

# ADDENDUM



Public Building Commission of Chicago • Richard J. Daley Center • 50 West Washington, Room 200 • Chicago, Illinois 60602 • Tel: 312-744-3090 • Fax: 312-744-8005

**ADDENDUM NO.:** 001  
**PROJECT NAME:** CANTY ELEMENTARY SCHOOL ANNEX  
**PROJECT NO.:** 05750  
**CONTRACT NO.:** C1568  
**DATE OF ISSUE:** May 28, 2015

---

## NOTICE OF CHANGES, MODIFICATIONS, OR CLARIFICATIONS TO CONTRACT DOCUMENTS

The following changes, modifications, or clarifications are hereby incorporated and made an integral part of the Contract Documents. Unless clearly expressed otherwise by this Addendum, all terms and conditions defined in the original Contract Documents shall continue in full force and effect and shall have the same meaning in this Addendum.

**ITEM NO. 1:** REVISIONS TO BOOK 1  
1. No change to Book 1.

**ITEM NO. 2:** REVISIONS TO BOOK 2  
1. No change to Book 2.

**ITEM NO. 3:** REVISIONS TO BOOK 3, DIVISIONS 02 - 49 SPECIFICATION SECTIONS

1. Specification Section 01 23 00 – Alternates
  - a. Alternate Nos. 1 and 2 are to be included in the base bid scope of work. Remove specification section 01 23 00 in its entirety.
2. Specification Section 07 52 00 – Modified Bituminous Membrane Roofing
  - a. In Section 2.7, add G. Polyethylene-reinforced, self-adhering SBS vapor barrier – Tri-laminate woven polyethylene, non-slip, UV protected top surface, self-sealing, high-quality SBS rubber and asphalt blend with silicone release film. Basis of Design JM Vapor Barrier SA
  - b. In Section 3.5, add B. Install polyethylene-reinforced, self-adhering SBS vapor barrier in accordance with manufacturer's installation requirements, staggering end laps. Overlap the sides by a minimum of 3 inches (76 mm) and ends by a minimum of 6 inches (152 mm).
3. Specification Section 12 24 13 – Roller Window Shades
  - a. In Section 2.2, C, replace "Opaque, shadow proof." with "3-5% openness."
4. Specification Section 23 09 20 – Building Automation Systems (BAS)
  - a. In Section 1.4, A, add Automatic Building Control Inc as an acceptable company to install the web-based BAS system  
Automatic Building Control, Inc.  
1580 N. Northwest Highway  
Park Ridge, Illinois 60068  
Contact: Mark Bevil  
847.296.4000

Vendor # 22627

- b. In Section 3.10, G, add the following sequence for VAV box master-slave operations:  
"With respect to zones with multiple air terminal units and multiple space temperature sensors, the following shall occur to avoid opposing tempering modes:
    - i. A zone with two (2) space temperature sensors: the BAS system shall have residing logic to average the space temperatures and operate the associated air terminals in unison.
    - ii. A zone with three (3) space temperature sensors: the BAS system shall have residing logic where if two of three space temperatures are in the same mode and the third space sensor calls for the opposing mode, the majority demand becomes priority and the third zone shall be at its minimum ventilation position."
  - c. Remove sub-section "3.25 Elevator Pump Monitoring".
  - d. Remove sub-section "3.26 Domestic Hot Water Recirculation Pump Monitoring".
  - e. Remove sub-section "3.27 Electrical Sub-Metering".
  - f. In Section 3.8, E and 3.9, E, add "Revised/Updated the Return Fan Sequence for AHU-1 and AHU-2".
5. Specification Section 23 05 93 – Testing, Adjusting, and Balancing for HVAC
    - a. In Section 3.6, C, add "Reference Section 23 09 26 for setpoints, limits, or fan curve parameters to achieve design operations."
  6. Specification Section 23 64 23 Scroll Water Chillers was added.
  7. Remove specification section 23 64 26 Rotary-Screw Water Chillers in its entirety.

**ITEM NO. 4: REVISIONS TO CIVIL DRAWING SHEETS**

1. Sheet C4.0 Site Utility Plan
  - a. Addition of size of the proposed electrical ductbank, 21" x 13", in the utility crossing table.
  - b. Revision of location of the proposed electrical ductbank in relation to the proposed storm system in the utility crossing table. Proposed electrical ductbank is to pass under the proposed storm system with 12" of clearance.

**ITEM NO. 5: REVISIONS TO GENERAL AND ARCHITECTURAL DRAWING SHEETS**

1. Sheet G-010 General Notes
  - a. Add Alternate Nos. 1 and 2 are to be included in the base bid scope of work.
2. Sheet A-111 Annex Second Floor Plan
  - a. Partition type between Classroom No.252 and Mechanical Room No.250 revised to 1E.
3. Sheet A-440 Roof Details
  - a. Detail H6 removed.
  - b. Detail H8 revised to coordinate with specifications.
  - c. All references to single-ply roofing system to be deleted.
4. Sheet A-451 Exterior Details
  - a. Detail H10 removed.
5. Sheet A-500 Door Schedule Types and Details
  - a. Door schedule updated to coordinate with exterior elevations.
  - b. Detail H10 door elevations updated to coordinate with exterior elevations and door schedule.
6. Sheet A-510 Partition Types and Window Schedule
  - a. Detail C1 Partition, add note "ASSEMBLY E – 2 LAYERS OF GWB ON SEPARATE ROWS OF INDEPENDENT METAL STUDS SEPARATED BY 1" MIN GAP ERECTED FULL HEIGHT TO STRUCTURAL SLAB ABOVE AND BELOW. FULL DEPTH ACOUSTICAL BATT INSULATION IN BOTH STUD CAVITIES. NO PENETRATIONS ALLOWED."
7. Sheet A-700 Room Finish Schedule Legend and Details

- a. Revise Finish Legend, window coverings WC-1 from opaque vinyl coated shade to 3-5% openness vinyl coated shade.
- 8. Sheet A-710 First Floor Furniture Plan and Sheet A-711 Second Floor Furniture Plan
  - a. Remove "FOR REFERENCE ONLY" note on drawing sheet.

**ITEM NO. 6: REVISIONS TO STRUCTURAL DRAWING SHEETS**

- 1. Sheet S-102 Annex Second Floor Framing Plan
  - a. Missing section marks provided.
  - b. Penetrations for risers to coordinate with MEP drawings indicated.
- 2. Sheet S-103 Roof Framing Plan
  - a. Missing section marks provided.
  - b. Top of steel elevations provided. WT4x9s added at mechanical penthouse
- 3. Sheet S-401 Framing Details
  - a. Details 15 and 19: WT removed, WF moved up 2 ½".

**ITEM NO. 7: REVISIONS TO MEP AND FP DRAWING SHEETS**

- 1. Sheet P.000 - Plumbing Symbols, Notes & Abbreviations
  - a. Changed insulation on CW to be 1"
  - b. Removed drain tile pipe from pipe materials
- 2. Sheet P.200a - Underground Area A - Partial Plumbing Plan
  - a. Changed the combined fire/domestic water service to -5"-6" invert elevation
  - b. Added reference note at existing building assembly hall stage for clarification "SEE P.100b FOR WORK IN THIS AREA"
- 3. Sheet P.500 Plumbing Schedules
  - a. Removed "detector" from valve type for clarification.
  - b. Modify valve description to match model selection for clarification.
  - c. Changed model number to be 0.125 gpf to meet LEED Credits.
  - d. Added note to install EVB at 7'6" A.F.F.
  - e. Changed Cleanout model.
  - f. Floor sink rim to be installed 1" A.F.F.
  - g. Revised SK-1 count.
  - h. Removed SK-2.
- 4. Sheet P.600 Plumbing Details
  - a. Detail 8 Water Heater Diagram, add air intake, flues and gas supply to the water heater detail and reference to mechanical drawings.
- 5. Sheet FP.000 Fire Protection Symbols, Notes, Abbreviations, and Schedules
  - a. Fire Department Connection and Fire Pump Test Connection Schedule, add "STORZ CONNECTION" for clarification of FDC type.
  - b. Detail 1 Fire Protection Riser Diagram, add check valve to bypass assembly.
- 6. Sheet FP.600 Fire Protection Details
  - a. Added check valve to bypass assembly.
  - b. Added ball drip pipe to drain under FDC.
- 7. Sheet E.400 Electrical Riser Diagrams
  - a. Detail 1 Electrical One Line Diagram, revise AHU-1 circuit breaker to 35A-3P.
  - b. Detail 1 Electrical One Line Diagram, revise AHU-2 circuit breakers to 100A-3P.
- 8. Sheet E.500 Electrical Schedules – Powered Equipment
  - a. Revised circuiting requirements for AHU-1, AHU-2, and KEF-1.
- 9. Sheet E.510 Electrical Schedules – Panel Schedules
  - a. Revised AHU-1 and AHU-2 circuit breakers to 35A-3P and 100A-3P, respectively at MSB switchboard schedule

- b. Revised circuiting of KEF-1 at panel MP-1.
- 10. Sheet M.000 Mechanical Symbols, Notes & Abbreviations
  - a. Added note 26 to General Notes, "VOLUME DAMPERS OF LOCKING TYPE SHALL BE PLACED IN EACH BRANCH OF LOW PRESSURE DUCTWORK. REGISTERS SHALL NOT BE USED FOR BALANCING."
  - b. Removed note 5 from City of Chicago Notes
- 11. Sheet M.201a First Floor Area A - Partial Mechanical Ductwork Plan
  - a. Revised transfer air ductwork for Storage 150G.
  - b. Revised exhaust ductwork and outside air ductwork and grille sizes for electrical room 158
  - c. Note for linear slot diffusers in lunch room revised
  - d. Horizontal fire damper has been added at the floor slab for both- SA and RA ductwork
  - e. Transfer air ductwork between lunchroom and server has been removed
  - f. Kitchen exhaust hood has been revised to be 2500 CFM, and ductwork sizing has been updated for revised airflow.
- 12. Sheet M.202a Second Floor Area A - Partial Mechanical Ductwork Plan
  - a. Ductwork For VAV2-12B Revised
  - b. Ductwork to KEF-1 has been revised for updated airflow
  - c. Ductwork to EF-3 has been revised for updated airflow
  - d. Ductwork to EF-2 and from L-1 has been revised
- 13. Sheet M.203a Roof Area A - Partial Mechanical Ductwork Plan
  - a. Added keynote 1 "PROVIDE MINIMUM 12" DUCT EXTENSION BETWEEN OUTSIDE AIR INTAKE DAMPER AND INTAKE HOOD FOR INSTALLATION OF AIR FLOW 1 MEASURING STATION"
- 14. Sheet M.211a First Floor Area A - Partial Mechanical Piping Plan
  - a. Removed note for heat tracing at chiller enclosure.
  - b. Added temperature sensors for radiant panels in Boys Toilet Room 145B
  - c. Added temperature sensors for radiant panels in Girls Toilet Room 145A
  - d. Added temperature sensors for radiant panels in Toilet Room 144.
  - e. Added emergency switch for kitchen gas equipment in Hybrid Kitchen 150.
  - f. Added emergency switch for water heaters in Mechanical Room 156
- 15. Sheet M.212a Second Floor Area A - Partial Mechanical Piping Plan
  - a. Added temperature sensors for radiant panels in Boys Toilet Room 245B
  - b. Added temperature sensors for radiant panels in Girls Toilet Room 245A
  - c. Added temperature sensors for radiant panels in Toilet Room 244.
  - d. Added emergency switch in Mechanical Room 250.
- 16. Sheet M.300 Enlarged Mechanical Plans- Existing
  - a. Revised detail 4 for ductwork and diffuser size for EF-4
- 17. Sheet M.301 Enlarged Mechanical Plans- Annex
  - a. Added emergency switch to Mechanical Room 250
  - b. Moved the VFD for P-3
  - c. Moved the VFD for P-4
- 18. Sheet M.400 Mechanical System Diagrams – Waterside
  - a. Revised valves on gas riser diagram
- 19. Sheet M.500 Mechanical Schedules
  - a. Revised EF-2,3,4 on Fan schedule
  - b. Revised AHU schedule
  - c. Revised AHU filter data
  - d. Revised sound data for AHU-1,2
  - e. Revised Gas Booster Pump to be duplex pump
  - f. Chiller schedule updated for scroll chiller

- g. Boiler schedule has been updated
- h. Louver schedule has been updated
- 20. Sheet M.501 Mechanical Schedules
  - a. Diffusers, Registers, and Grilles Schedule, add diffuser length of 48" for type B Titus Flowbar FL-20.
  - b. Diffusers, Registers, and Grilles Schedule, add diffuser length of 48" for type J Titus Flowbar FL-25.
- 21. Sheet M.600 Mechanical Details
  - a. Detail 2 Typical Duct Thru Floor with Damper Detail (For New Buildings), add access door for resetting of damper or inspection, minimum 12" x 12".
  - b. Detail 8 Terminal Unit, add access door integral to box, and add note "PROVIDE (4) POINTS OF SUPPORTS FROM BUILDING STRUCTURE. LENGTH SUPPORTS TO SUIT SPACE AVAILABLE."
- 22. Sheet M.602 Mechanical Details
  - a. Revised detail 8
  - b. Removed detail 10
- 23. Sheet M.603 Mechanical Details
  - a. Detail 7 has been updated to remove EOR note
  - b. Detail 12 has been removed
  - c. Detail 9 has been revised
  - d. Detail 11 has been revised
  - e. Detail 13 has been revised
- 24. Sheet M.604 Mechanical Details
  - a. Detail 2 Chiller Noise Reduction System, revised to refer to architectural drawings for masonry wall construction.
  - b. Detail 4 Air Handling Unit Details (AHU-2) revised to remove MERV-11 filter and to show pipe chase.
  - c. Detail 5 Air Handling Unit Details (AHU-1) revised to remove MERV-11 filter and to show pipe chase.
- 25. Sheet M.703 AHU-1 Controls Diagram
  - a. Add note for "RA Isolation Damper": Multiple damper sections shall be controlled in unison.
- 26. Sheet M.707 Control Detail-1
  - a. Remove Detail and Points List: BAS Monitoring of Electrical Sub-Metering.
  - b. Remove Detail and Points List: BAS Monitoring of DHW Recirculation Pump.
  - c. Remove Detail and Points List: BAS Monitoring of Elevator Pit Pump.
- 27. Sheet M.708 Control Detail-2
  - a. Remove Detail: Outside Air Sensing.

**ITEM NO. 8: REVISIONS TO FOOD SERVICE DRAWING SHEETS**

- 1. Remove "FOR REFERENCE ONLY" note on sheet nos. FS101, FS201, FS202, FS301, FS302, FS401, FS402, FS701, and FS801.

**ITEM NO. 9: REQUESTS FOR INFORMATION**

- 1. **Statement:** Please Drawings E0.10 and C4.0 - there is a conflict between the two drawings with regard to the underground electric ducts. E0.10 show underground ducts going to pole in alley that's 200 plus feet from the property line, that requires opening up street, sidewalks, and alley (restoration work not indicated). Sheet C4.0 says this is utility work and not in contract. Please confirm that this work is N.I.C. as stated on sheet C4.0.

**Response:** As indicated on sheet C4.0, the underground ducts from the pole in the alley to the property line of the project site is part of the utility work and is N.I.C.

2. **Statement:** Please provide the critical fall height for the playlot surfaces.

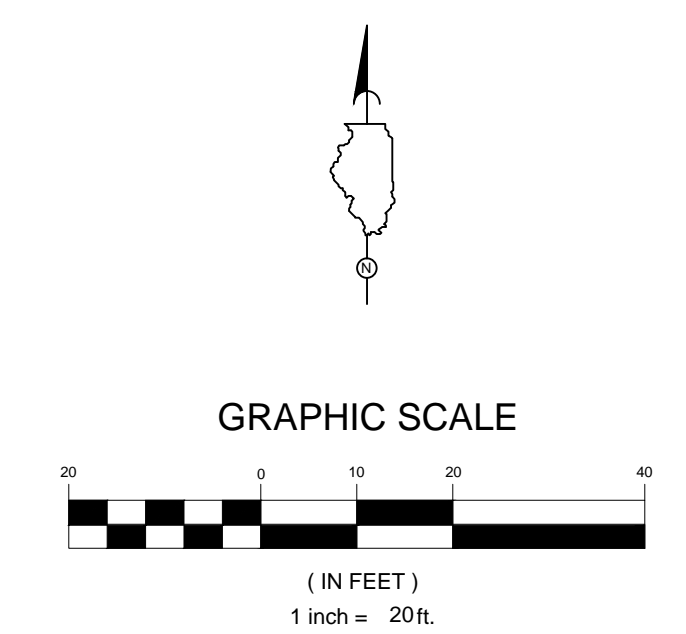
**Response:** Critical fall height for the playlot surface to comply with ASTM F1292 as indicated in the project manual.

**List of Attachments and Drawings:**

(Available at Springer Blueprint Service's online plan room: <http://www.springerblueprint.com/public.php>.)

1. This Addendum includes the following attached Sheets:
  - a. Civil Sheet C4.0 dated 05.26.2015
  - b. Architectural Sheet A440 and A500 dated 05.26.2015
  - c. Structural Sheets S102, S103 and S401 dated 05.26.2015
  - d. Mechanical Sheets M.201a, M202a, M.300, M.400, M.500, M.602, M.603, and M.703A dated 05.26.2015
  - e. Electrical Sheets E.500 and E.510 dated 05.26.2015
  - f. Plumbing Sheet P.500 dated 05.26.2015
  - g. Fire Protection Sheets FP.600 dated 05.26.2015

**END OF ADDENDUM NO.1**



**LEGEND AND ABBREVIATIONS:**

- PL PROPERTY LINE
- BUILDING
- RESTORE CITY STREET PAVEMENT, CURB AND GUTTER, PARKWAY AND SIDEWALK PAVEMENT AS REQUIRED FOR CONSTRUCTION. AREA SHOWN AS SCHEMATIC ONLY.
- AGGREGATE INFILTRATION TRENCH
- STORM LINE
- SANITARY LINE
- PERFORATED STORM LINE
- COMBINED SEWER LINE
- WATER LINE
- GAS LINE
- ELECTRIC LINE
- OEMC LINE
- HWL HIGH WATER LEVEL
- CCD CHICAGO CITY DATUM
- FFE FINISHED FLOOR ELEVATION
- FT FLAT TOP
- TRENCH DRAIN
- CATCH BASIN (CB)
- MANHOLE (MH)
- WATER VALVE VAULT (WVV)
- RESTRICTOR (REST.)
- CLEAN OUT (CO)
- OVERFLOW ELEVATION
- UTILITY CROSSING TAG

**NOTES:**

- ALL DUCTILE IRON PIPE (DIP) IS TO BE WRAPPED IN POLYETHYLENE PER DETAIL #5/C5.2.
- RCP STORM SEWER TO BE CLASS III UNLESS OTHERWISE NOTED.
- CONTRACTOR TO VERIFY ALL EXISTING INVERTS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
- FOR ALL EXCAVATION AND EARTHWORK ADHERE TO REQUIREMENTS OF SOIL MANAGEMENT SPECIFICATIONS.

**PROJECT NAME**  
**ELEVATION TABLES FOR UTILITY CROSSINGS** \*P=Proposed X= Existing

Tag #	Use of Pipe	Type of Pipe	Size	Top Elev.	Bottom Elev.	Separation (Feet)
1	P. Water	DIP	8"	45.25	44.54	+/-2.22
	X. Sewer	VCP	12"	+/-42.32	+/-41.24	
2	P. Water	DIP	8"	41.80	41.09	1.50
	P. Storm	RCP	36"	46.80	43.30	
3	P. Sanitary	DIP	6"	46.89	46.35	0.35
	P. Storm	DIP	6"	47.78	47.24	
4	P. Gas	DIP	4"	48.20	47.87	
	P. Storm	RCP	36"	46.78	43.28	1.09
5	P. Gas	DIP	4"	48.20	47.87	+/-5.56
	X. Sewer	VCP	12"	+/-42.31	+/-41.23	
6	P. Gas	DIP	4"	48.20	47.87	+/-2.27
	X. Water	DIP	8"	+/-45.60	+/-44.89	
7	P. Electric	DUCT	15"	47.16	47.08	1.00
	P. Storm	DIP	10"	46.04	46.16	
8	P. Electric	DUCT	15"	43.91	42.83	1.00
	P. Storm	PERF PVC	8"	45.57	44.91	



**CANTY ELEMENTARY SCHOOL ANNEX**  
3740 NORTH PANAMA AVENUE  
CHICAGO, ILLINOIS 60634  
CHICAGO PUBLIC SCHOOLS  
CITY OF CHICAGO, MAYOR RAHM EMANUEL

Architect of Record:  
**SMITH HARDING JOINT VENTURE**  
ADDRESS: 224 S MICHIGAN AVENUE SUITE 245  
CHICAGO, ILLINOIS 60604  
PHONE: 312.922.2600  
FAX: 312.922.8222  
WEB: www.harding.com

C.E. ANDERSON & ASSOCIATES  
Structural Engineers  
175 N Franklin Ave Suite Chicago, Illinois 60606

dbHMS ENGINEERING  
MEP and FP Engineers  
305 W Erie St Suite 510 Chicago, Illinois 60654

TERRA ENGINEERING  
Civil Engineers  
225 W Ohio St 4th Floor Chicago, Illinois 60654

S.K. KEGAN & ASSOCIATES  
Landscape Architects  
9620 S Damen Ave Chicago, Illinois 60643

BAKER GROUP  
Food Service Consultant  
2220 E Paris Ave SE Grand Rapids, MI 43546

THRESHOLD ACOUSTICS  
Acoustician  
53 W Jackson Blvd Suite 815 Chicago, Illinois 60604

WARNING: ASBESTOS CONTAINING BUILDING MATERIALS ARE OR MAY BE PRESENT IN THIS BUILDING. AN ASBESTOS MANAGEMENT PLAN IS AVAILABLE IN THE SCHOOL FOR REVIEW UPON REQUEST. NO PERSON MAY DISTURB ASBESTOS CONTAINING MATERIALS UNLESS THAT PERSON IS LICENSED ASBESTOS ABATEMENT WORKER OR CONDUCTS SUCH WORK IN ACCORDANCE WITH PROJECT SPECIFICATIONS CONTAINING IN THE PROJECT DOCUMENTS AND IN COMPLIANCE WITH THE APPLICABLE REGULATIONS.

