY/RETURN DIFFUSER WITH PLENUM	RUSKIN	CDS-18	SURFACE	24X48	ALUMINUM	WHITE	

CABINET UNIT HEATER SCHEDULE (ELECTRIC)

REMARKS:
1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCRR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
2. PROVIDE WITH INTEGRAL THERMOSTAT.
3. PROVIDE REMOTE WALL MOUNTED THERMOSTAT.
4. SURFACE MOUNTED MODEL.
5. PROVIDE RECESSED FRAME.
6. REFER TO MECHANICAL LEGENDS AND NOTES SHEET FOR PROJECT ELEVATION.

DESIG.	NAME	NO.	AIR OPENINGS		ELECTRIC HEAT			FAN MOTOR		AIR TEMP		ELECTRICAL		SIZE (INCHES)			OPER. WEIGHT (LBS)	REMARKS	
			INLET	OUTLET	KW	MBH	STAGES	CFM (HIGH)	NO.	EAT (°F)	LAT (°F)	VOLTAGE	PHASE	L	D	H			
EHU 1	WALL SURFACE	FRONT BOTTOM	FRONT TOP	MARKEL	6333002	2	6.3	2	250	1	60	89.0	208	3	33.0	9.0	25.0	100	1.2,4,6
EHU 2	WALL SURFACE	FRONT BOTTOM	FRONT TOP	MARKEL	6333003	3	10.2	2	250	1	60	89.0	208	3	33.0	9.0	25.0	100	1.2,4,6
EHU 3	WALL RECESSED	FRONT BOTTOM	FRONT TOP	MARKEL	6333002	2	6.8	2	250	1	60	103.0	208	3	33.0	9.0	25.0	100	1.2,5,6

UNIT HEATER SCHEDULE (ELECTRIC)

REMARKS:
1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCRR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
2. PRODUCT IS SUITABLE FOR INSTALLATION AT ALTITUDES ABOVE 6000 FEET.
3. REFER TO PLANS FOR THERMOSTAT LOCATION, REMOTE OR INTEGRAL. PROVIDE 2-STAGE THERMOSTAT CONTROL WHERE 2-STAGE HEATING ELEMENT IS INDICATED.
4. UNITS PROVIDED WITH INTEGRAL AUTOMATIC RESETTING UNIT CONTROL FOR OVER-TEMPERATURE CONDITION ON HEATER.
5. REFER TO MECHANICAL LEGENDS AND NOTES SHEET FOR PROJECT ELEVATION.

DESIG.	NAME	NO.	MFR	MODEL	HEATING CAPACITY			FAN MOTOR		AIR TEMP		SIZE (INCHES)			OPER. WEIGHT (LBS)	ELECTRICAL	MAX MTG. HEIGHT TO BOTTOM (FT.)	CONTROL	REMARKS	
					KW	MBH	STAGES	AIRFLOW (CFM)	NO.	EAT (°F)	LAT (°F)	L	D	H						
EHU			MARKEL	UH05	5	17.1	1	400	1	60	99	20	11	13	44	208	3	9	SEE SPEC	1.2,3,4

ROOF TOP UNIT SCHEDULE

COMMON NOTES (APPLIES TO ALL UNITS):
A. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCRR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
B. UNIT HEIGHT DOES NOT INCLUDE HEIGHT OF CURB.
C. PROVIDE BASE RAIL OR CURB HEIGHT TO ACCOMMODATE CONDENSATE DRAIN P-TRAP.
D. PROVIDE SHAFT GROUNDING RINGS FOR EACH BEARING ON MOTORS POWERED THROUGH VARIABLE FREQUENCY DRIVES.
E. REFER TO SOUND DATA SCHEDULE FOR SOUND INFORMATION.
F. REFER TO MECHANICAL LEGENDS AND NOTES SHEET FOR PROJECT ELEVATION.
G. COOLING COIL PRESSURE DROP INCLUDED IN SIZING OF FAN.