LEAD-BASED PAINT MAY BE PRESENT WITHIN THE BUILDING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO TAKE APPROPRIATE SAFETY MEASURES IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS INCLUDING OSHA (1926.55) COMPLIANCE, WASTE CHARACTERIZATION AND WASTE DISPOSAL. ALL WORK WITH SURFACES CONTAINING LEAD-BASED PAINT SHALL BE DONE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

Issuance

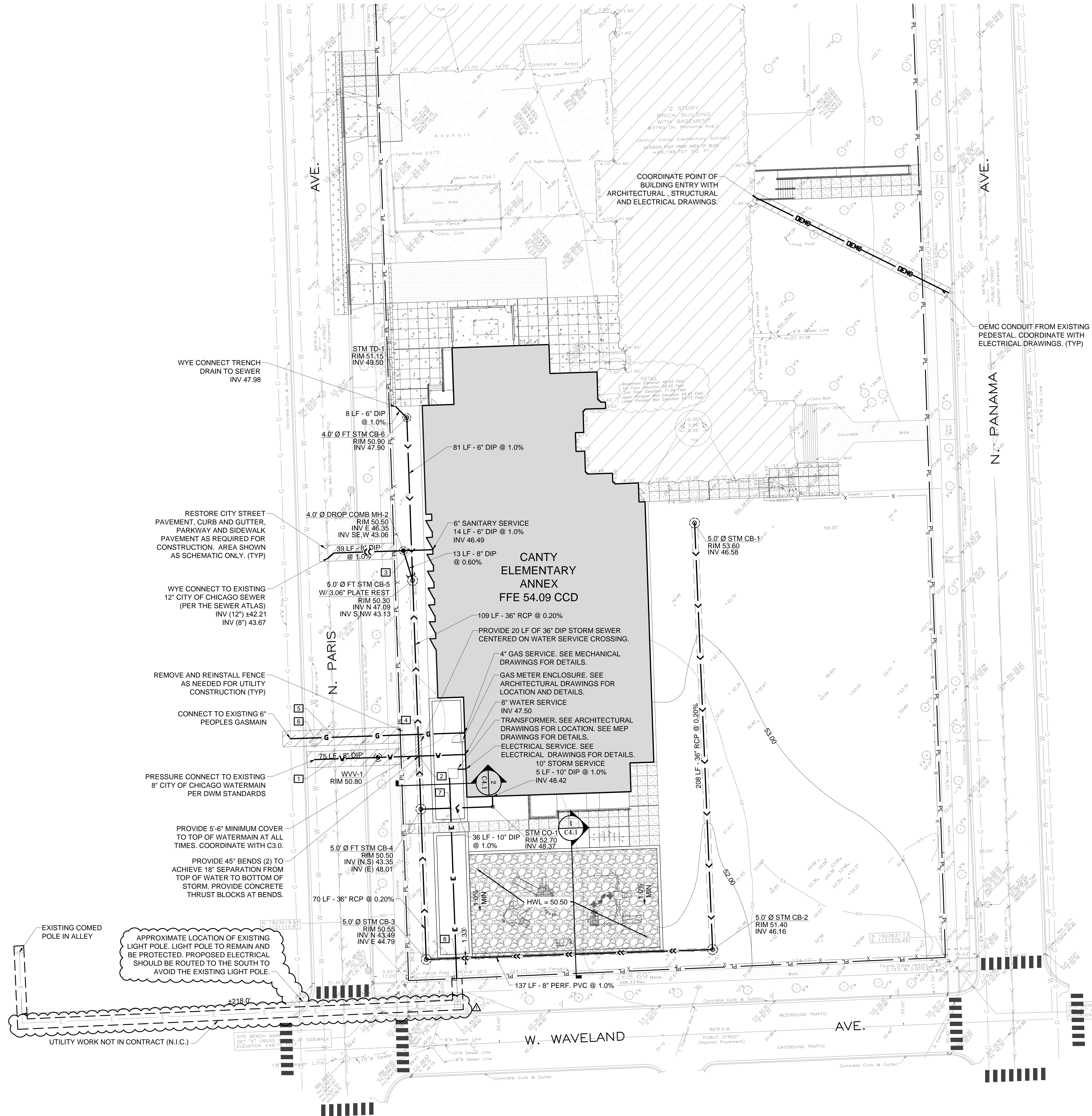
Mark	Description	Date

ADDENDUM NO.001 05.26.15  
1 ISSUED FOR BID 05.07.15

PBC Project Name: ARTHUR CANTY ANNEX  
PBC Contract No: 05750  
Project No.: 2014-05750-ANX  
Title

**SITE UTILITY PLAN**

Sheet  
C4.0





**CANTY ELEMENTARY SCHOOL ANNEX**  
 3740 NORTH PANAMA AVENUE  
 CHICAGO, ILLINOIS 60634  
 CHICAGO PUBLIC SCHOOLS  
 CITY OF CHICAGO, MAYOR RAHM EMANUEL

Architect of Record  
**SMITH HARDING JOINT VENTURE**  
 224 SOUTH MICHIGAN AVENUE  
 SUITE 245  
 CHICAGO, ILLINOIS 60604  
 312.922.2600 T  
 312.922.8222 F

C.E. ANDERSON & ASSOCIATES  
 Structural Engineers  
 175 N Franklin Ave Suite  
 Chicago, Illinois 60606

dbHMS ENGINEERING  
 MEP and FP Engineers  
 303 W Erie St Suite 510  
 Chicago, Illinois 60654

TERRA ENGINEERING  
 Civil Engineers  
 225 W Ohio St 4th Floor  
 Chicago, Illinois 60654

S.K. KEGAN & ASSOCIATES  
 Landscape Architects  
 8620 S Damen Ave  
 Chicago, Illinois 60643

BAKER GROUP  
 Food Service Consultant  
 2220 E Paris Ave SE  
 Grand Rapids, MI 43546

THRESHOLD ACOUSTICS  
 Acoustician  
 53 W Jackson Blvd Suite 815  
 Chicago, Illinois 60604

WARNING: ASBESTOS CONTAINING BUILDING MATERIALS ARE OR MAY BE PRESENT IN THIS BUILDING. AN ASBESTOS MANAGEMENT PLAN IS AVAILABLE IN THE SCHOOL FOR REVIEW UPON REQUEST. NO PERSON MAY DISTURB ASBESTOS CONTAINING MATERIALS UNLESS THAT PERSON IS A LICENSED ASBESTOS ABATEMENT WORKER OR CONDUCTS SUCH WORK IN ACCORDANCE WITH PROJECT SPECIFICATIONS CONTAINING IN THE PROJECT DOCUMENTS AND IN COMPLIANCE WITH THE APPLICABLE REGULATIONS.

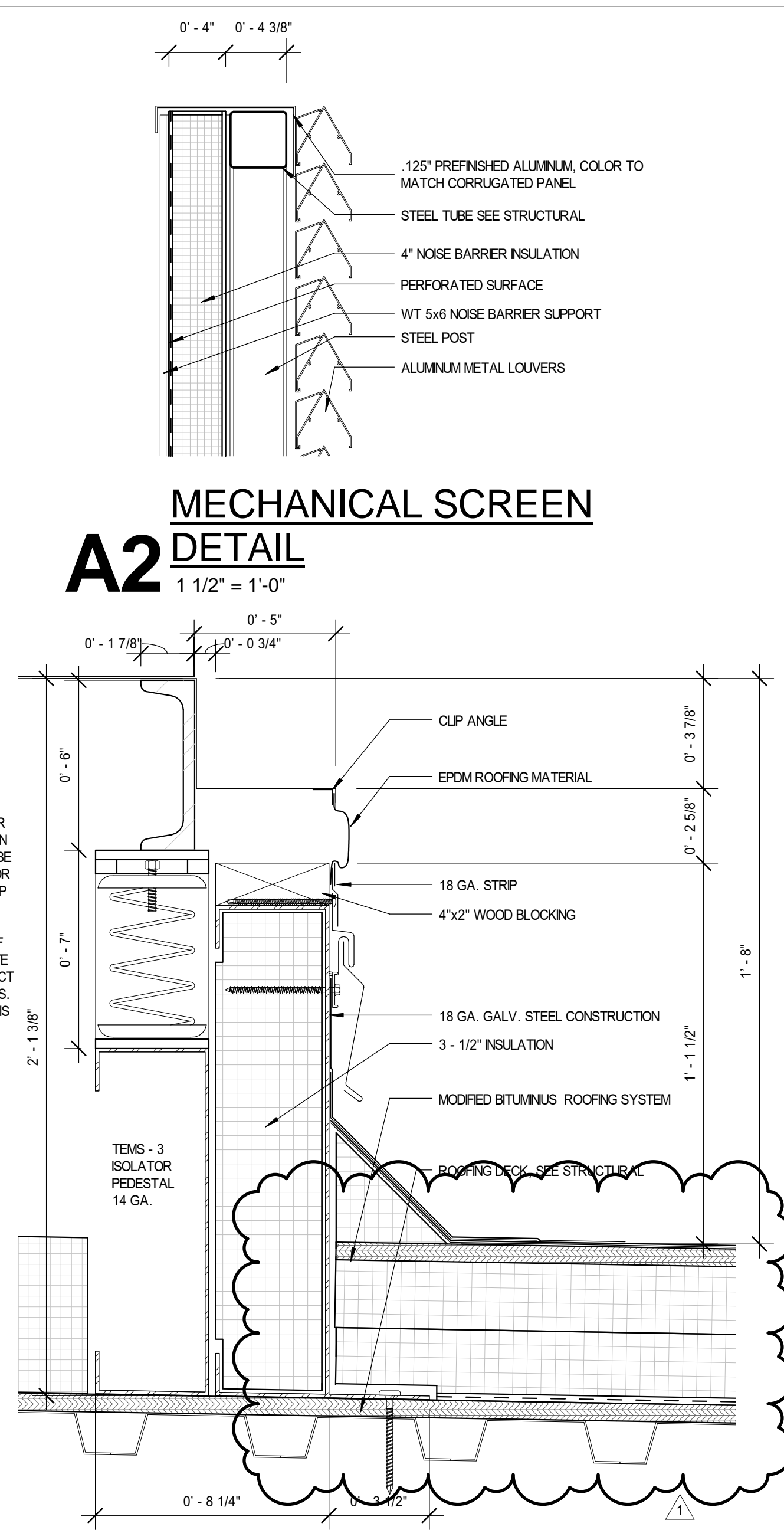
LEAD-BASED PAINT MAY BE PRESENT WITHIN THE BUILDING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO TAKE APPROPRIATE SAFETY MEASURES IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS INCLUDING OSHA (1962.62) COMPLIANCE, WASTE CHARACTERIZATION AND WASTE DISPOSAL. ALL WORK WITH SURFACES CONTAINING LEAD-BASED PAINT SHALL BE DONE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

Issuance

Mark	Description	Date
1	ADDENDUM NO.1	05.26.15
1	ISSUED FOR BID	05.07.15

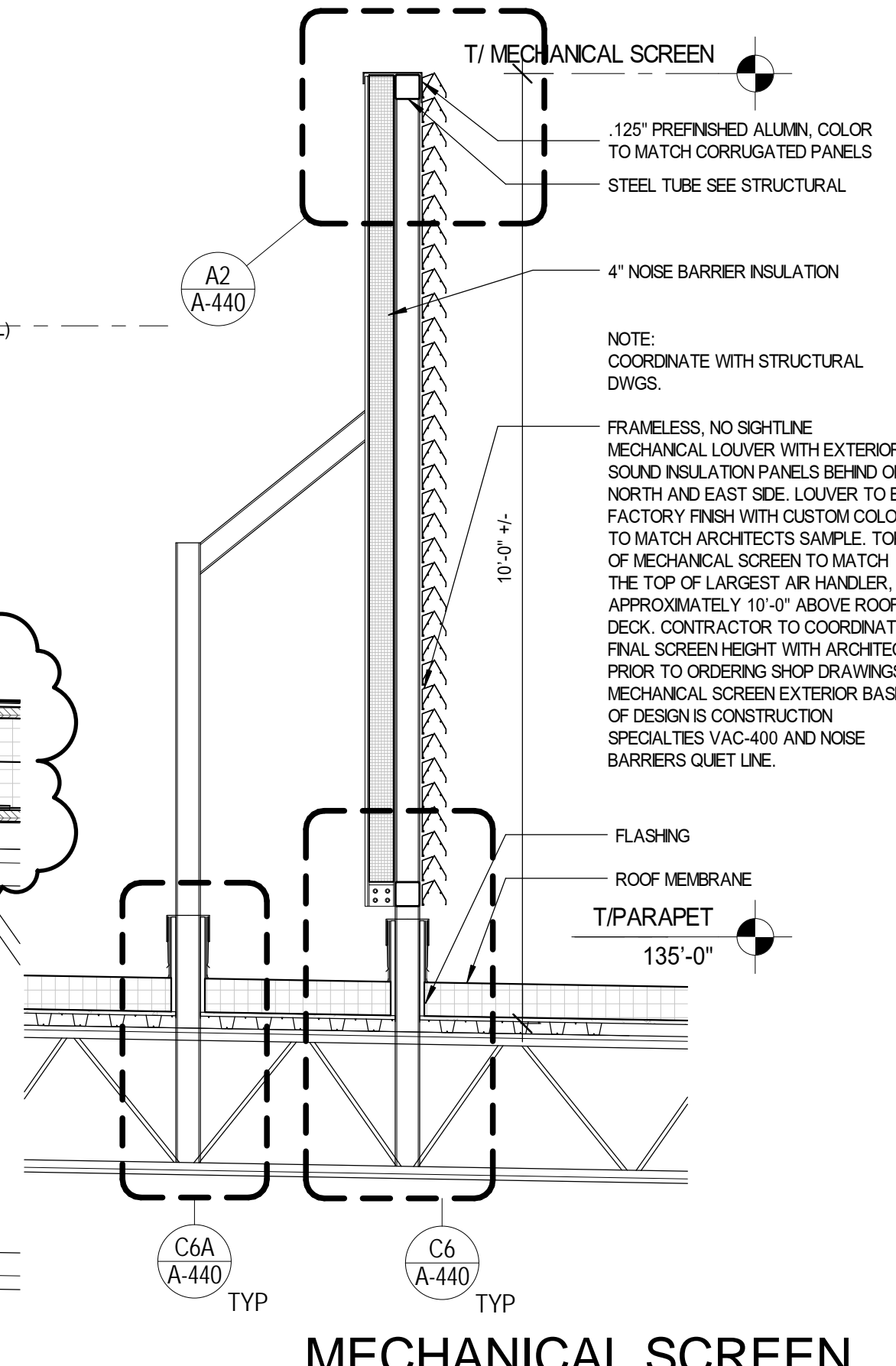
PBC Project Name: ARTHUR CANTY ANNEX  
 PBC Contract No: 05750  
 Project No.: 2014-05750-ANX  
 Title

**ROOF DETAILS**

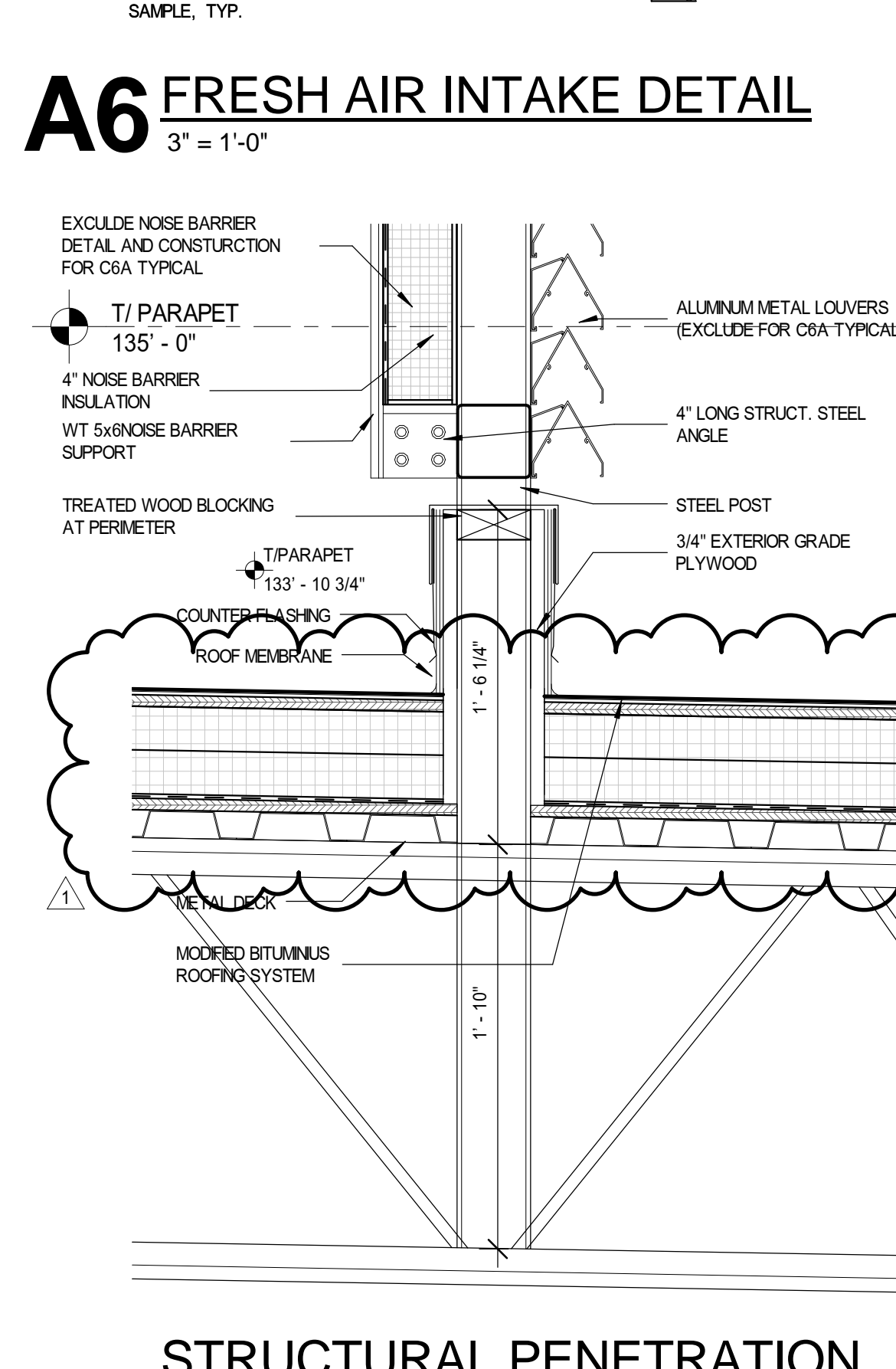


**A2 DETAIL**  
 1 1/2" = 1'-0"

**C2 VIBRATION ISOLATION MOUNT**  
 3" = 1'-0"

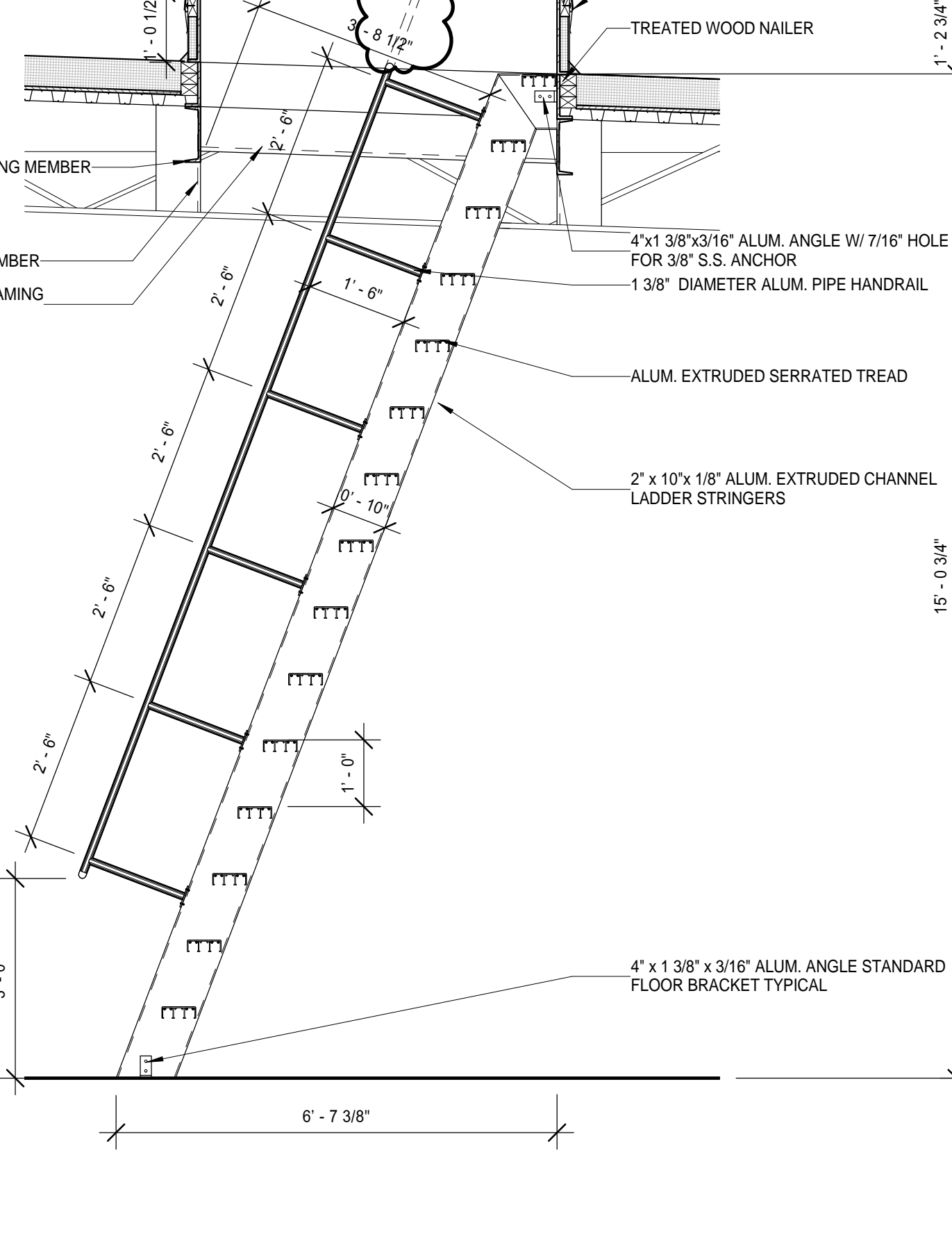


**C4 SECTION**  
 1/2" = 1'-0"

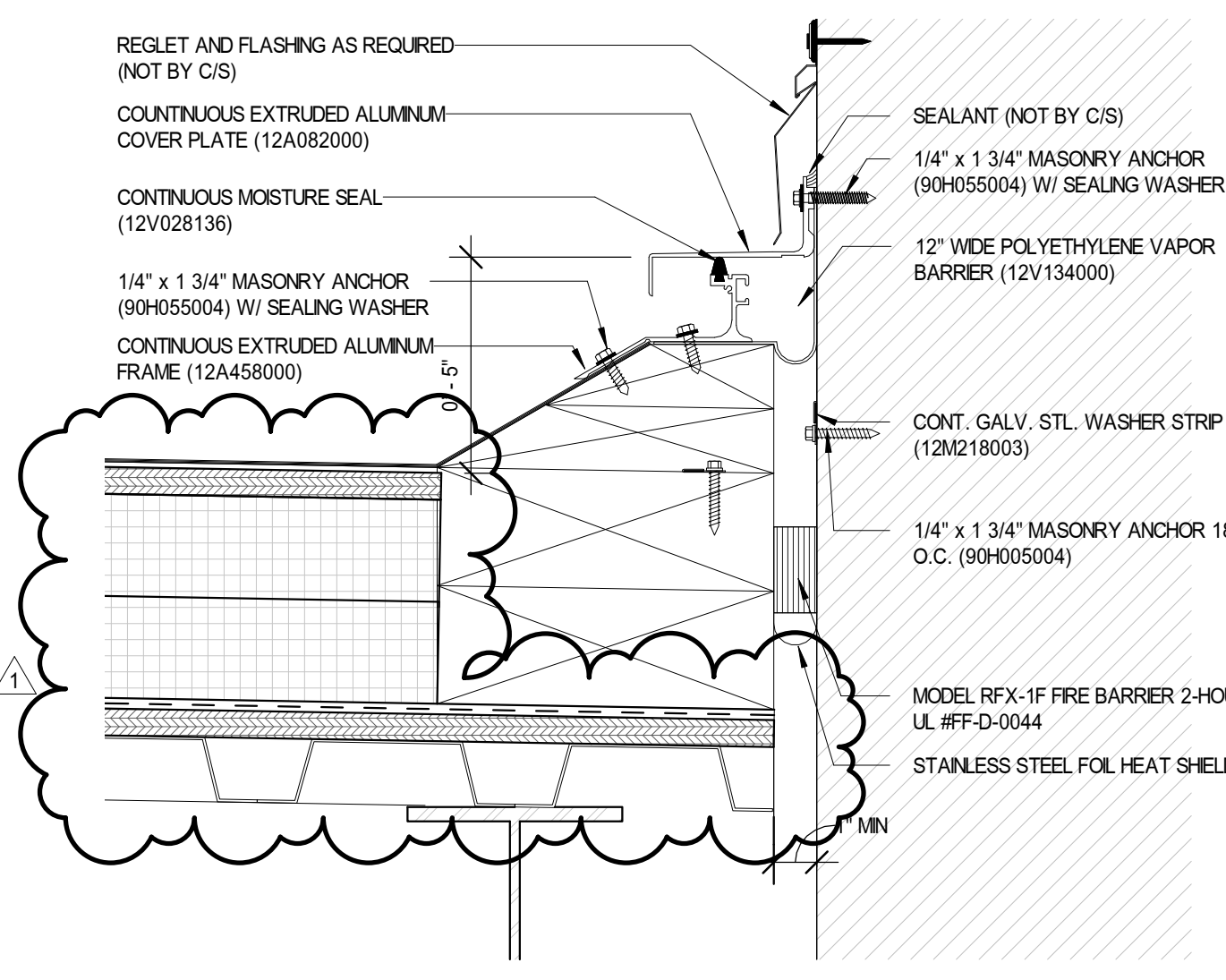


**A6 FRESH AIR INTAKE DETAIL**  
 3" = 1'-0"

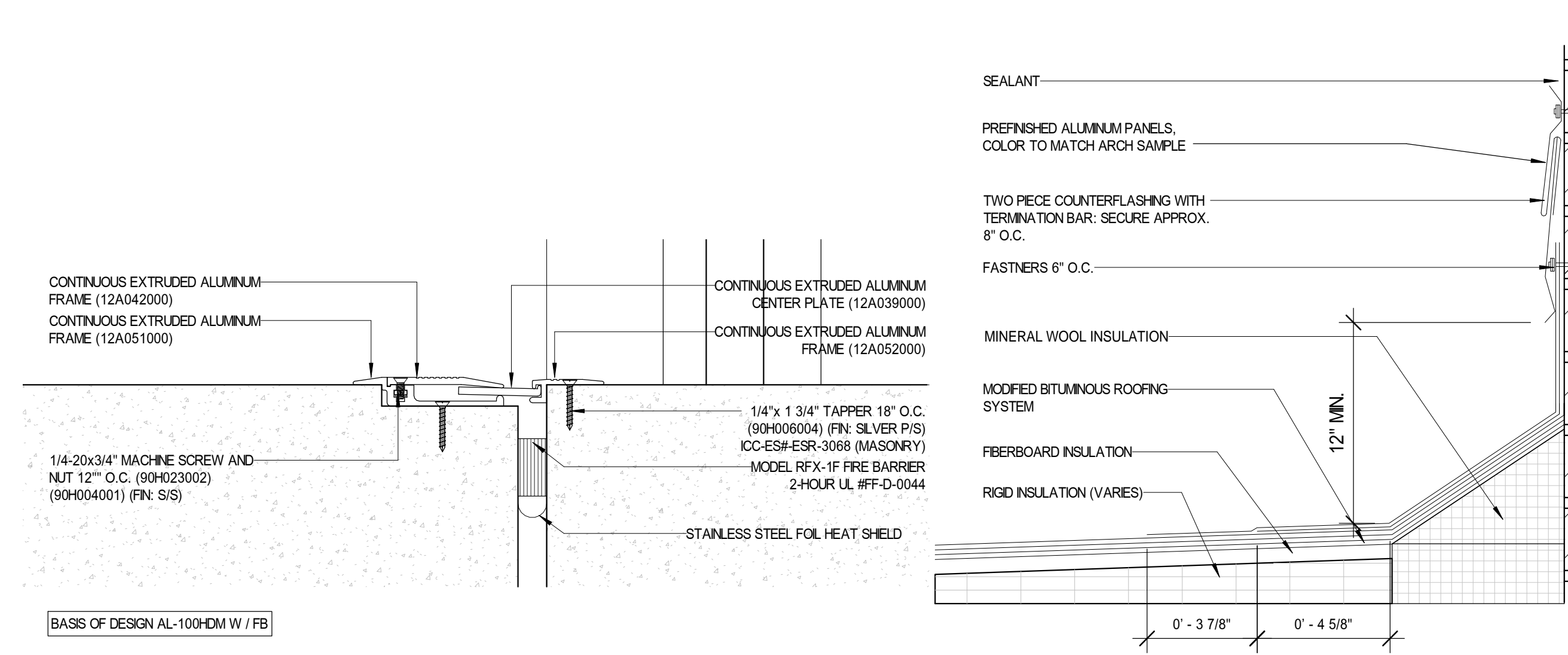
**C6/C6A DETAIL**  
 1 1/2" = 1'-0"



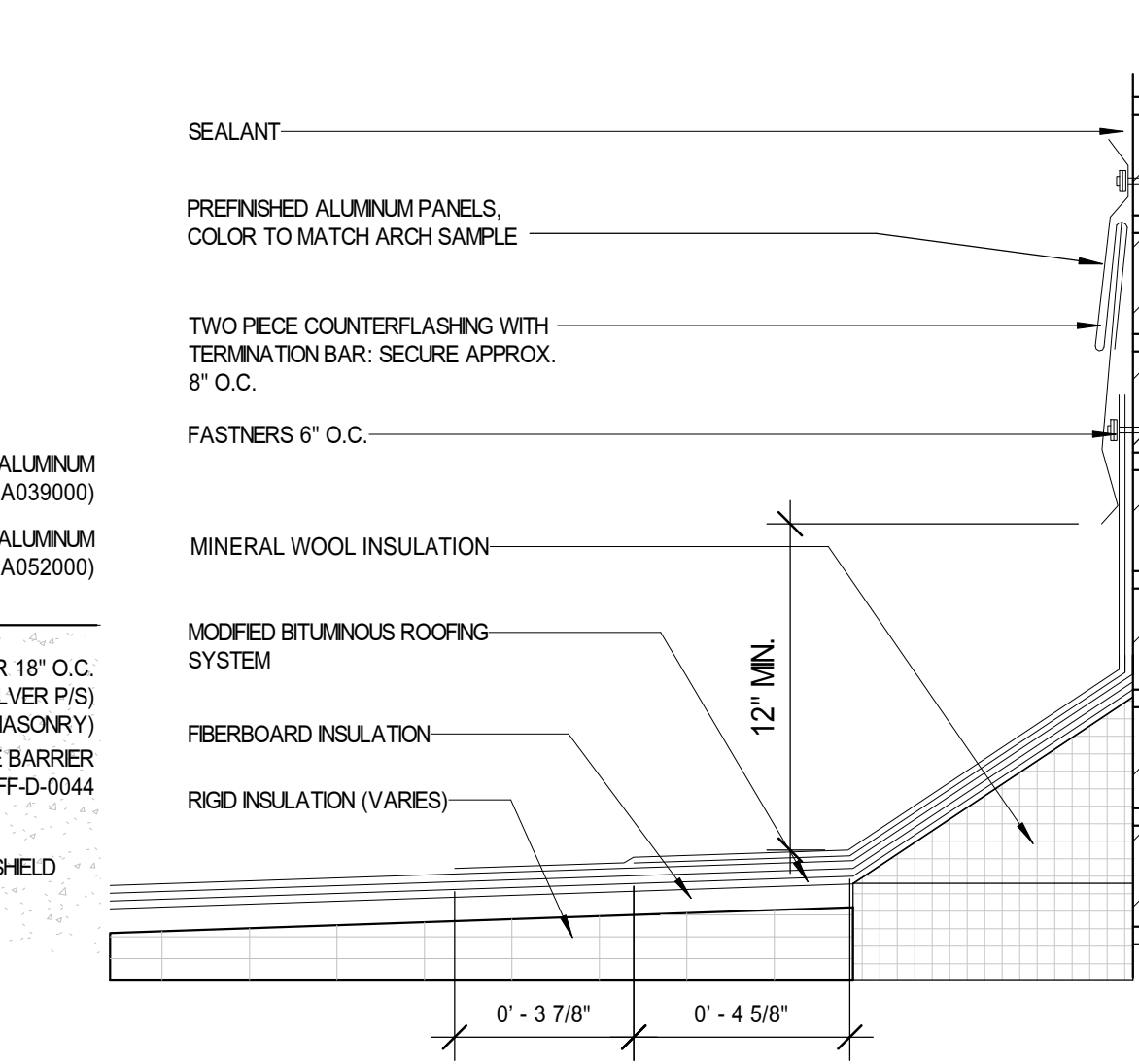
**C8 ROOF ACCESS LADDER**  
 1/2" = 1'-0"



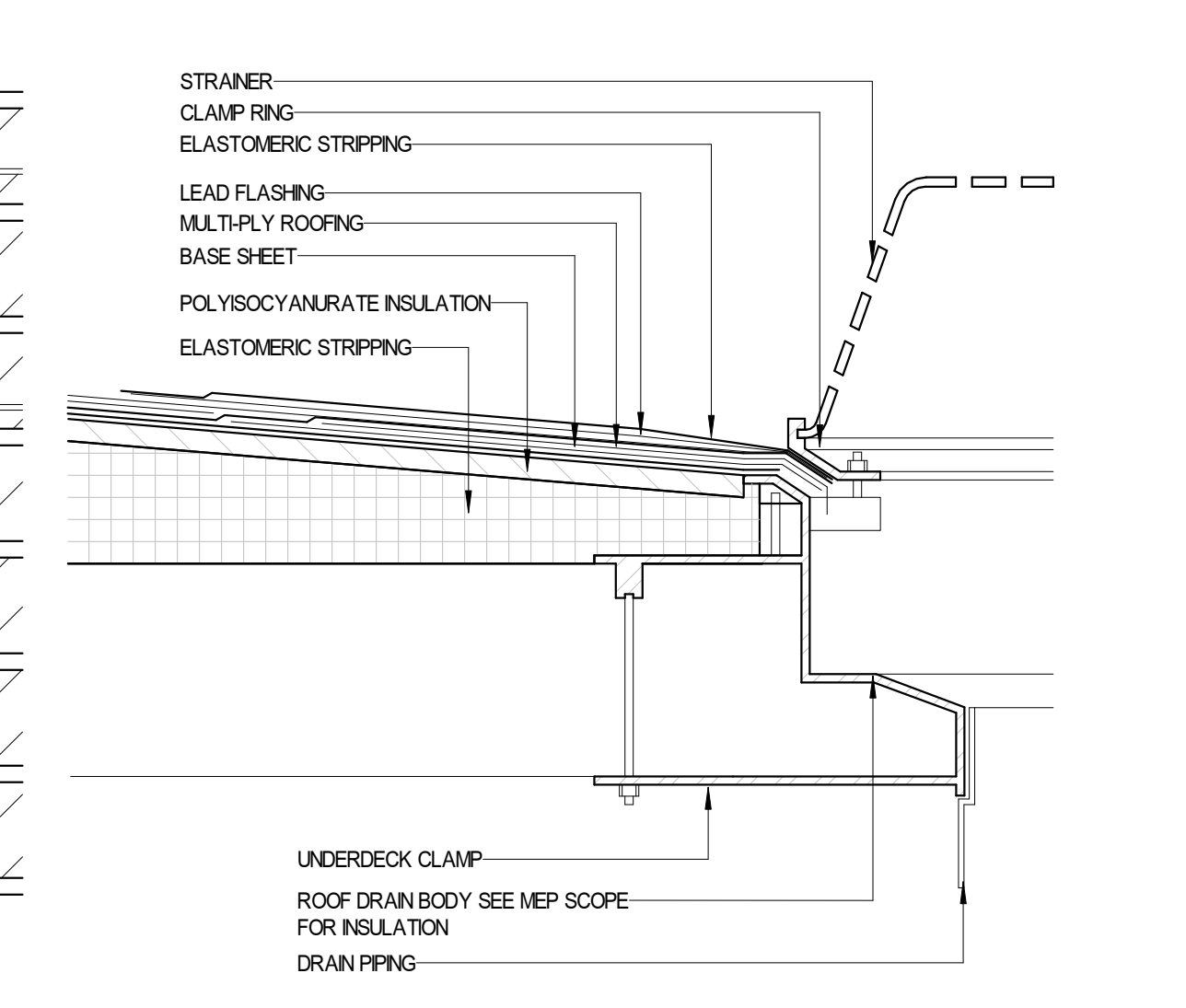
**E8 ROOF EXPANSION JOINT**  
 3" = 1'-0"



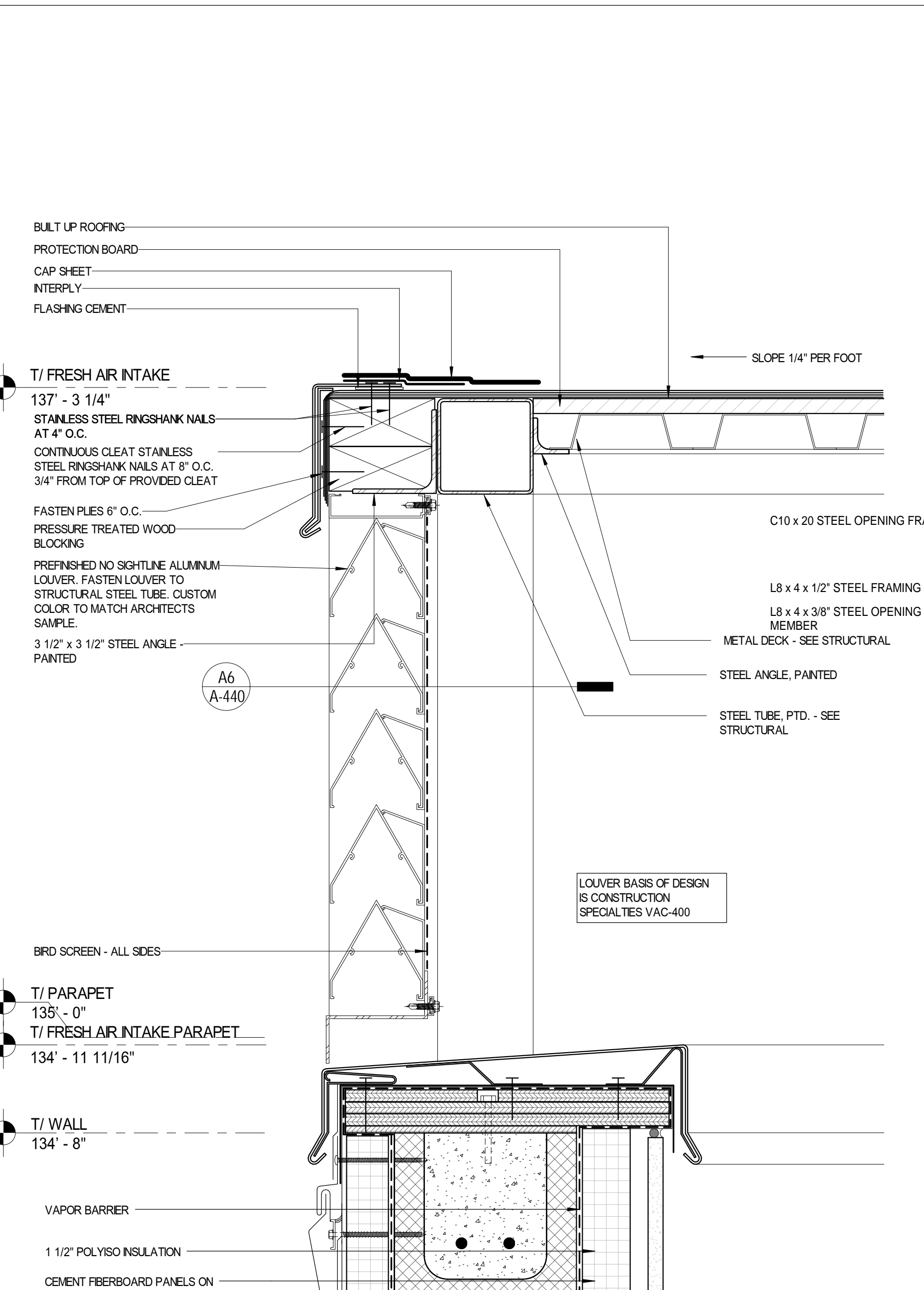
**E6 FLOOR EXPANSION JOINT**  
 3" = 1'-0"



**E4 ROOF FLASHING**  
 3" = 1'-0"

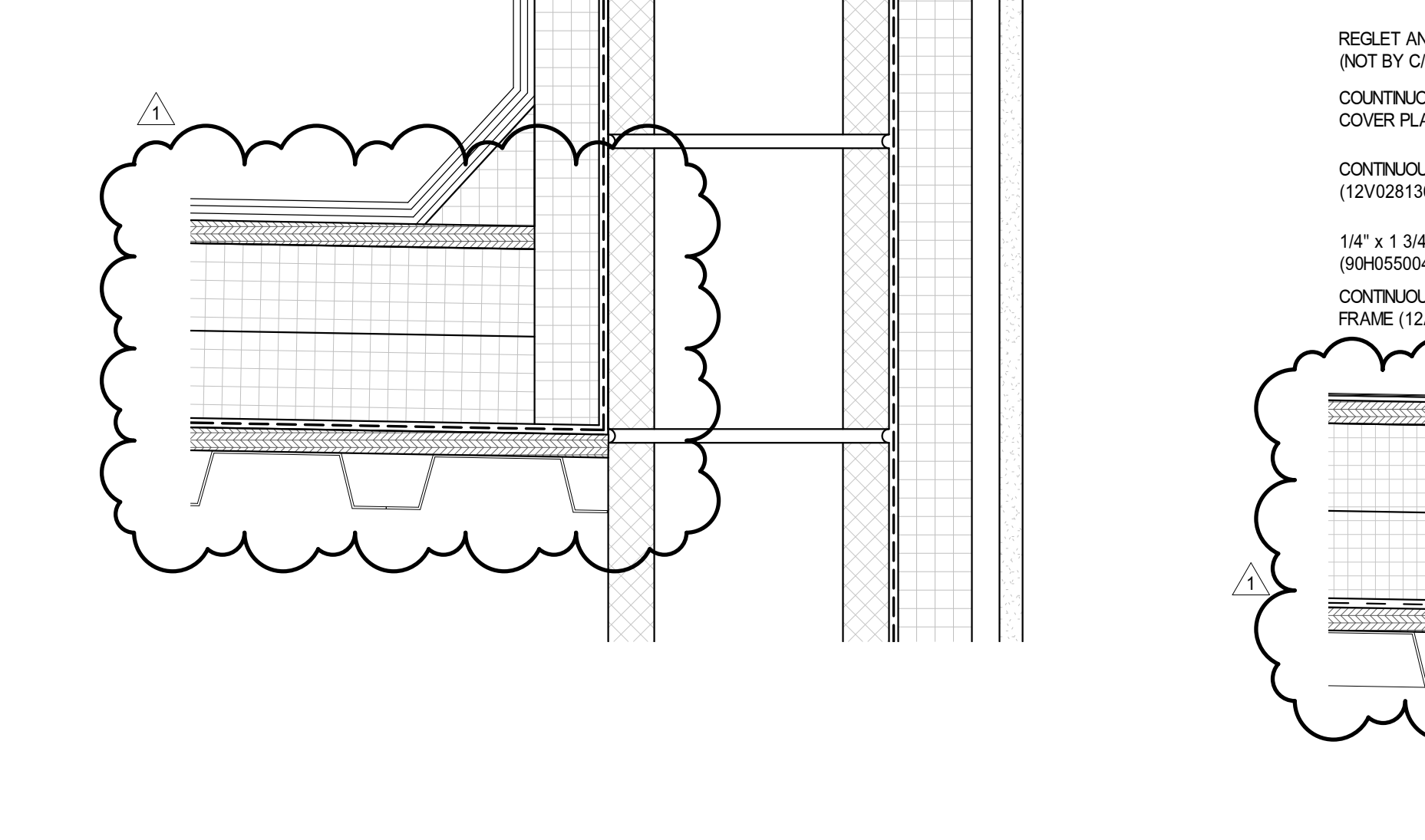


**E2 ROOF DRAIN**  
 3" = 1'-0"

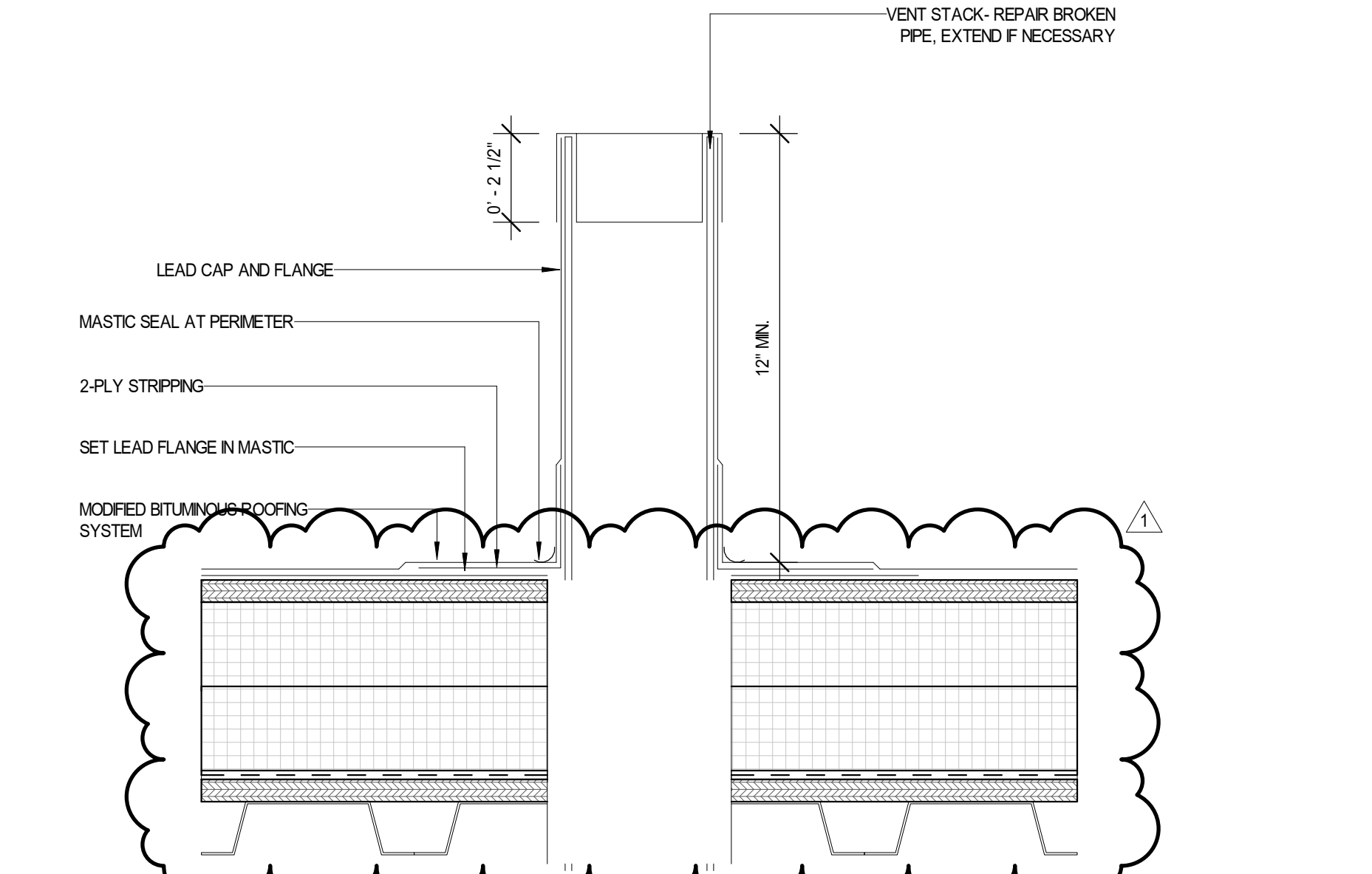


**T1 FRESH AIR INTAKE**  
 137' - 3 1/4"

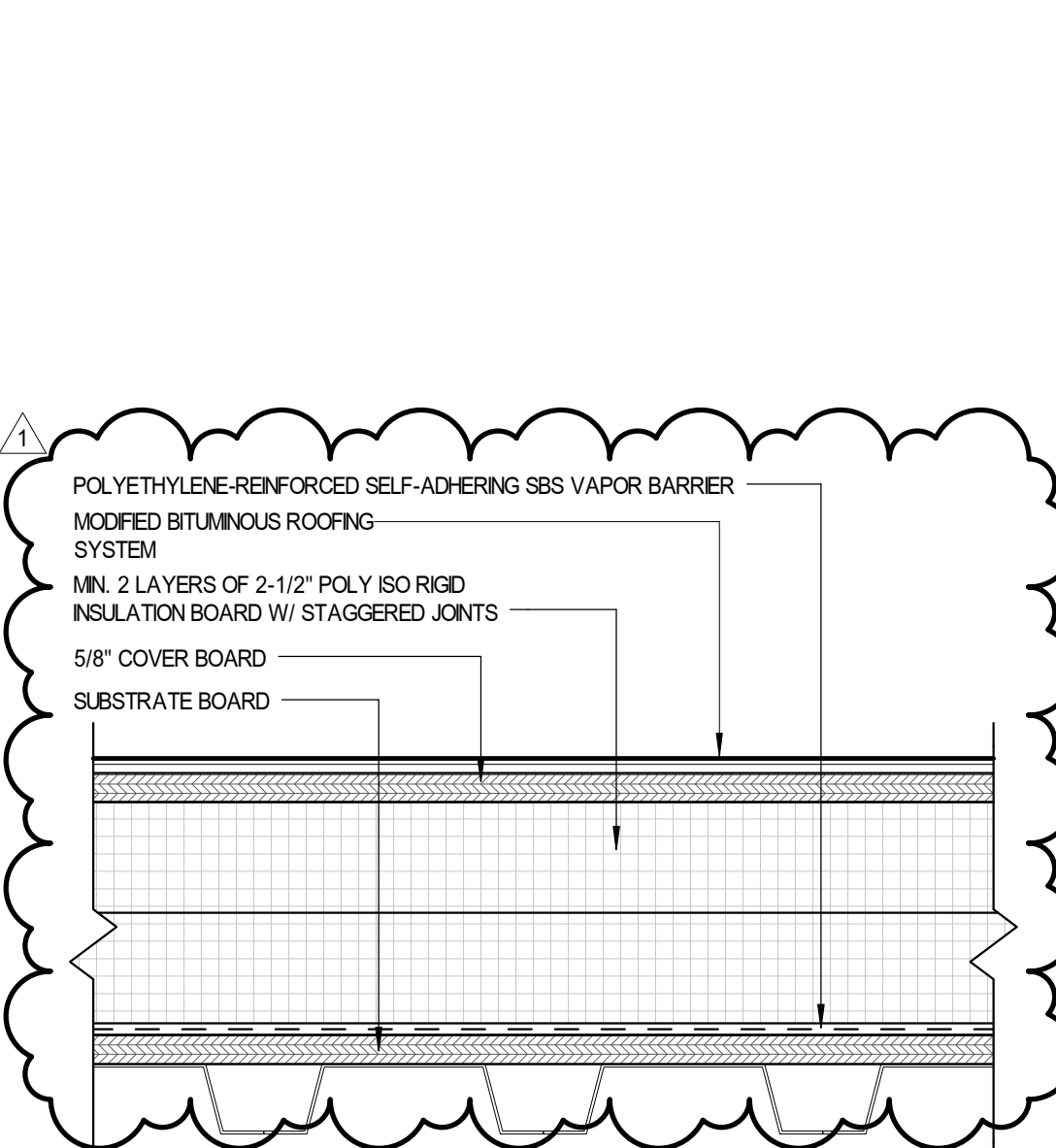
**T1 WALL**  
 134' - 8"