DESIG.	NAME	NO.	AREA SERVED	MFR	MODEL NO.	SUPPLY FAN SECTION										POWER EXHAUST FAN SECTION										COOLING COIL SECTION						DESIG.										
						OUTSIDE AIR CFM	AT ELEV	ESP (IN WC)	TSP (IN WC)	NO. OF FANS	DIA. (IN)	TYPE (AF/BU/FC)	DRIVE (BELT/DIRECT)	RPM	REQ'D BHP	MAX HP SIZE	SUM OF MAX HP ALL FANS	NO. OF VFD'S	VFD BYPASS (YES/NO)	VIBRATION ISOLATOR TYPE	AT ELEV	ESP (IN WC)	TSP (IN WC)	NO. OF FANS	DIA. (IN)	TYPE (AF/BU/FC)	DRIVE (BELT/DIRECT)	RPM	REQ'D BHP	MAX HP SIZE	SUM OF MAX HP ALL FANS		NO. OF VFD'S	VFD BYPASS (YES/NO)	VIBRATION ISOLATOR TYPE	NET FACE AREA (SF)	AT ELEV	CFM	MBH SENS	MBH TOTAL	'F DB	'F WB
RTU 1	FACULTY ROOM AND WORKROOM	CARRIER	48GEM05A2A6-0A3A0	360	1,200	0.50	0.80	1	19	FC	DIRECT	1696	0.30	1.07	1.07	1	No	SEE SPEC	1300	0.40	0.50	1	10	FC	DIRECT	0.5	0.5	208	3	1	No	SEE SPEC	6	1200	29	35	81	64	53	53	RTU 1	1
RTU 2	CLASSROOM	CARRIER	48GEM05A2A6-0A3A0	420	1,400	0.50	0.84	1	19	FC	DIRECT	1742	0.50	1.96	1.96	1	No	SEE SPEC	1300	0.40	0.50	1	10	FC	DIRECT	0.5	0.5	208	3	1	No	SEE SPEC	6	1400	38	46	81	64	53	52	RTU 2	3
RTU 3	CLASSROOM	CARRIER	48GEM05A2A6-0A3A0	420	1,400	0.50	0.84	1	19	FC	DIRECT	1742	0.50	1.96	1.96	1	No	SEE SPEC	1300	0.40	0.50	1	10	FC	DIRECT	0.5	0.5	208	3	1	No	SEE SPEC	6	1400	38	46	81	64	53	52	RTU 3	4
RTU 4	CLASSROOM	CARRIER	48GEM05A2A6-0A3A0	420	1,400	0.50	0.84	1	19	FC	DIRECT	1742	0.50	1.96	1.96	1	No	SEE SPEC	1300	0.40	0.50	1	10	FC	DIRECT	0.5	0.5	208	3	1	No											