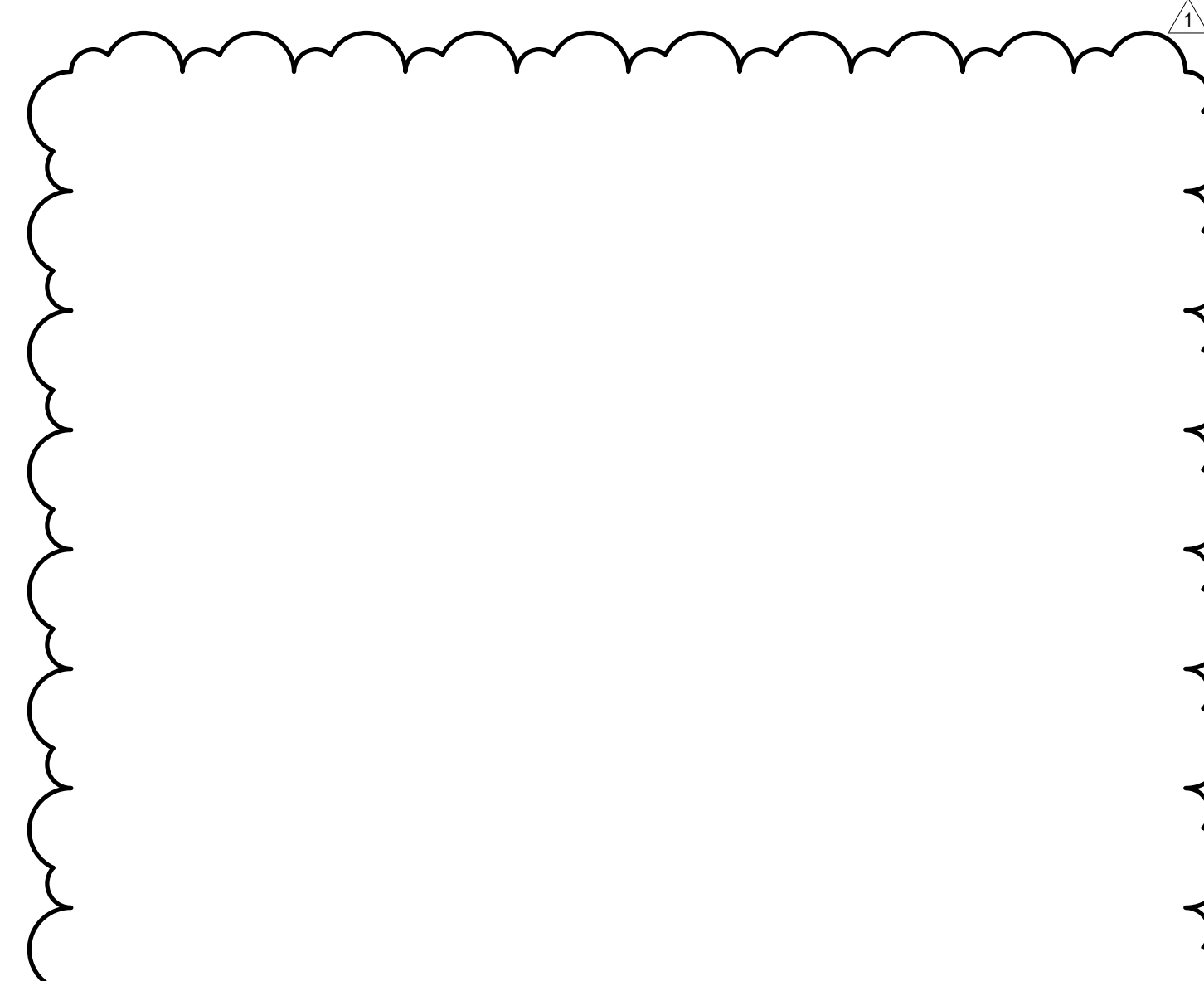
**E10 FRESH AIR INTAKE LOUVER SECTION**  
 3" = 1'-0"



**H10 ROOF VENT STACK**  
 3" = 1'-0"

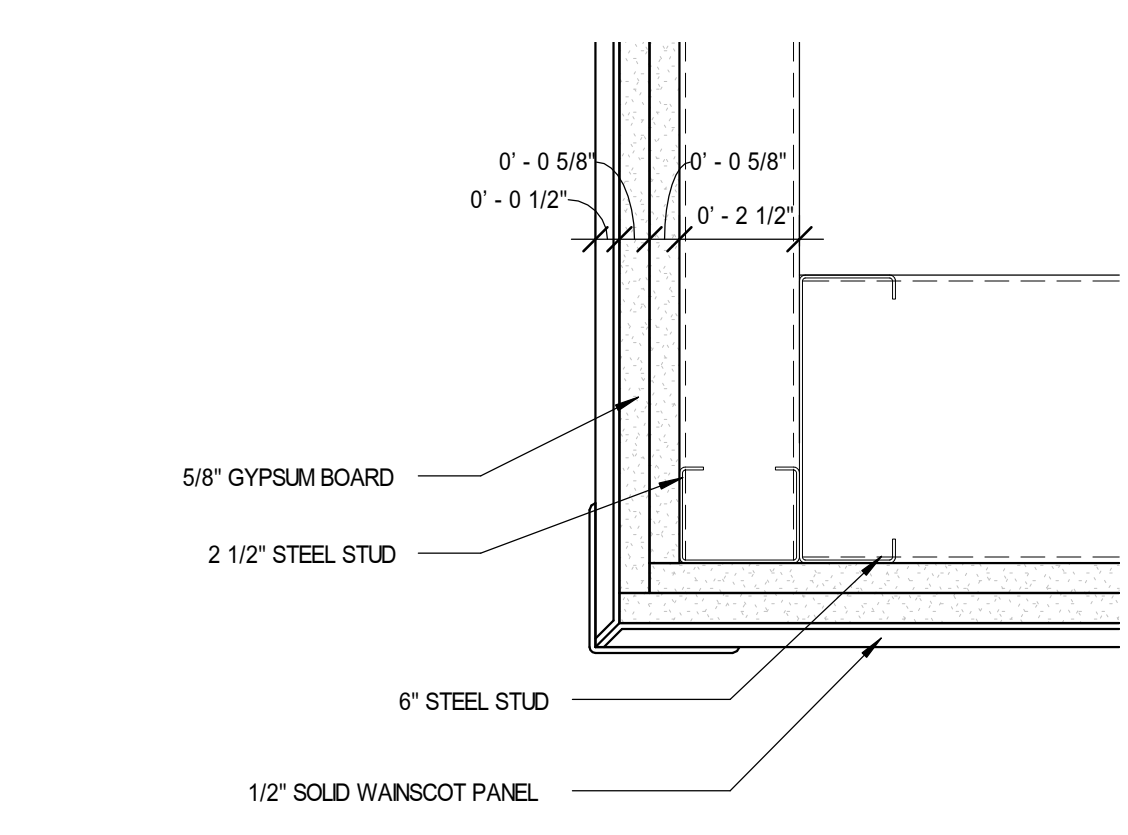


**H8 ROOF CONSTRUCTION**  
 3" = 1'-0"

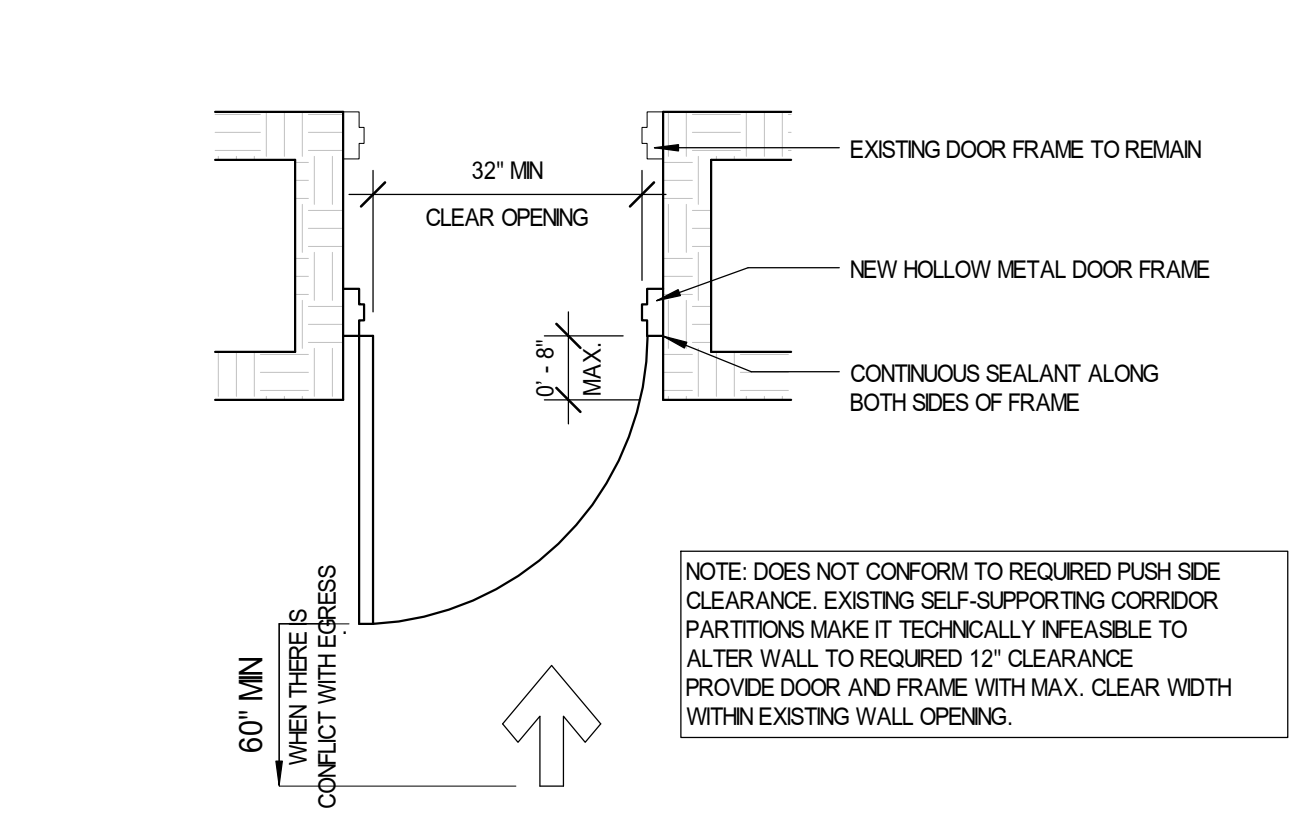


**H4 SCUPPER DETAIL**  
 3" = 1'-0"

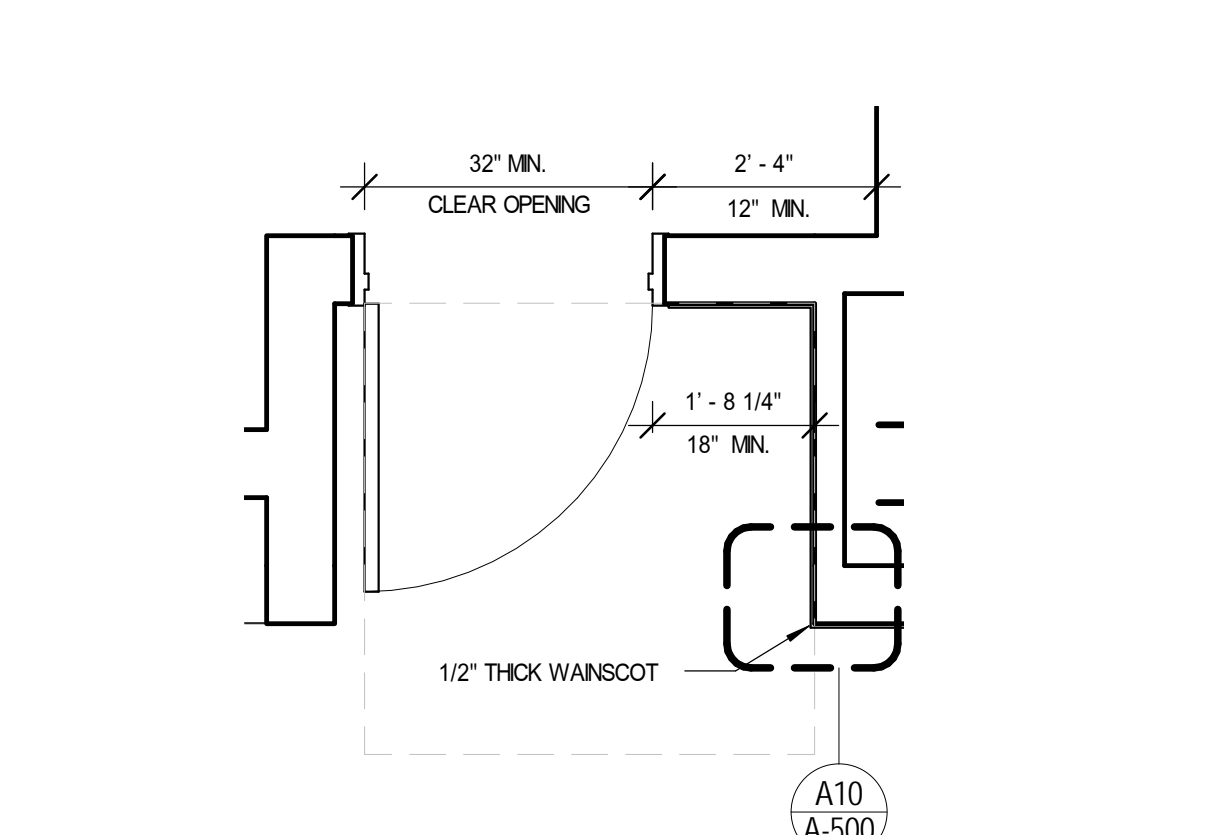




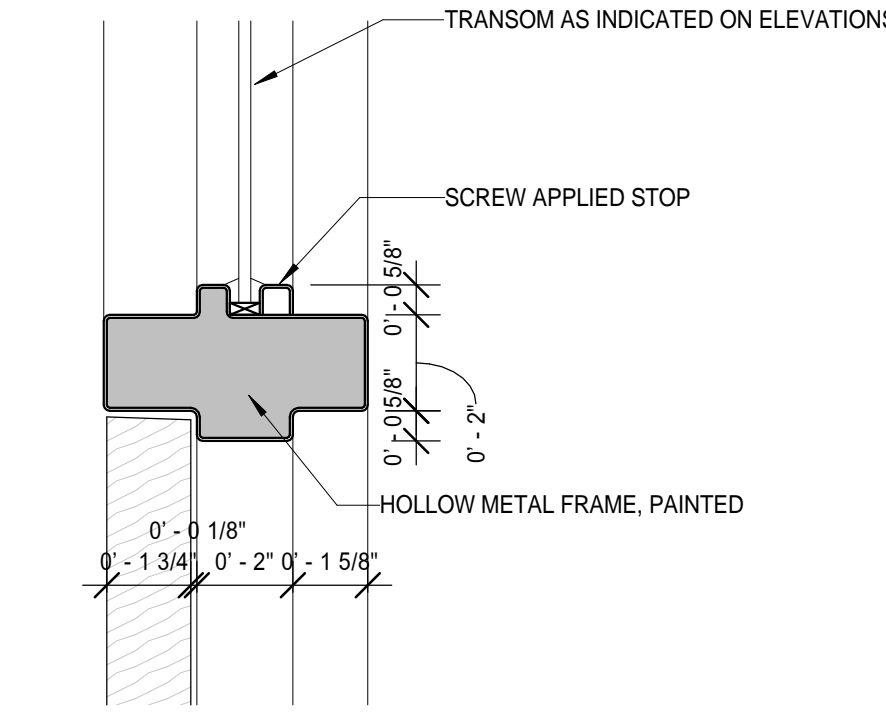
**A10** WAINSCOT TERMINATION DETAIL  
3\"/>



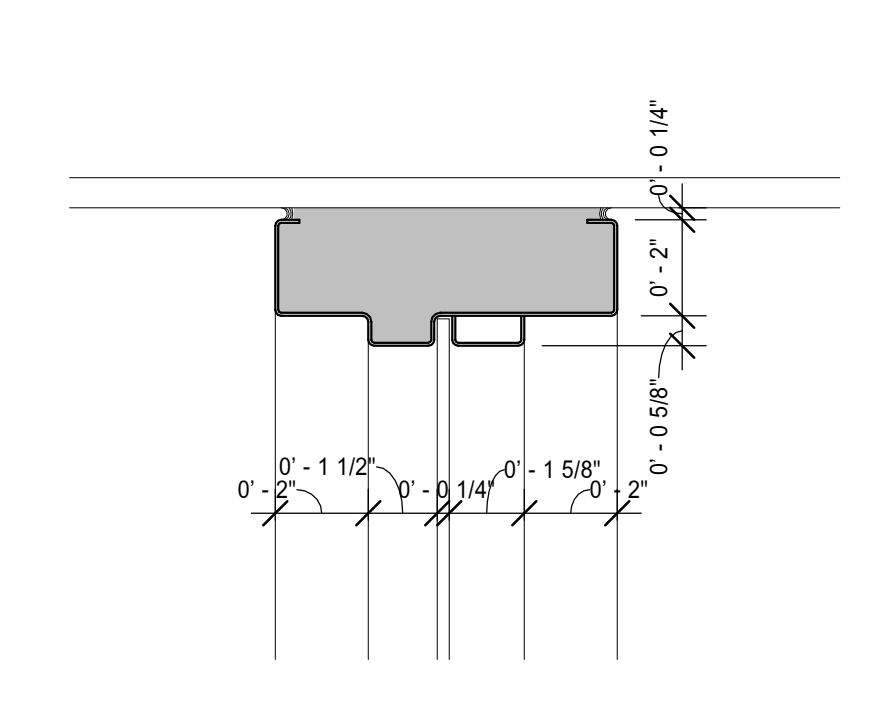
**A8** TYPICAL RECESSED CLASSROOM DOOR - RENOVATION ONLY  
1/2\"/>



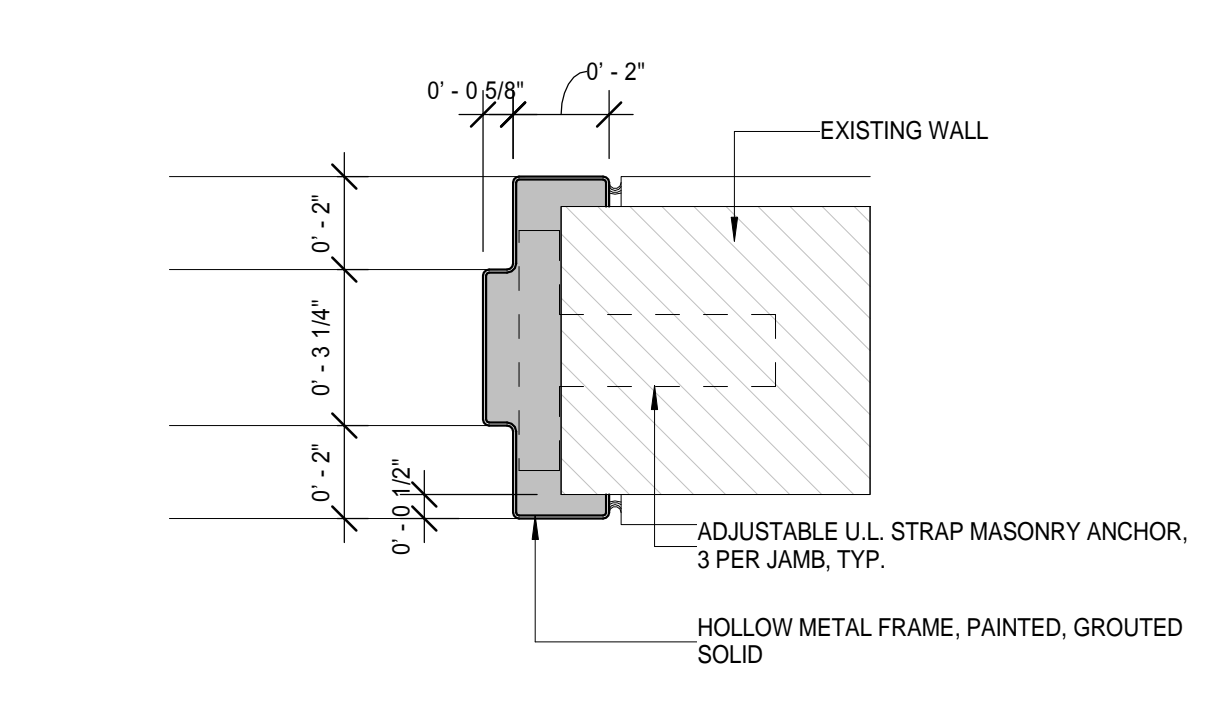
**A5** CLASSROOM DOOR - TYPICAL  
1/2\"/>



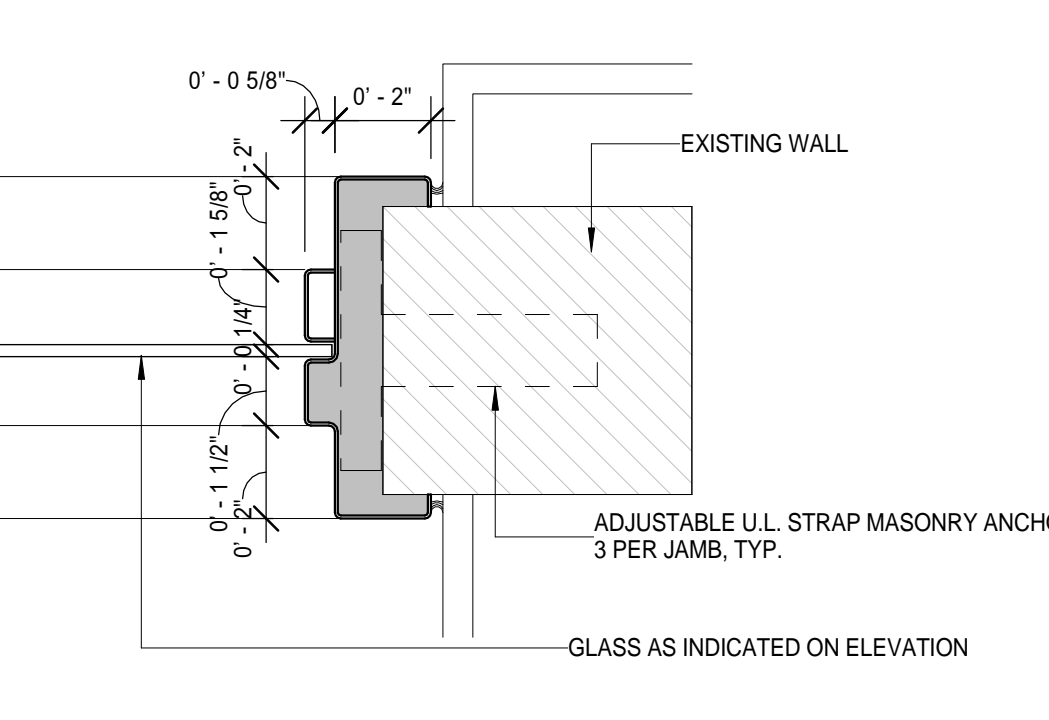
**C10** HEAD DETAIL  
3\"/>



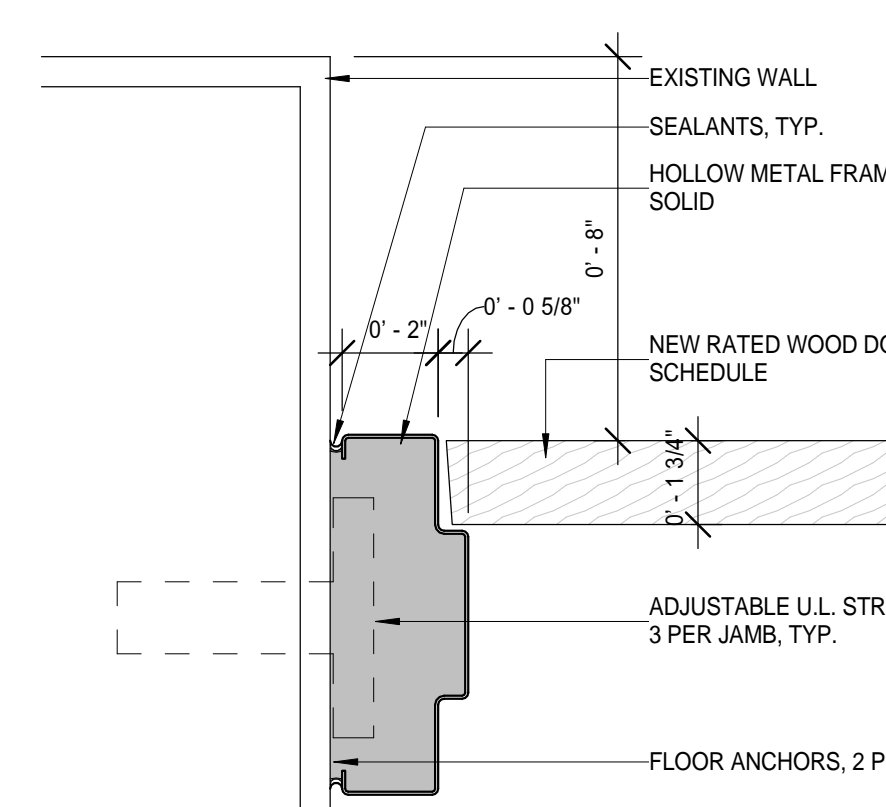
**C9** HEAD DETAIL  
3\"/>



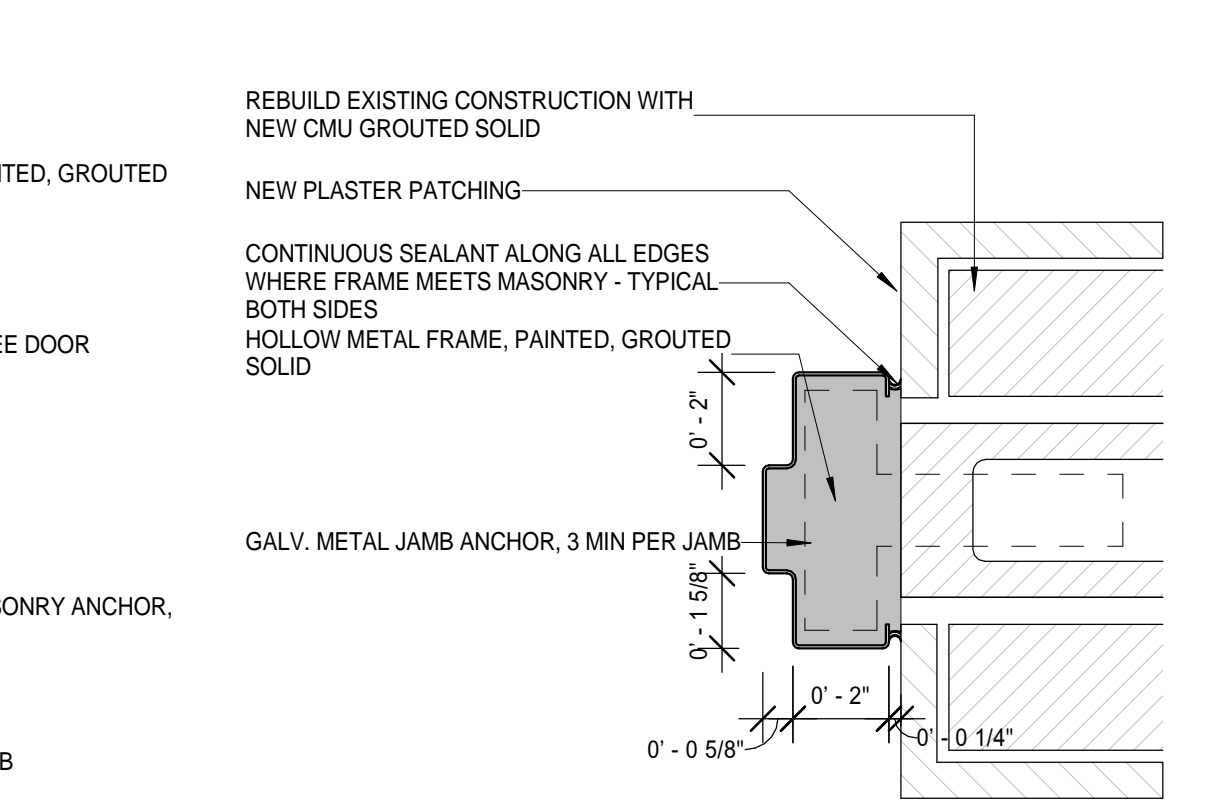
**C7** JAMB DETAIL  
3\"/>



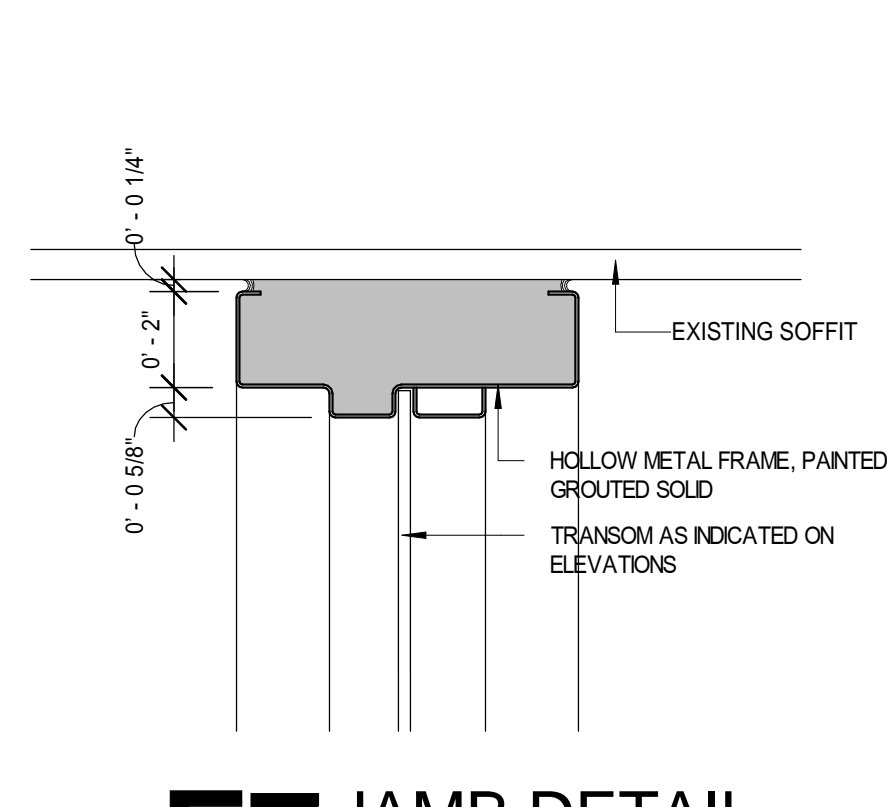
**C5** JAMB DETAIL  
3\"/>



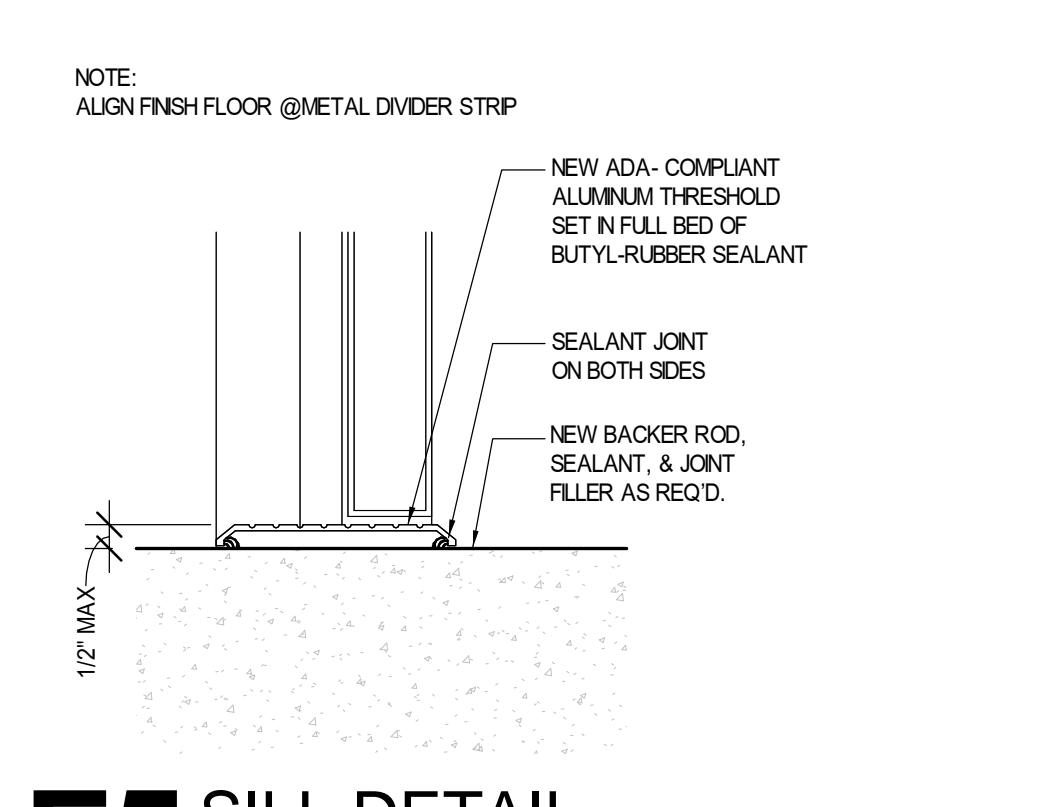
**E10** JAMB DETAIL  
3\"/>



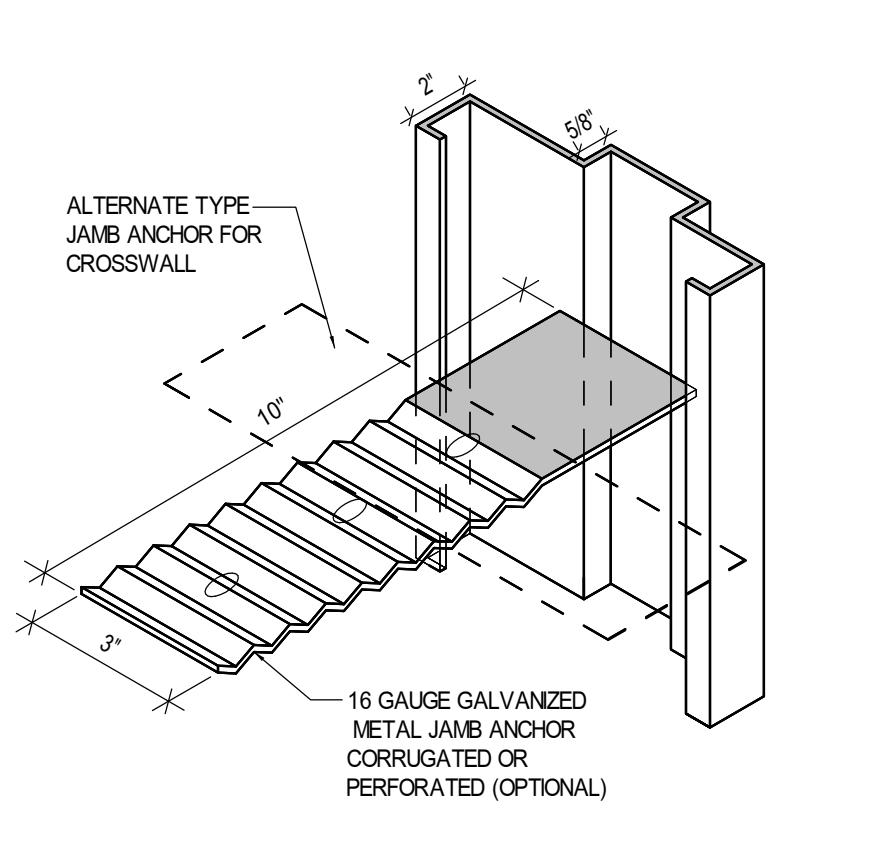
**E9** JAMB DETAIL  
3\"/>



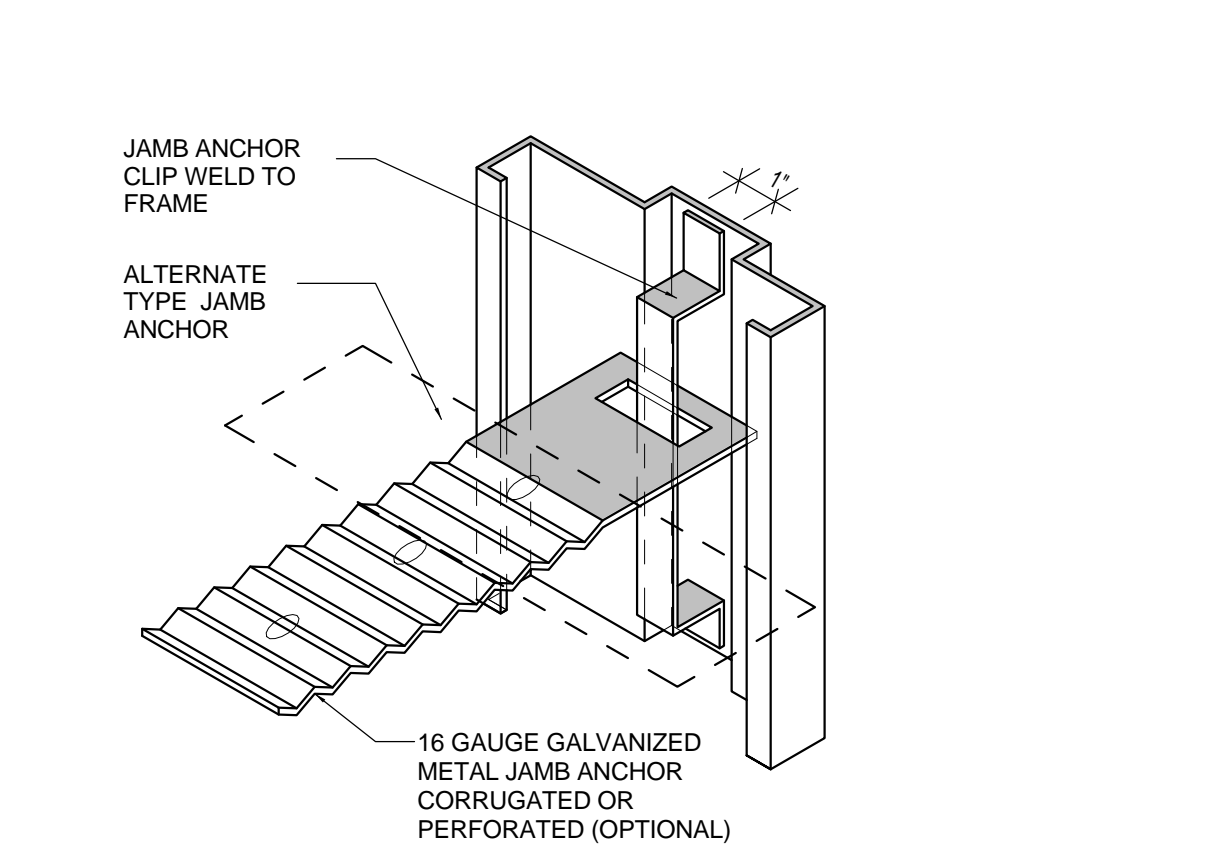
**E7** JAMB DETAIL  
3\"/>



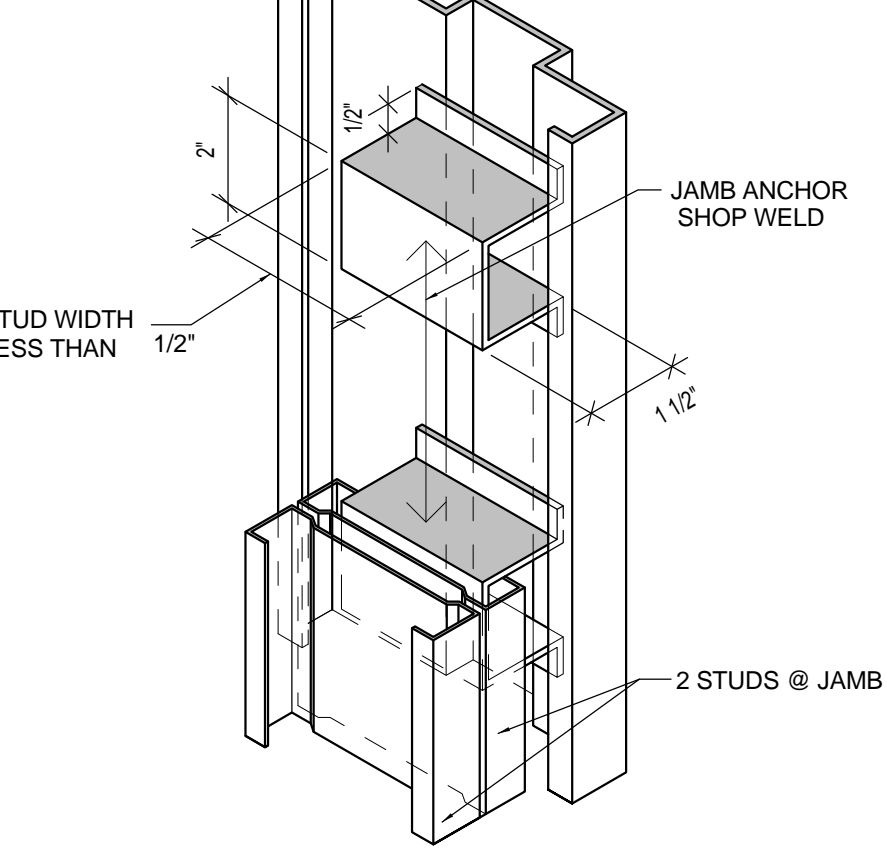
**E5** SILL DETAIL  
3\"/>



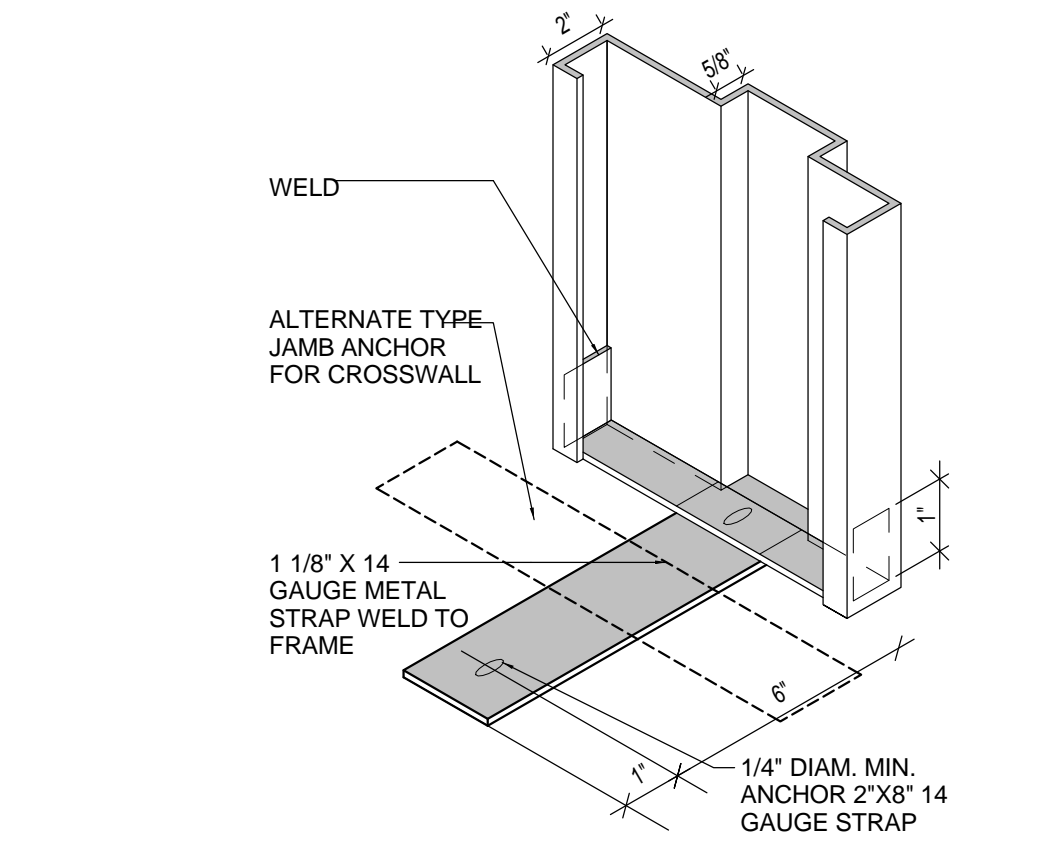
**F10** JAMB DETAIL  
3\"/>



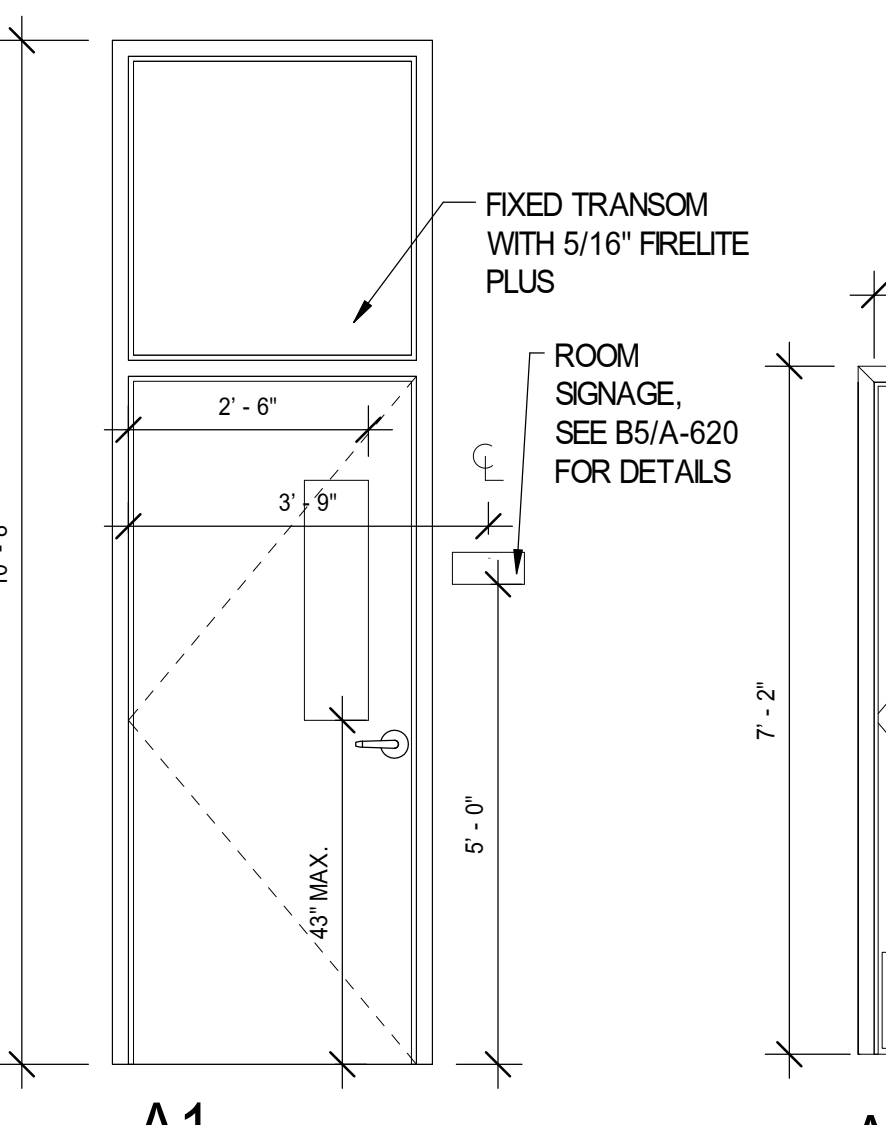
**F9** JAMB DETAIL  
3\"/>



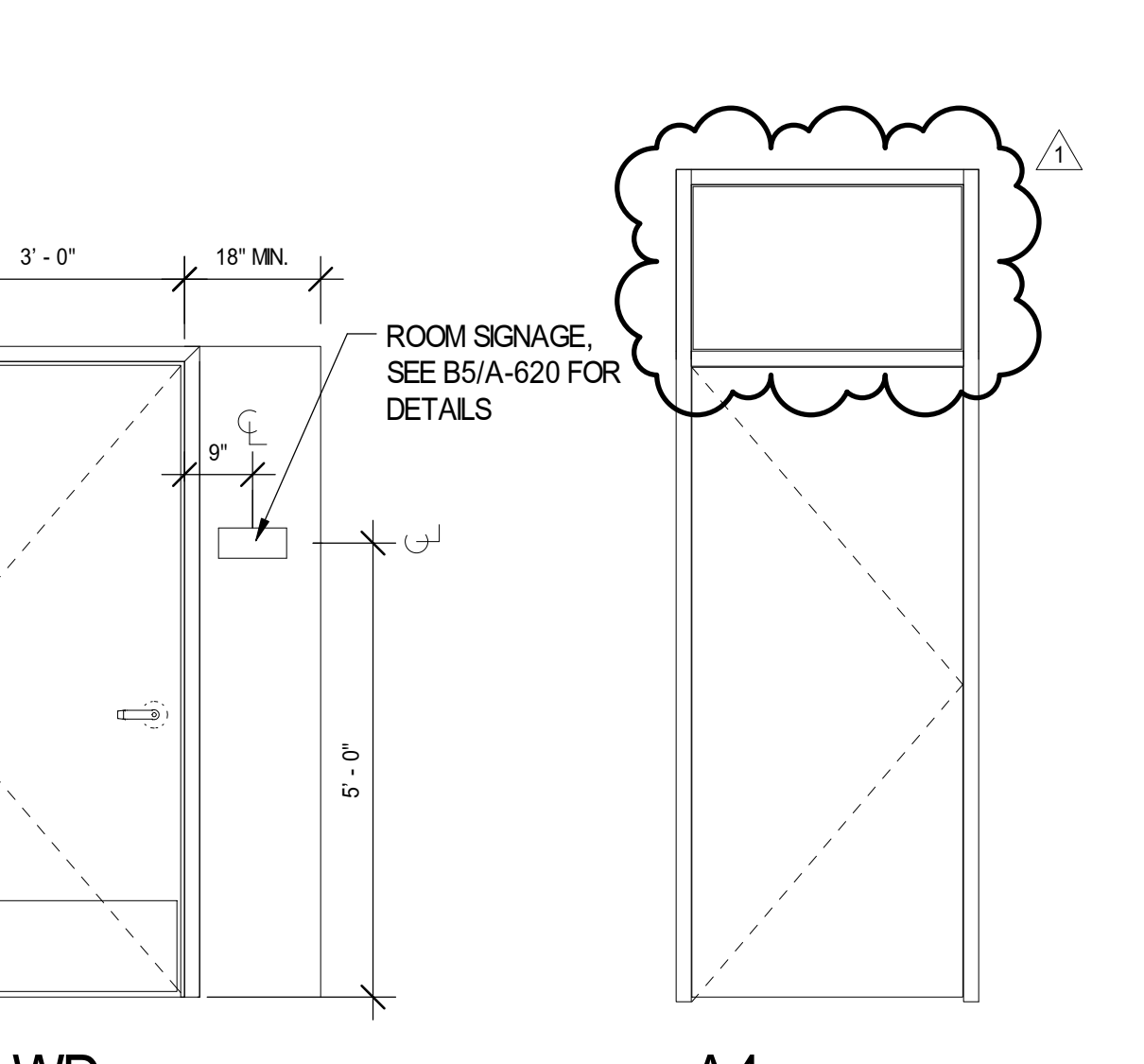
**F7** JAMB DETAIL  
3\"/>



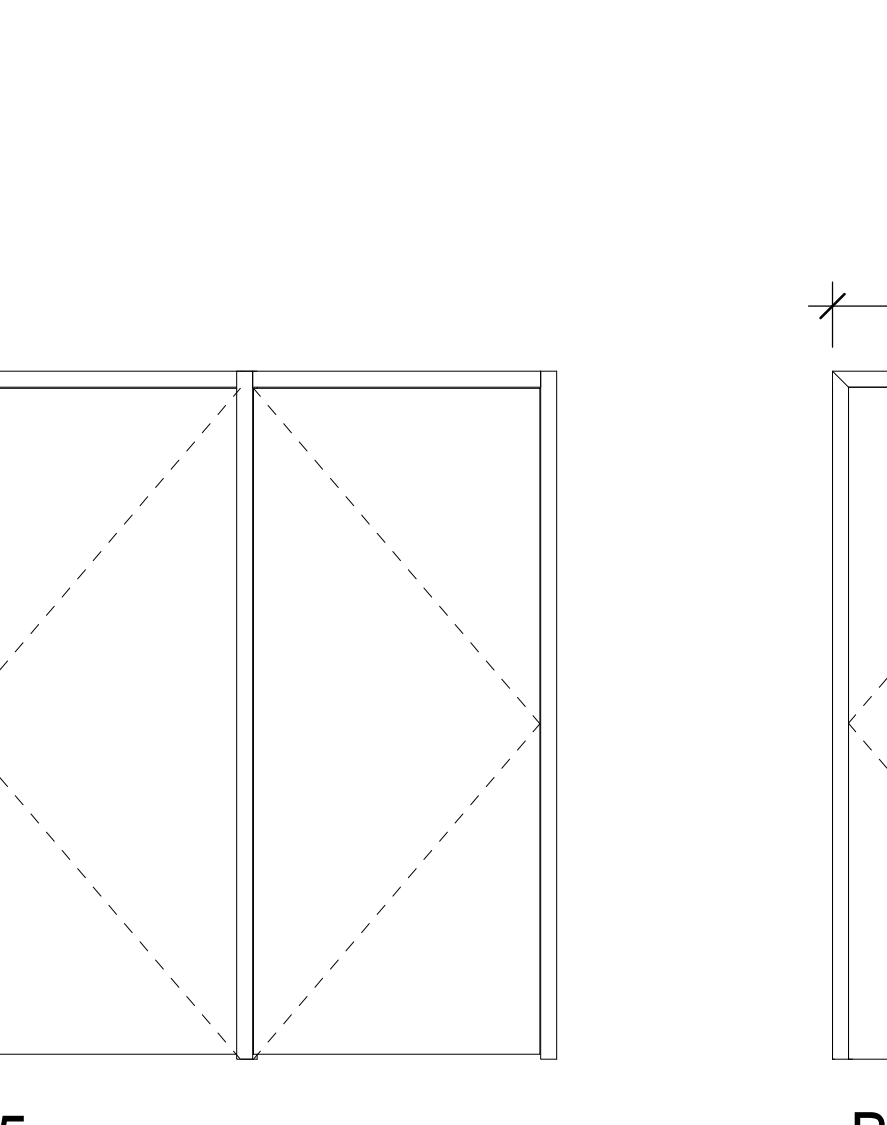
**F5** JAMB DETAIL  
3\"/>



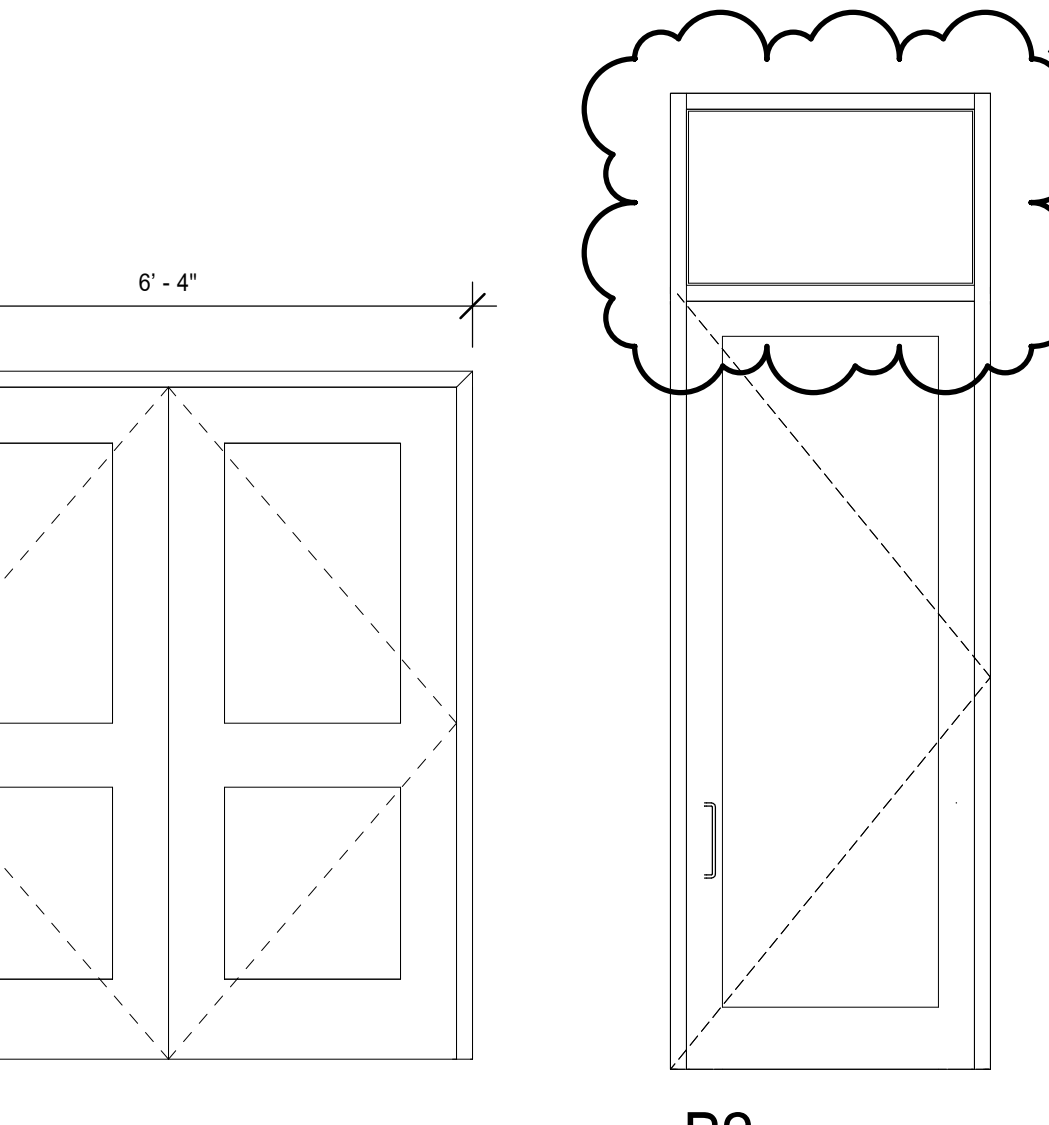
**A1**



**A2 - WD**  
**A3 - HM**

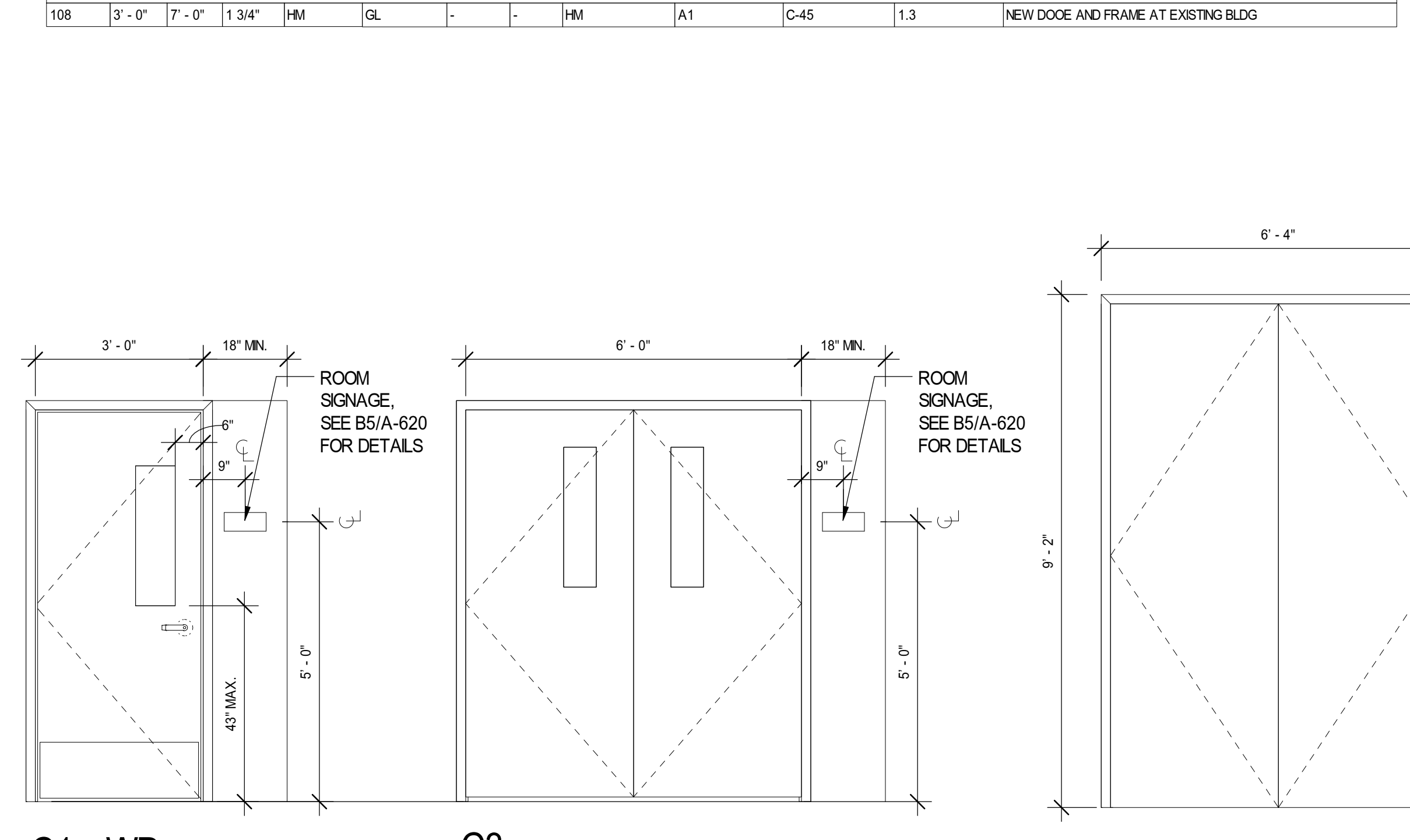


**A4**



**A5**

MARK	SIZE		DOOR		LOUVER		FRAME		FIRE RATING LABEL	HARDWARE SET NO	NOTES
	W	HT	MATL	MATL	W	HT	MATL	ELEV			
110	3'-0"	7'-0"	134"	HM	GL	-	-	HM	A1	C-45	NEW DOOR AND FRAME AT EXISTING BLDG
120	3'-0"	7'-0"	134"	HM	GL	-	-	HM	C2	A-180	NEW DOOR AND FRAME AT EXISTING BLDG
127A	6'-0"	7'-0"	134"	HM	GL	-	-	HM	C3	C-45	NEW MAIN ENTRANCE DOOR AND FRAME AT EXISTING BLDG
127B	6'-0"	7'-0"	134"	HM	GL	-	-	HM	C3	C-45	NEW DOOR AND FRAME AT EXISTING BLDG
130	3'-0"	7'-0"	134"	HM	GL	-	-	HM	A2	A-180	ASSEMBLY HALL EXIT AT EXISTING BLDG
135A	6'-0"	7'-0"	134"	HM	GL	-	-	HM	C3	A-180	FIRST FLR LINK INCLUDE MAGNETIC HOLD-OPENS TO RELEASE UPON ACTIVATION OF FIRE ALARM
135B	6'-0"	7'-0"	134"	HM	GL	-	-	HM	C3	C-45	FIRST FLR LINK AT EXISTING BLDG, INCLUDE MAGNETIC HOLD-OPENS TO RELEASE UPON ACTIVATION OF FIRE ALARM
136	3'-4"	7'-0"	134"	ALU	GL	-	-	HM	C2	A-180	
141A	3'-0"	8'-0"	2"	FRP	GL	-	-	HM	A4	C-45	16\"/>



**C1 - WD**  
**C2 - HM**  
**C3**  
**D1**

**H10** DOOR TYPES  
1/2\"/>



**CANTY ELEMENTARY SCHOOL ANNEX**  
3740 NORTH PANAMA AVENUE  
CHICAGO, ILLINOIS 60634  
CHICAGO PUBLIC SCHOOLS  
CITY OF CHICAGO, MAYOR RAHM EMANUEL

Architect of Record  
**SMITH HARDING JOINT VENTURE**

224 SOUTH MICHIGAN AVENUE  
SUITE 245  
CHICAGO, ILLINOIS 60604  
312.922.2600 T  
312.922.8222 F

**C E ANDERSON & ASSOCIATES**  
Structural Engineers  
175 N Franklin Ave Suite  
Chicago, Illinois 60606

**dbHMS ENGINEERING**  
MEP and FP Engineers  
303 W Erie St Suite 510  
Chicago, Illinois 60654

**TERRA ENGINEERING**  
Civil Engineers  
225 W Ohio St 4th Floor  
Chicago, Illinois 60654

**S.K. KEGAN & ASSOCIATES**  
Landscape Architects  
8620 S Damen Ave SE  
Grand Rapids, MI 43546

**BAKER GROUP**  
Food Service Consultant  
2222 E Paris Ave SE  
Grand Rapids, MI 43546

**THRESHOLD ACOUSTICS**  
Acoustician  
53 W Jackson Blvd Suite 815  
Chicago, Illinois 60604

WARNING: ASBESTOS CONTAINING BUILDING MATERIALS ARE OR MAY BE PRESENT IN THIS BUILDING. AN ASBESTOS MANAGEMENT PLAN IS AVAILABLE IN THE SCHOOL FOR REVIEW UPON REQUEST. NO PERSON MAY DISTURB ASBESTOS CONTAINING MATERIALS UNLESS THAT PERSON IS A LICENSED ASBESTOS ABATEMENT WORKER OR CONDUCTS SUCH WORK IN ACCORDANCE WITH PROJECT SPECIFICATIONS) CONTAINING IN THE PROJECT DOCUMENTS AND IN COMPLIANCE WITH THE APPLICABLE REGULATIONS.