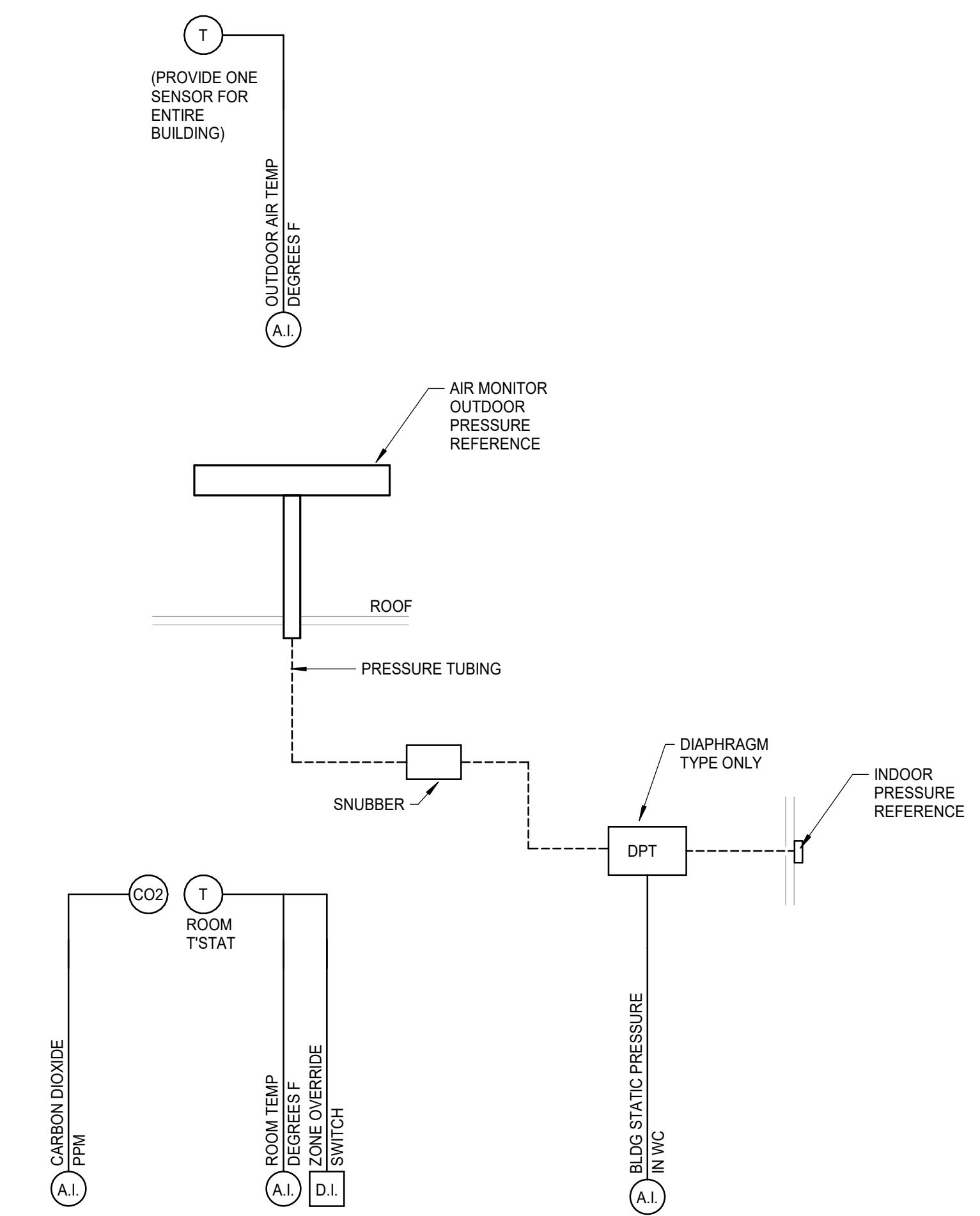
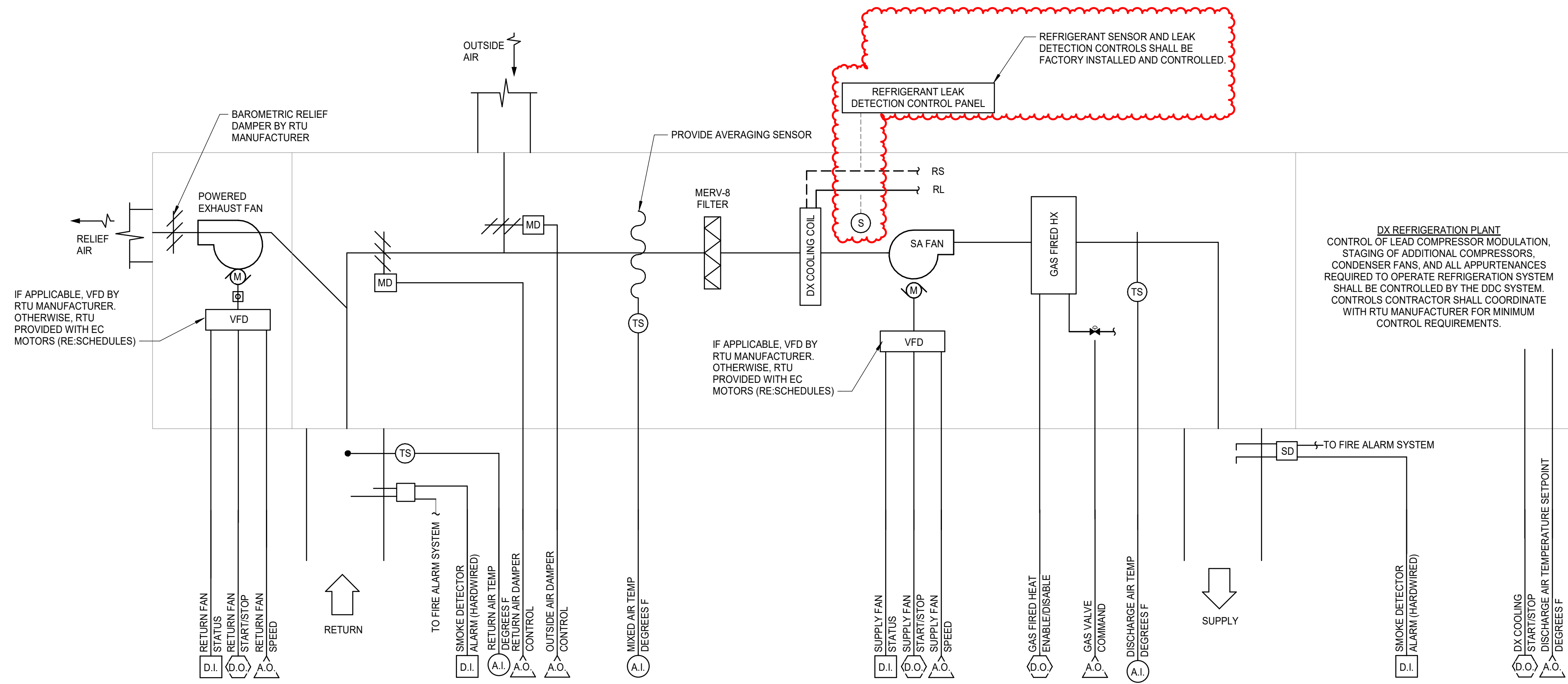
A