LEAD-BASED PAINT MAY BE PRESENT WITHIN THE BUILDING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO TAKE APPROPRIATE SAFETY MEASURES IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS INCLUDING OSHA (1962.62) COMPLIANCE, WASTE CHARACTERIZATION AND WASTE DISPOSAL. ALL WORK WITH SURFACES CONTAINING LEAD-BASED PAINT SHALL BE DONE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

Mark	Description	Date
1	ADDENDUM NO.001	05.26.15
1	ISSUED FOR BID	05.07.15

PBC Project Name: ARTHUR CANTY ANNEX  
PBC Contract No: 05750  
Project No.: 2014-05750-ANX  
Title

**DOOR SCHEDULE TYPES AND DETAILS**

Sheet  
**A-500**





**CANTY ELEMENTARY SCHOOL ANNEX**  
 3740 NORTH PANAMA AVENUE  
 CHICAGO, ILLINOIS 60634  
 CHICAGO PUBLIC SCHOOLS  
 CITY OF CHICAGO, MAYOR RAHM EMANUEL

Architect of Record  
**SMITH HARDING JOINT VENTURE**  
 224 SOUTH MICHIGAN AVENUE  
 SUITE 245  
 CHICAGO, ILLINOIS 60604  
 312.922.2600 T  
 312.922.8222 F

C.E. ANDERSON & ASSOCIATES  
 Structural Engineers  
 175 N Franklin Ave Suite  
 Chicago, Illinois 60606

dbHMS ENGINEERING  
 MEP and FP Engineers  
 303 W Erie St Suite 510  
 Chicago, Illinois 60654

TERRA ENGINEERING  
 Civil Engineers  
 225 W Ohio St 4th Floor  
 Chicago, Illinois 60654

S.K. KEGAN & ASSOCIATES  
 Landscape Architects  
 9820 S Damen Ave  
 Chicago, Illinois 60643

BAKER GROUP  
 Food Service Consultant  
 2220 E Paris Ave SE  
 Grand Rapids, MI 43546

THRESHOLD ACOUSTICS  
 Acoustician  
 53 W Jackson Blvd Suite 815  
 Chicago, Illinois 60604

WARNING: ASBESTOS CONTAINING BUILDING MATERIALS ARE OR MAY BE PRESENT IN THIS BUILDING. AN ASBESTOS MANAGEMENT PLAN IS AVAILABLE IN THE SCHOOL FOR REVIEW UPON REQUEST. NO PERSON MAY DISTURB ASBESTOS CONTAINING MATERIALS UNLESS THAT PERSON IS A LICENSED ASBESTOS ABATEMENT WORKER OR CONDUCTS WORK IN ACCORDANCE WITH PROJECT SPECIFICATIONS CONTAINING IN THE PROJECT DOCUMENTS AND IN COMPLIANCE WITH THE APPLICABLE REGULATIONS.

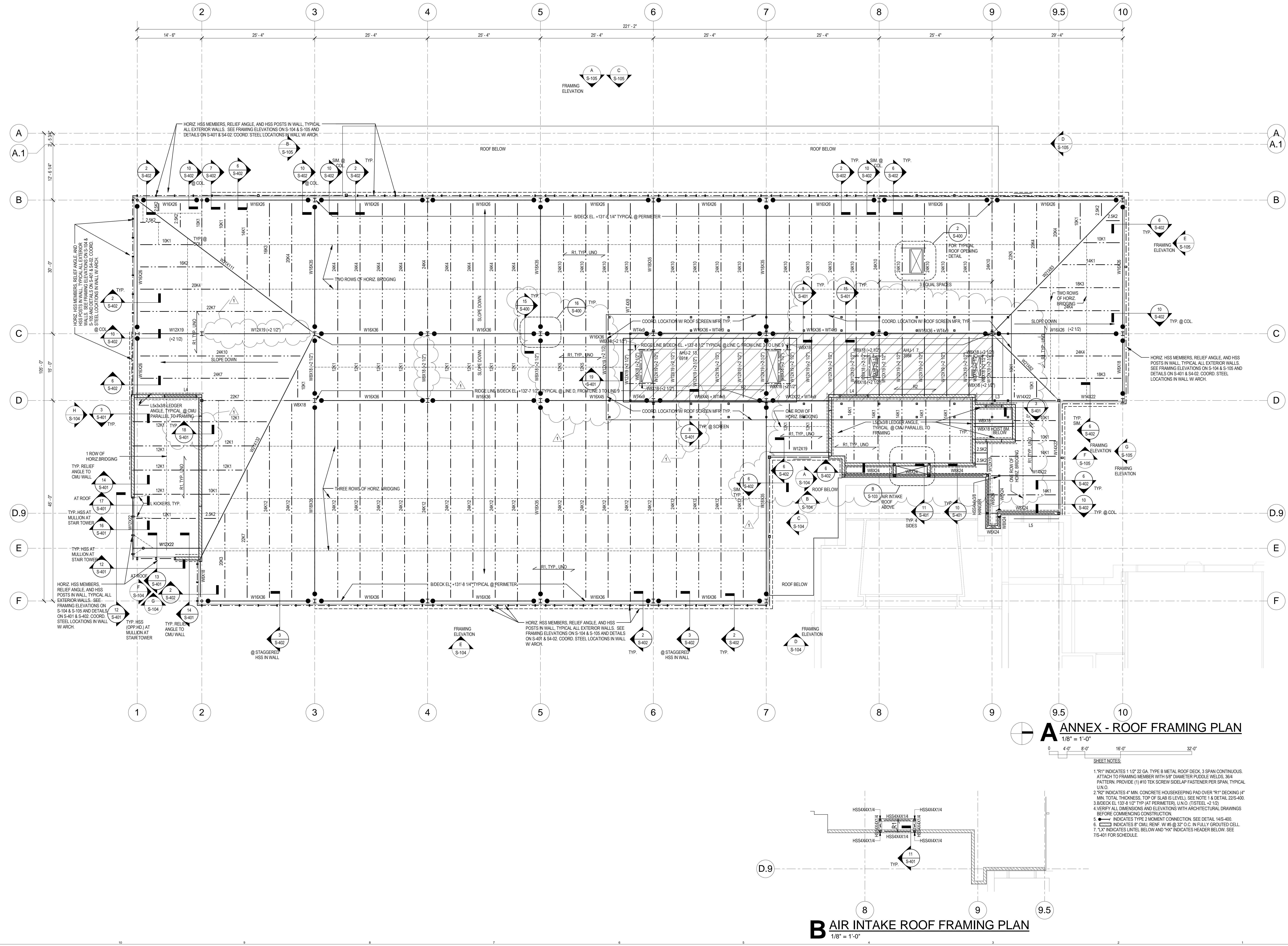
LEAD-BASED PAINT MAY BE PRESENT WITHIN THE BUILDING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO TAKE APPROPRIATE SAFETY MEASURES IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS INCLUDING OSHA (1962 & 2015) COMPLIANCE, WASTE CHARACTERIZATION AND WASTE DISPOSAL. ALL WORK WITH SURFACES CONTAINING LEAD-BASED PAINT SHALL BE DONE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

Mark	Description	Date
ADDENDUM NO.001	ISSUED FOR BID	05/26/15
ADDENDUM NO.002	ISSUED FOR BID	05/07/15

PBC Project Name: ARTHUR CANTY ANNEX  
 PBC Contract No: 05750  
 Project No.: Project Number  
 Title:

**ANNEX - ROOF FRAMING PLAN**

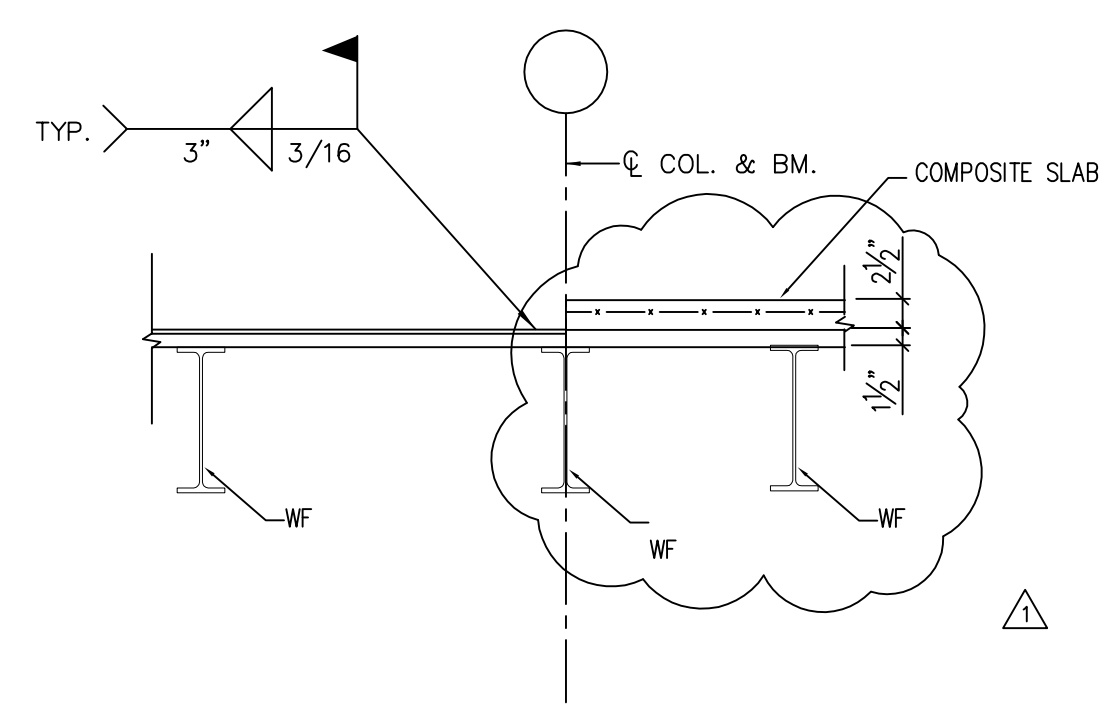
Sheet  
**S-103**



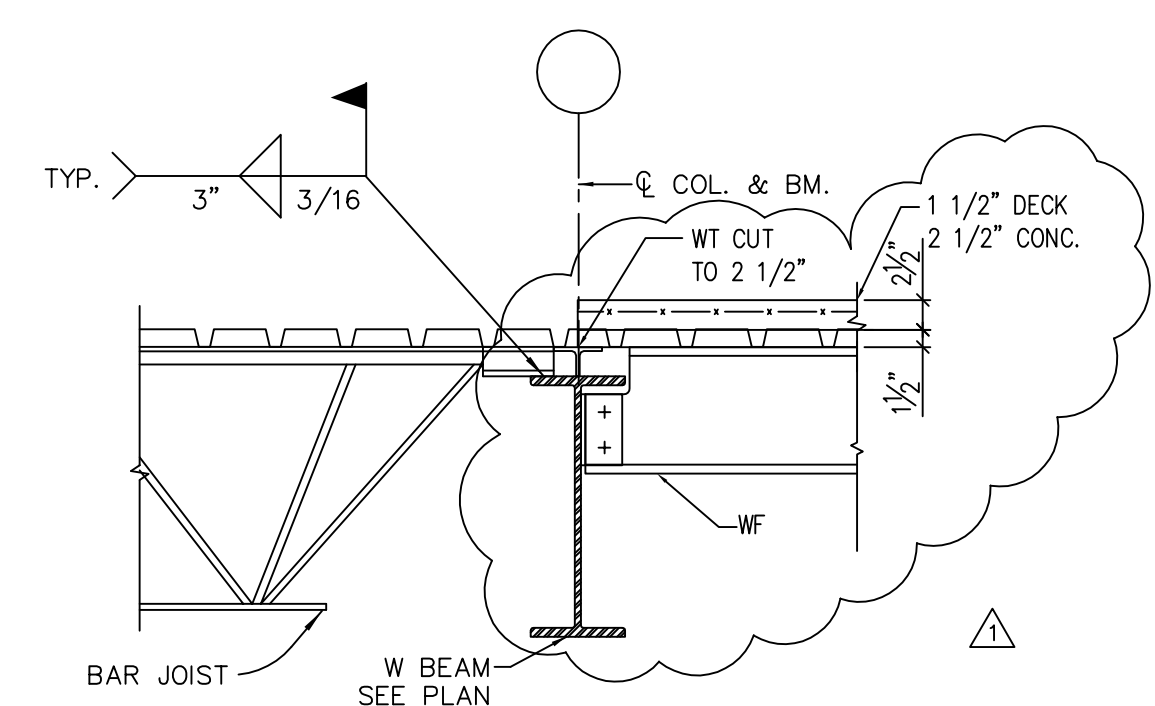
**ANNEX - ROOF FRAMING PLAN**  
 1/8" = 1'-0"  
 0 4'-0" 8'-0" 16'-0" 32'-0"

- SHEET NOTES:**
1. "R1" INDICATES 1 1/2" x 22 GA. TYPE B METAL ROOF DECK, 3 SPAN CONTINUOUS. ATTACH TO FRAMING MEMBER WITH 5/8" DIAMETER LUGS & WELDS. 3/64 PATTERN. PROVIDE (1) #10 TEK SCREW Sidelap PASTER PER SPAN, TYPICAL U.N.O.
  2. "R2" INDICATES 4" MIN. CONCRETE HOUSEKEEPING PAD OVER "R1" DECKING (4" MIN. TOTAL THICKNESS, TOP OF SLAB IS LEVEL). SEE NOTE 1 & DETAIL 22S-400.
  3. BDECK EL. 133'-8 1/2" TYP (AT PERIMETER), U.N.O. (17STEEL, +2 1/2)
  4. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS BEFORE COMMENCING CONSTRUCTION.
  5. "M" INDICATES TYPE 2 MOMENT CONNECTION. SEE DETAIL 14S-400.
  6. "H" INDICATES IF CMU RENEW AS @ 32" O.C. IN FULLY GRIDDED CELL.
  7. "LX" INDICATES LINTEL BELOW AND "HX" INDICATES HEADER BELOW. SEE 7S-401 FOR SCHEDULE.

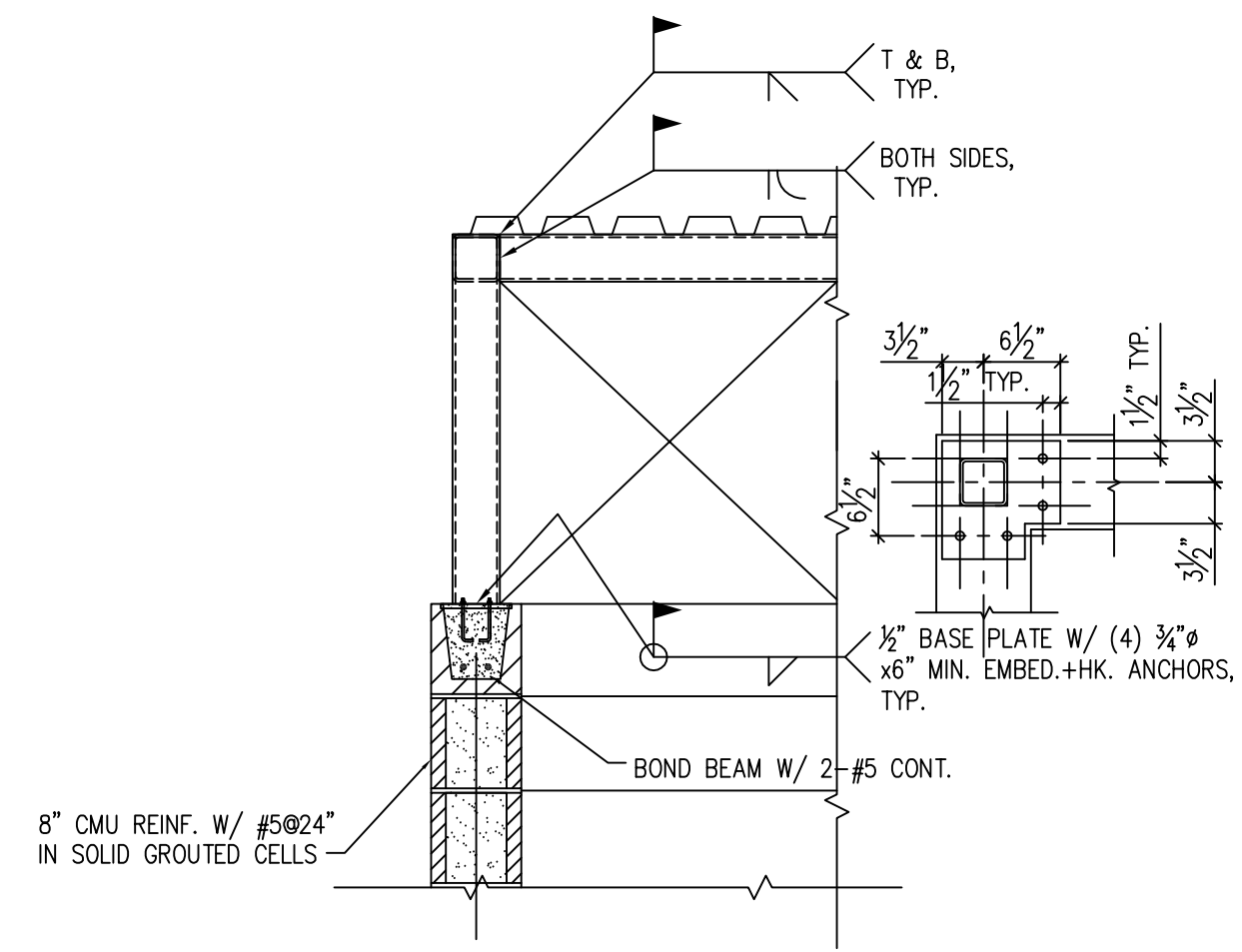
I:\cases\cadd\DWG\Harrington\Associates\Canty Elementary School\Struct current\Struct V15 - CNT - ANNEX.rvt



19 SECTION AT ROOF DECK  
S-401 SCALE: N.T.S.

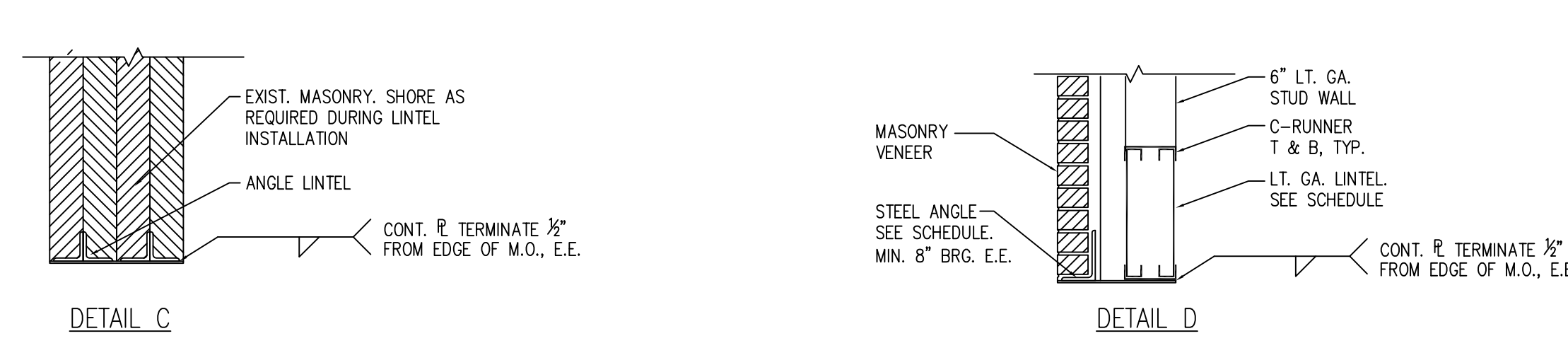
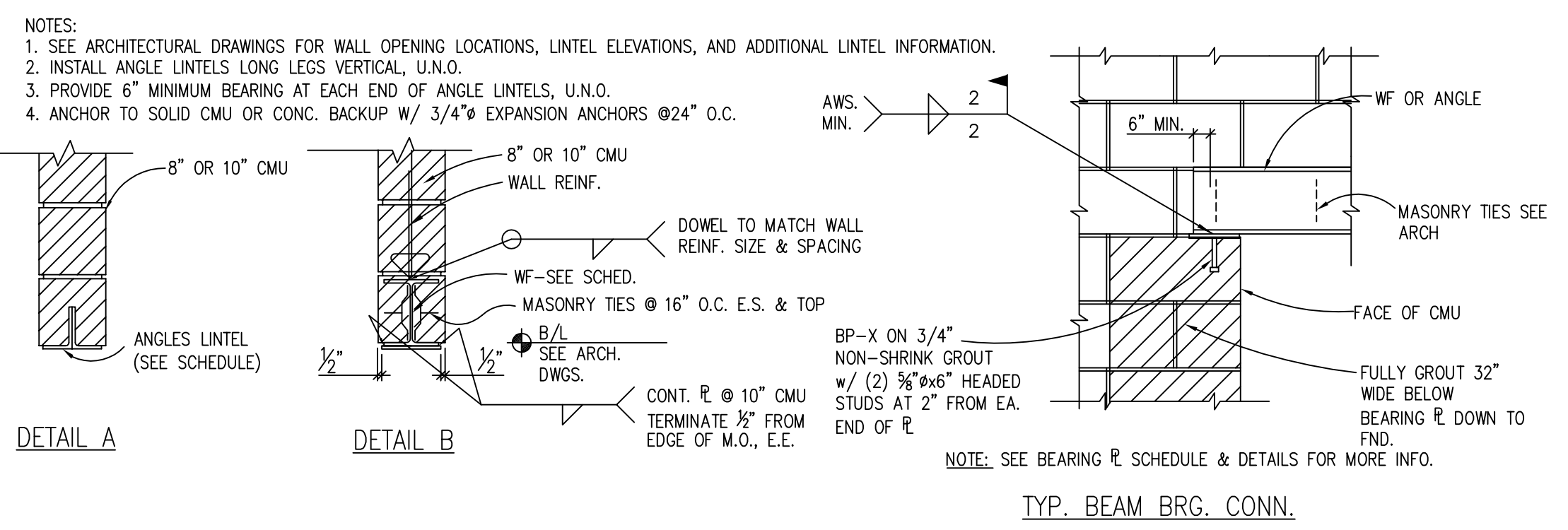


15 SECTION AT ROOF DECK  
S-401 SCALE: N.T.S.

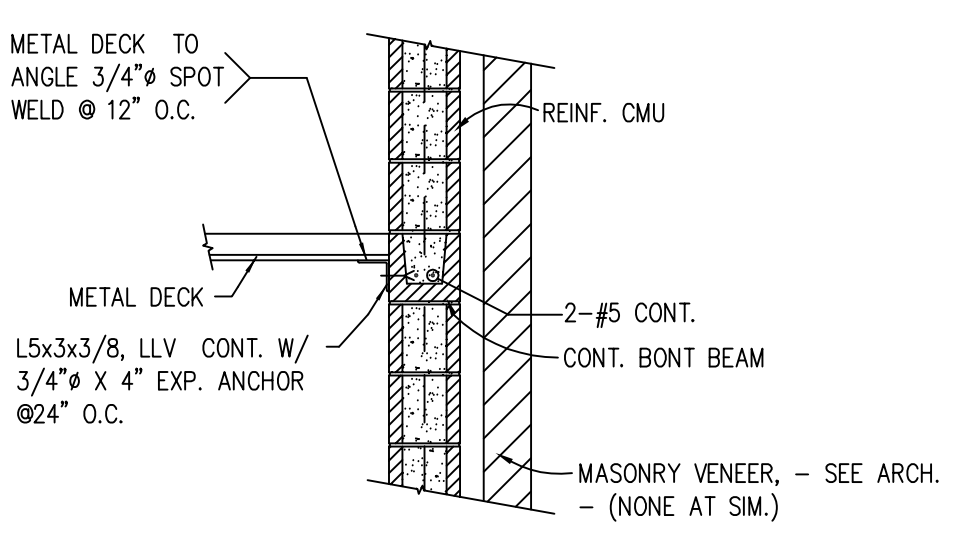


11 EXIST. FRESH AIR INTAKE  
S-401 SCALE: N.T.S.

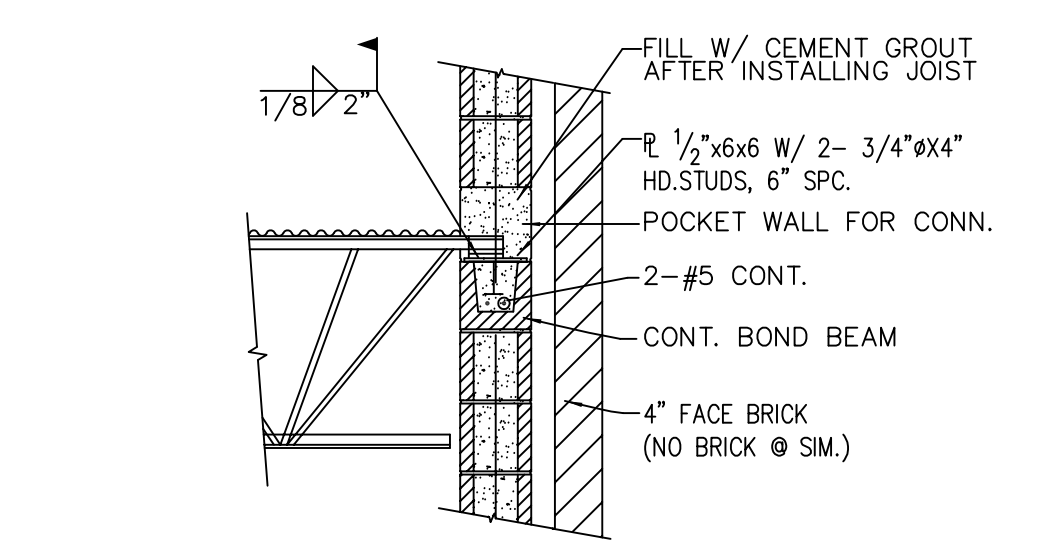
LINTEL & HEADER SCHEDULE					
MARK	LINTEL SIZE	BEARING R SIZE	WALL TYPE	OPENING WIDTH	REMARKS
L1	BOND BEAM W/ 2#5 CONT.	-	8" CMU WALL N.L.B	0'-0" - 4'-0"	-
L2	1L5x3/8	8"x7"x10"	8" CMU WALL N.L.B	4'-0" - 8'-0"	DETAIL A
L3	1L6x3/8	8"x7"x10"	8" CMU WALL LOAD-BEARING	0'-0" - 4'-0"	DETAIL A
L4	WBx24	8"x7"x10"	8" CMU WALL LOAD-BEARING	4'-0" - 8'-0"	DETAIL B
L5	(2)1L5x3/8 + 2"x" R	-	EXIST. MULTI-WYTHE BRICK, WF	0'-0" - 6'-4"	DETAIL C
H1	(3)800S162-54 JOISTS+L5x3/8 + 2"x" R	-	6" STUD + 4" MAX. MASONRY VENEER	0'-0" - 6'-8"	DETAIL D



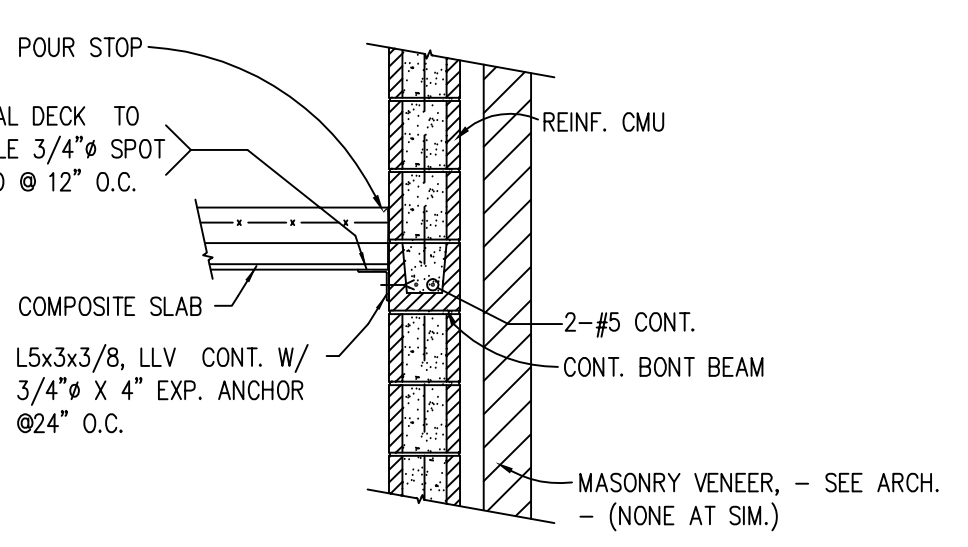
7 LINTEL & HEADER SCHEDULE  
S-401 SCALE: N.T.S.



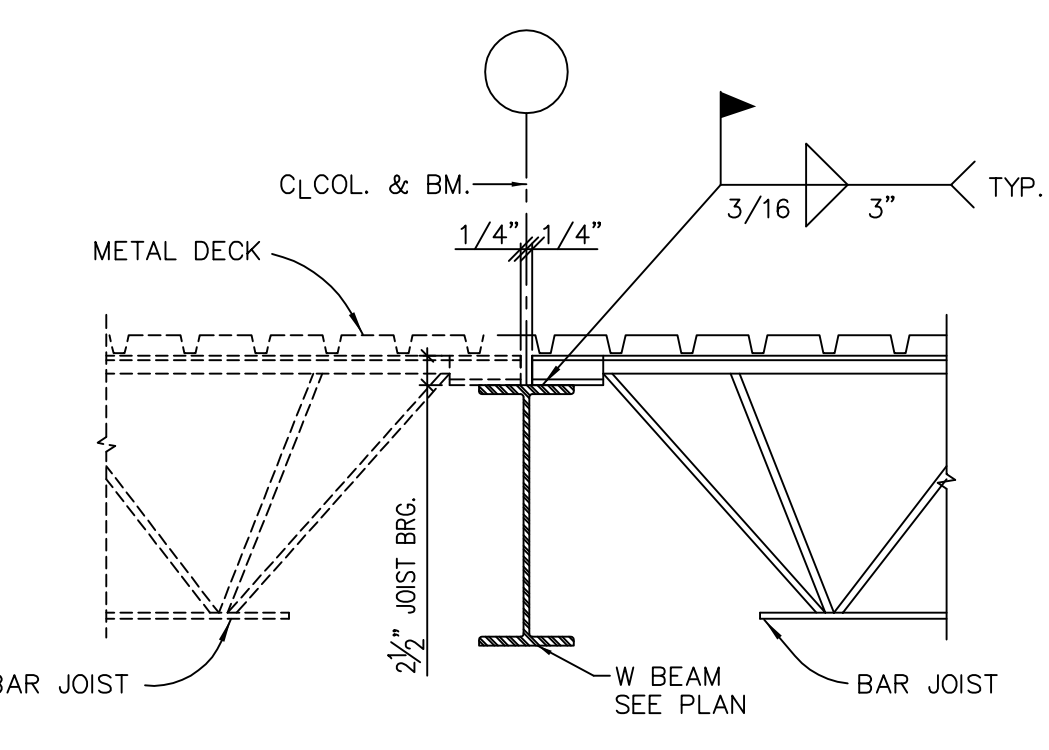
6 TYPICAL DECK BEARING @ CMU  
S-401 SCALE: N.T.S.



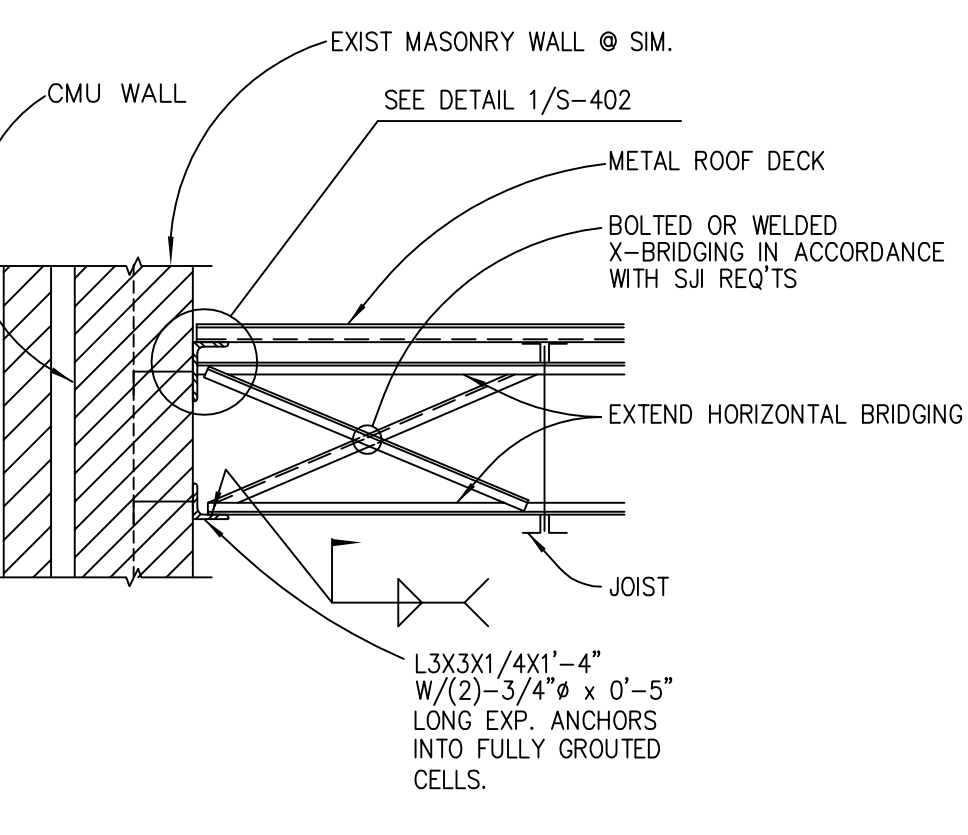
3 JOIST CONN. TO MASONRY  
S-401 SCALE: N.T.S.



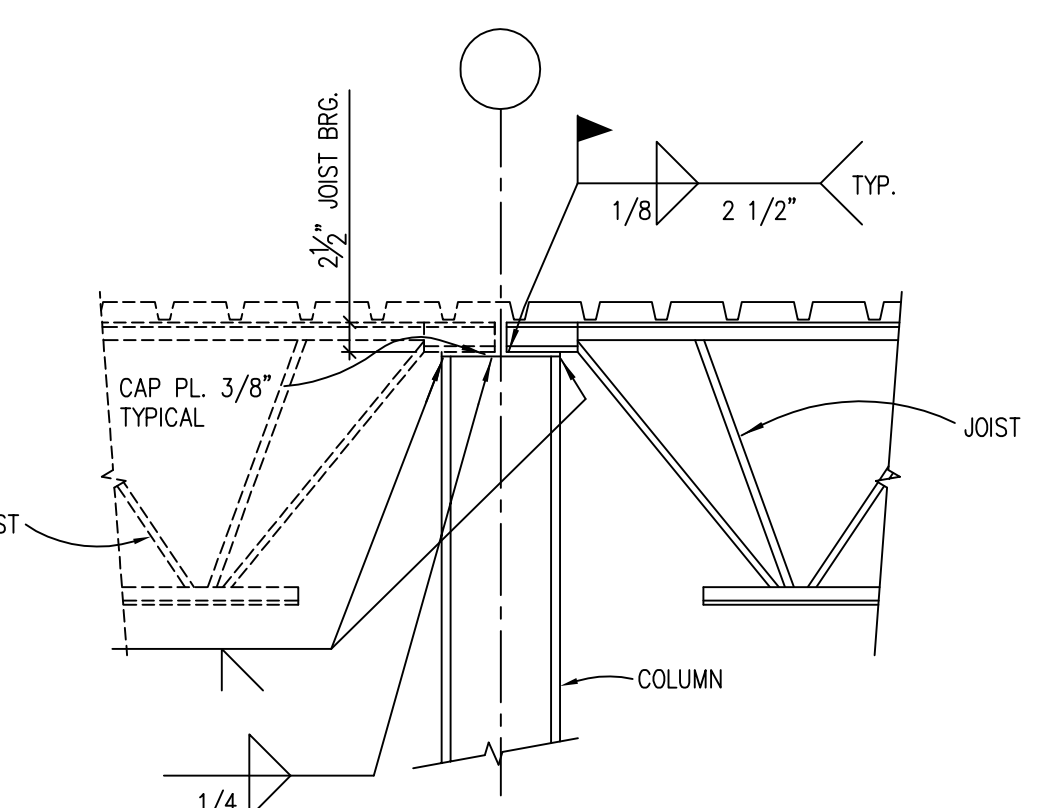
5 TYPICAL SLAB BEARING @ CMU  
S-401 SCALE: N.T.S.