B

C

D

E



ROOFTOP UNIT - VAV, RELIEF FANS, GAS HEAT, SINGLE ZONE

SCALE: NONE

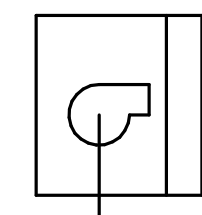
SEQUENCE OF OPERATION (CONT.):

- F. Night Setback and Warmup Mode:
 - Warm Up: The BAS shall calculate the required warm up time based on the zone's occupied heating setpoint, the current zone temperature, the outdoor air temperature, and a mass/capacity factor for each zone. The mass factor shall be manually adjusted or self-tuned by the BAS. If automatic, the tuning process shall be turned on or off by a software switch, to allow tuning to be stopped after the system has been trained. Warmup Mode shall start based on the zone with the longest calculated warm up time requirement, but no earlier than 3 hours before the start of the scheduled occupied period and shall end at the scheduled Occupied start hour.
 - Night Setback Mode: During Unoccupied Mode operate the air handling unit to maintain zone temperatures.
 - NSB Heating: If the zone falls below the unoccupied heating setpoints, the AHU shall enter Setback Mode until the zone is 5°F above their unoccupied setpoints.
 - The OA damper shall be closed in NSB mode that unit shall operate in 100% return air mode
 - Supply air setpoint shall by 95 deg F
 - NSB cooling: If the zone temperature rises above their unoccupied cooling setpoints the AHU shall enter Night Setback Mode until the zone is 5°F below the unoccupied setpoint.
 - The OA damper shall be closed in NSB mode that unit shall operate in 100% return air mode unless outside air temperature is below the supply air temperature setpoint. Then outside air shall be utilized for cooling
 - Supply air setpoint is 55 deg F
- G. Fault Detection and Diagnostics
 - Economizer Fault Detection and Diagnostics (FDD)
 - Economizer Temperature Sensor Failure.
 - Not Economizing when it Should.
 - Economizing when it Should Not.
 - Damper Not Modulating.
 - Excess Outdoor Air.
- H. Alarms and Safeties
 - Generate a fan failure alarm if the status being different from the command for a period of 15 seconds.
 - Commanded on, status off: Level 2
 - Commanded off, status on: Level 4
 - Generate a high building pressure alarm if the building static pressure is more than 0.10". Level 3
 - Generate a low building pressure alarm if the building is negative/less than 0.07". Level 4
 - Generate a heating failure alarm if the supply air temperature is 15 deg F below the setpoint. Level 2. If the supply air temperature is less than 40 deg F, shut the unit down until the low temp alarm is reset by an operator.
 - Generate a cooling failure alarm if the supply air temperature is 15 deg F above the setpoint. Level 2
 - Refrigerant Leak Detection (Factory Controls)
 - Upon leak detection by the refrigerant sensor the supply fan shall be enabled (if not already enabled) and run until refrigerant is diluted below permissible levels.
 - The factory control panel shall display that a leak has occurred and be visible until alarm is acknowledged.

SEQUENCE OF OPERATION:

CABINET UNIT HEATERS AND UNIT HEATERS:

- HEATER SHALL OPERATE VIA STANDALONE CONTROLS TO ACHIEVE THE FOLLOWING FUNCTION.
- OPERATION
 - A WALL MOUNTED ROOM THERMOSTAT OR INTEGRATED THERMOSTAT WILL STAGE THE ELECTRIC HEAT AND CYCLE THE FAN MOTOR TO MAINTAIN ROOM THERMOSTAT TEMPERATURE SETTING.
 - VESTIBULE SPACE SETPOINT SHALL NOT EXCEED 60F.



CABINET UNIT HEATER & UNIT HEATER - ELECTRIC

SCALE: NONE

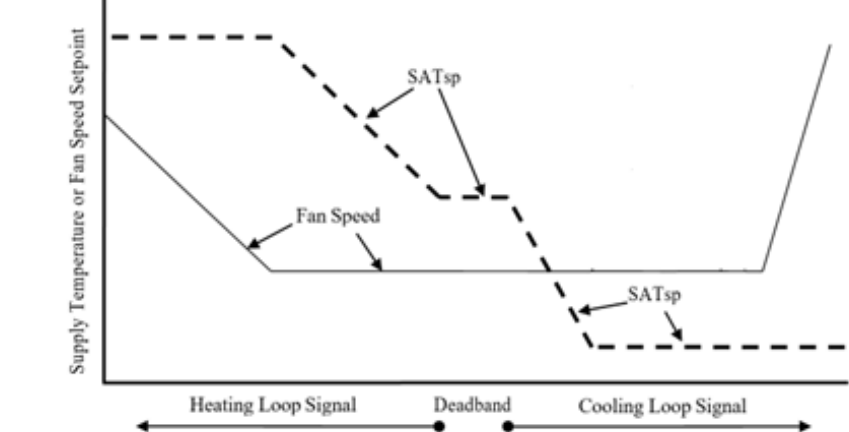
DIAGRAM NOTES:

- ROOFTOP UNIT SHALL BE PROVIDED WITH FACTORY TERMINAL STRIP (BASIS OF DESIGN; MICROMETL DRY BULB ECONOMIZER) FOR FIELD INSTALLED CONTROLS BY TEMPERATURE CONTROLS CONTRACTOR.
- CONTROLS CONTRACTOR SHALL FURNISH AND INSTALL ALL DDC HARDWARE TO MEET THE REQUIREMENTS OF THE SEQUENCES OF OPERATION PROVIDED.
- DAMPERS AND ACTUATORS SHALL BE FURNISHED BY THE ROOFTOP UNIT MANUFACTURER UNLESS OTHERWISE NOTED.

SEQUENCE OF OPERATION:

SINGLE-ZONE VARIABLE AIR VOLUME ROOF TOP UNITS:

- Supply Fan Control and Supply Air Temperature Setpoint Reset
 - The supply fan shall run whenever the unit is in any mode other than Unoccupied Mode.
 - Provide a ramp function to prevent changes in fan speed of more than 10% per minute.
 - Fan speed shall be reset linearly based on space temperature.
 - When space is satisfied operate at Min-speed. As the heating or cooling loop increases increase fan speed correspondingly to max speed (heating or cooling).
 - Max Heating speed shall be 75% (adj)
 - Max Cooling Speed shall be 100% (adj)
- Minimum and maximum supply air temperature setpoints shall be as follows:
 - The Deadband values of SATap shall be the average of the zone heating setpoint and the zone cooling setpoint, but shall be no lower than 70°F and no higher than 75°F.
 - When the supply fan is proven on, fan speed and supply air temperature setpoints are controlled as shown in the following diagrams and text. The points of transition along the x-axis shown and described below are representative. Contractor shall adjust the precise value of the x-axis thresholds shown in the figure to provide stable control.



- Fan Speed Control (As applicable):
 - For a Heating Loop signal of 100% - 0%, fan speed is reset from MaxHeatSpeed to MinSpeed.
 - Deadband: fan speed setpoint is MinSpeed.
 - For a Cooling Loop signal of 0% - 100%, fan speed is reset from MinSpeed to MedSpeed.
- Supply Air Temperature Setpoint:
 - For a Heating Loop signal of 100% - 50%, SATap is 100 deg F (adj).
 - For a Heating Loop signal of 50% - 0%, SATap is reset from 100 deg F (adj) to the Deadband value (-70 deg F as described above).
 - In Deadband, SATap is the Deadband value.
 - For a Cooling Loop signal of 0% - 75%, SATap is reset from the Deadband value to 55 deg F.
 - For a Cooling Loop signal above 75%, SATap is unchanged at 55deg F, the supply fan speed continues to increase to additional cooling capacity.

- Outdoor Air Damper Control
 - Modulate the air damper shall be modulated to the greater of the economizer command or the ventilation command.
 - An economizer control loop shall modulate the outdoor air damper open to meet the supply air temperature setpoint anytime the unit is in cooling mode and the outdoor air temperature is less than the return air temperature.
 - Ventilation command is determined based on zone level CO2 feedback. The ventilation rate is reset linearly between MinVent and MaxVent based on the number of zones that have a high CO2 concentration.
 - Minimum Outdoor airflow shall be controlled by monitoring the mixed air temperature and modulating the outdoor air damper to achieve the ventilation setpoint. The volume of outdoor air is determined by a weighted ratio of the return and outdoor air temperatures. The BAS shall evaluate the actual temperatures and calculate the appropriate ratio every 15min (minimum) and modulate the outdoor air damper to achieve the required volume of outdoor air (based on the calculated mixed air temperature).
 - The Outdoor Air Volume is calculated as follows:
 - % OUTSIDE AIR = (TEMPmax - TEMPERATURE) / (TEMPOutdoor Air - TEMPERATURE)
 - OUTDOOR AIR VOLUME = %OA * UNIT CAPACITY * (SUPPLY FAN SPEED / 100)

VARIABLE	VALUE
SP	SP
SPmin	ABSOLUTE MIN OA
SPmax	VENTILATION MAX OA
Ts	10 MINUTES
Td	2 MINUTES
I	0
R	ZONE VENTILATION REQUESTS
SPmin	+100 CFM
SPres	-200 CFM
SPres-max	-300 CFM

- Economizer Lockout
 - The outside will be utilized for free cooling anytime the supply air temperature setpoint is less than return temperature and the return temperature is greater than the outside air temperature by at least 2 deg F. If the outside air temperature is greater than the return air temperature disable the economizer.
 - Modulate the outside air damper to maintain a mixed air temperature 2 deg F below the supply air temperature setpoint when the economizer is enabled.
 - Once the economizer is disabled, it shall not be re-enabled within 10 minutes and vice versa.
- Relief Fan and Building Static Pressure Control
 - Relief Fan Control - Building Pressure Control
 - Relief fan operates whenever associated supply fan is proven on.
 - Relief fan speed shall be controlled to maintain building static pressure at setpoint. This setpoint shall be determined during balancing (utilize +0.04 iwc as the base condition). This setpoint should be determined in 100% economizer mode and should result in a slightly positive building in that mode.

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Project:
 TFSD DISTRICT WIDE HVAC REPLACEMENT

Harrison Elementary School
 600 Harrison St
 Twin Falls, ID 83301

Sheet:
 MECHANICAL CONTROLS

Revisions: Δ
 1 Addendum 1 02/05/25



100% CD

Project No: 23028
 Drawn By: Author
 Checked By: Checker
 Date: 1/15/2025

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