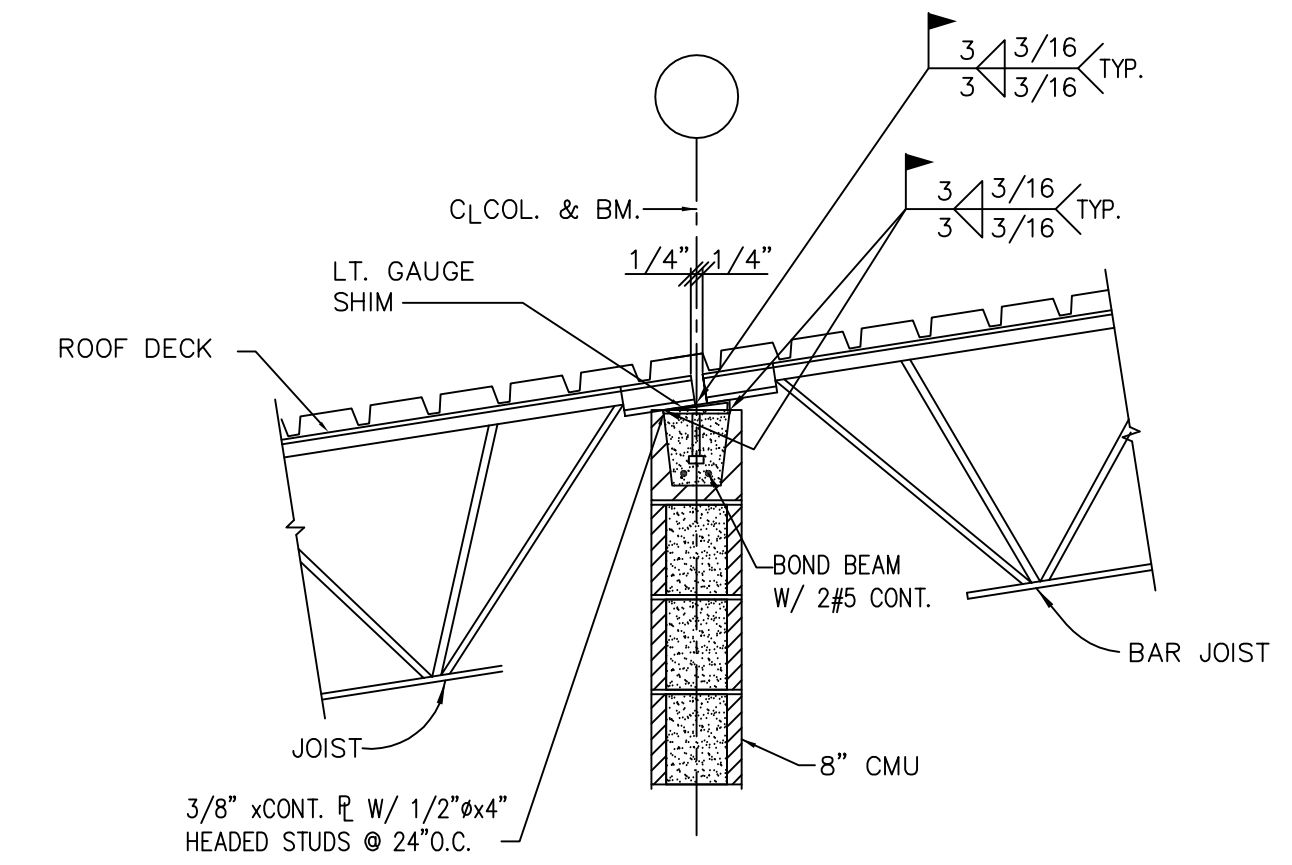
2 TYPICAL JOIST BEARING ON BEAM  
S-401 SCALE: N.T.S.



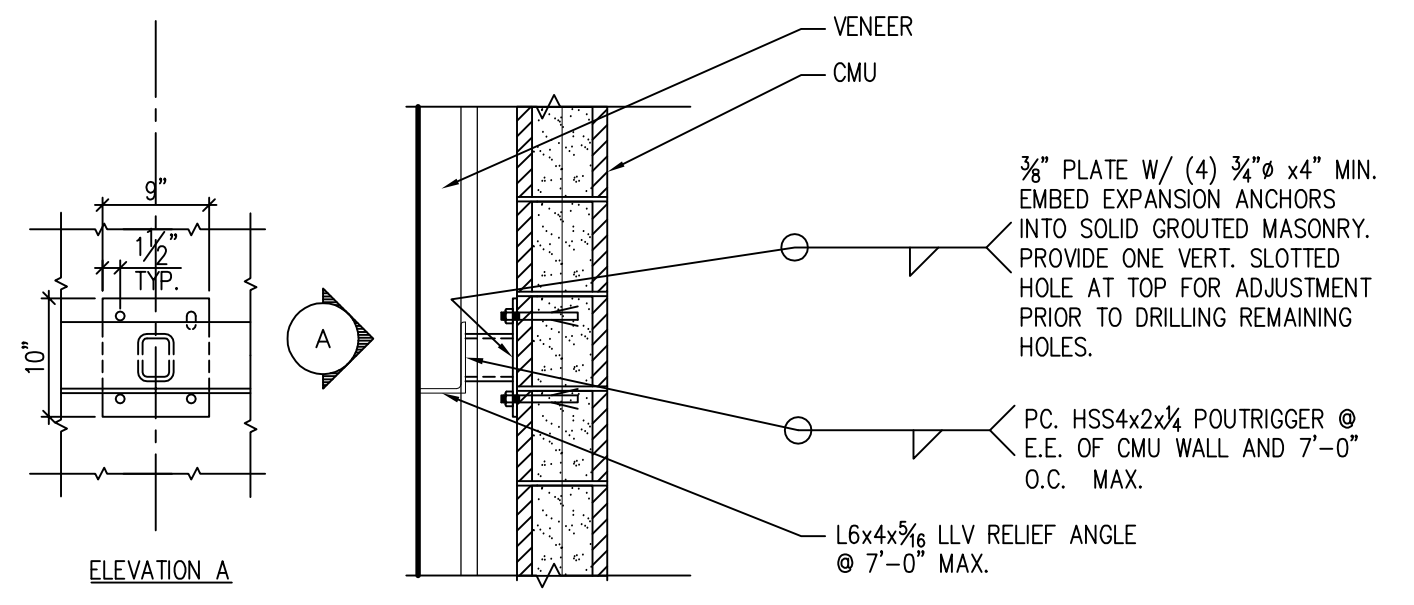
4 TYPICAL JOIST BRIDGING DETAIL  
S-401 SCALE: N.T.S.



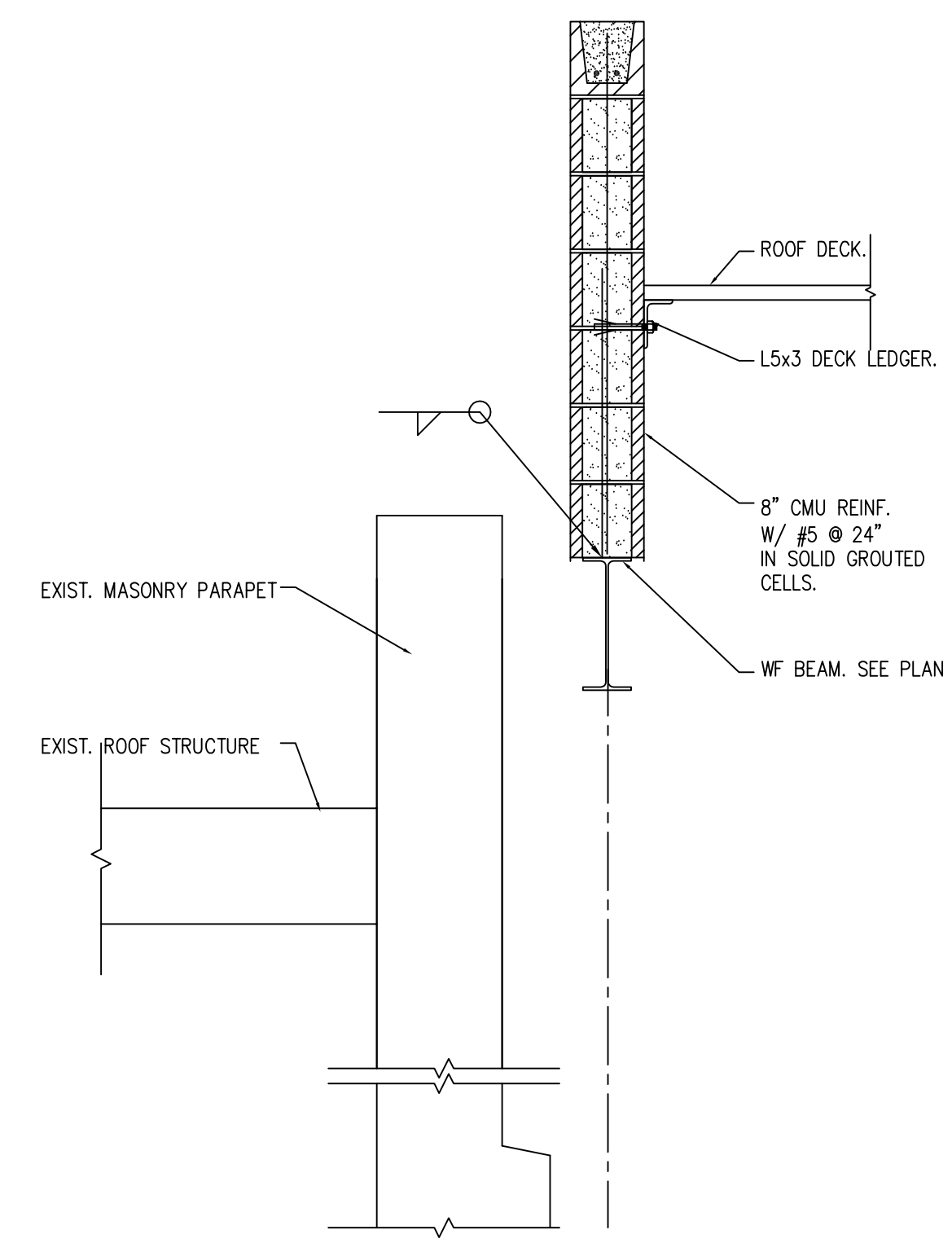
1 TYPICAL JOIST BEARING @ COLUMN  
S-401 SCALE: N.T.S.



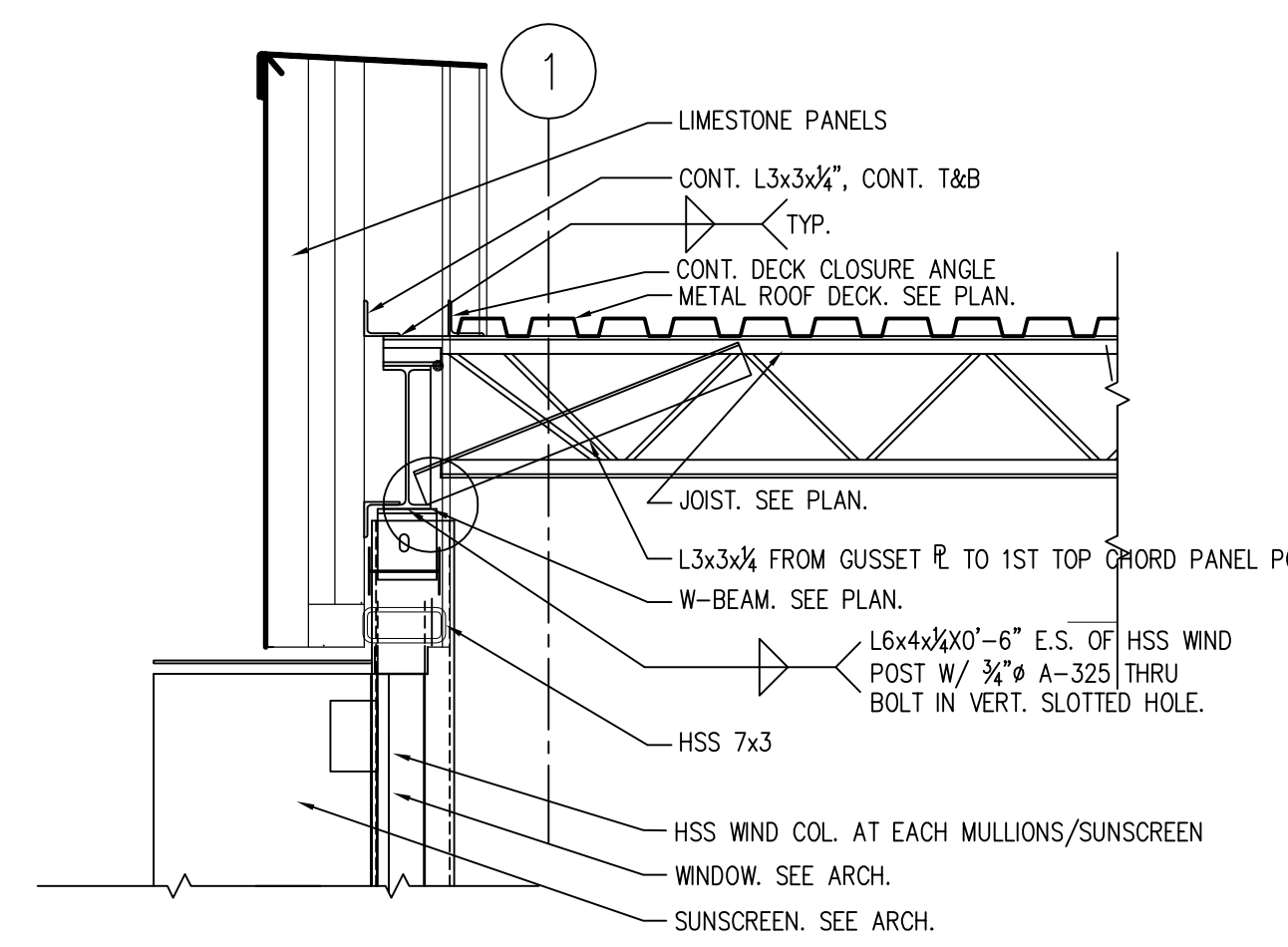
18 SECTION AT STAIRWELL  
S-401 SCALE: N.T.S.



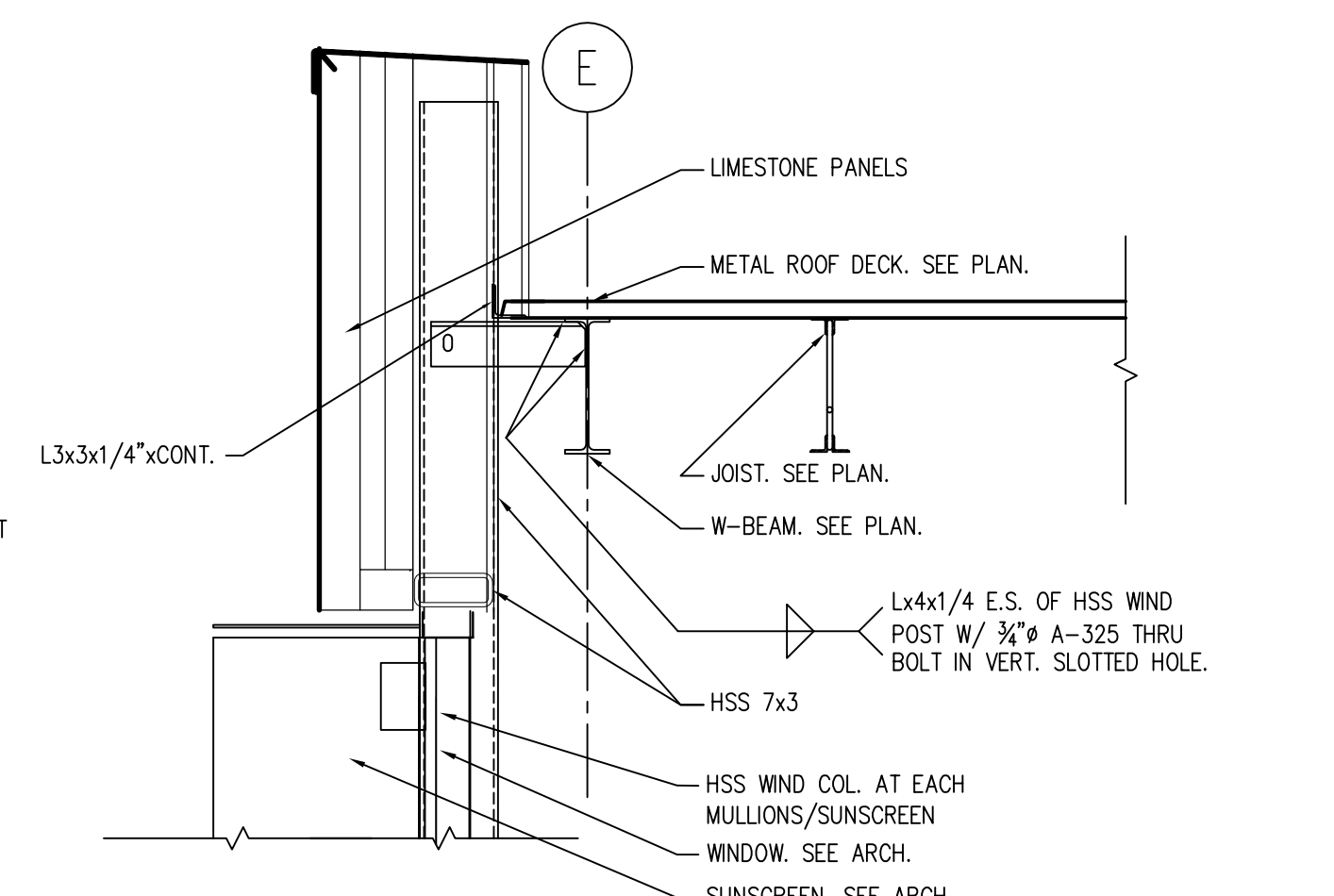
14 TYP. RELIEF ANGLE AT CMU WALL  
S-401 SCALE: N.T.S.



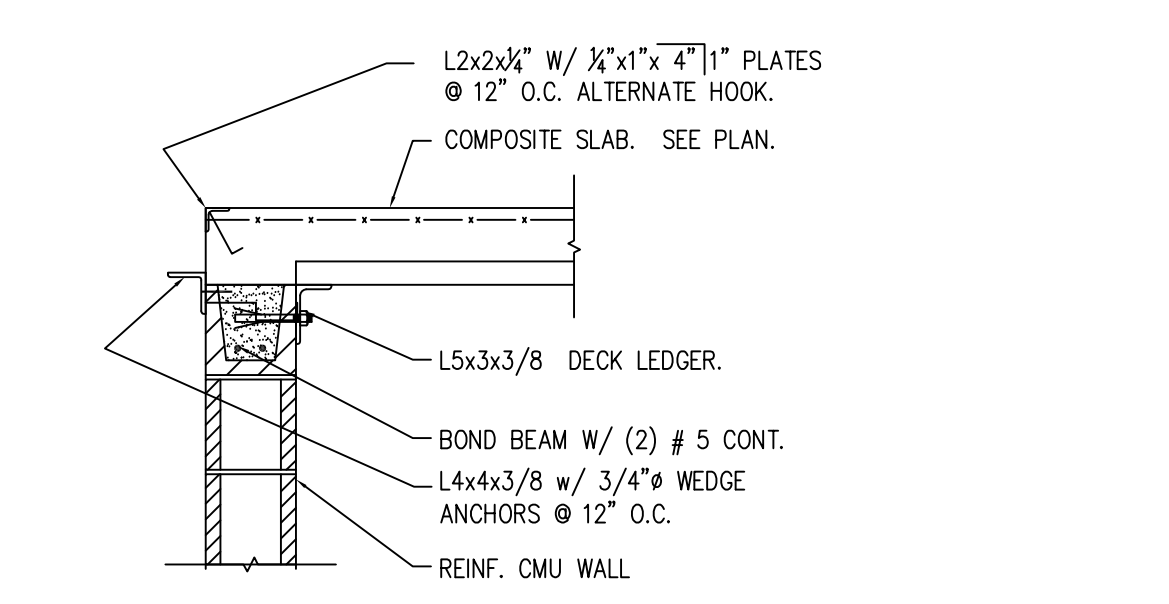
10 PARAPET AT EXIST.  
S-401 SCALE: N.T.S.



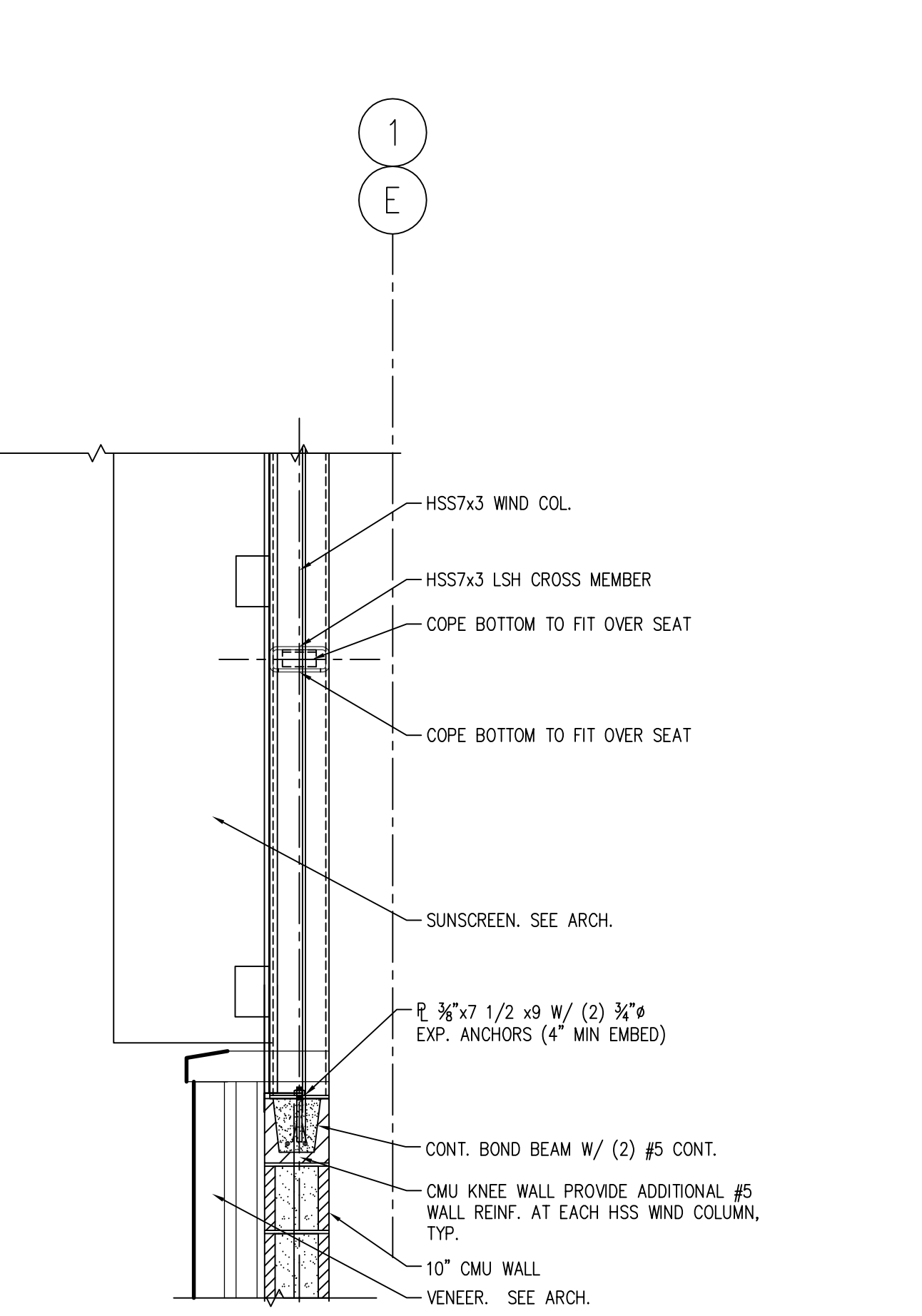
17 STAIRWELL AT ROOF  
S-401 SCALE: N.T.S.



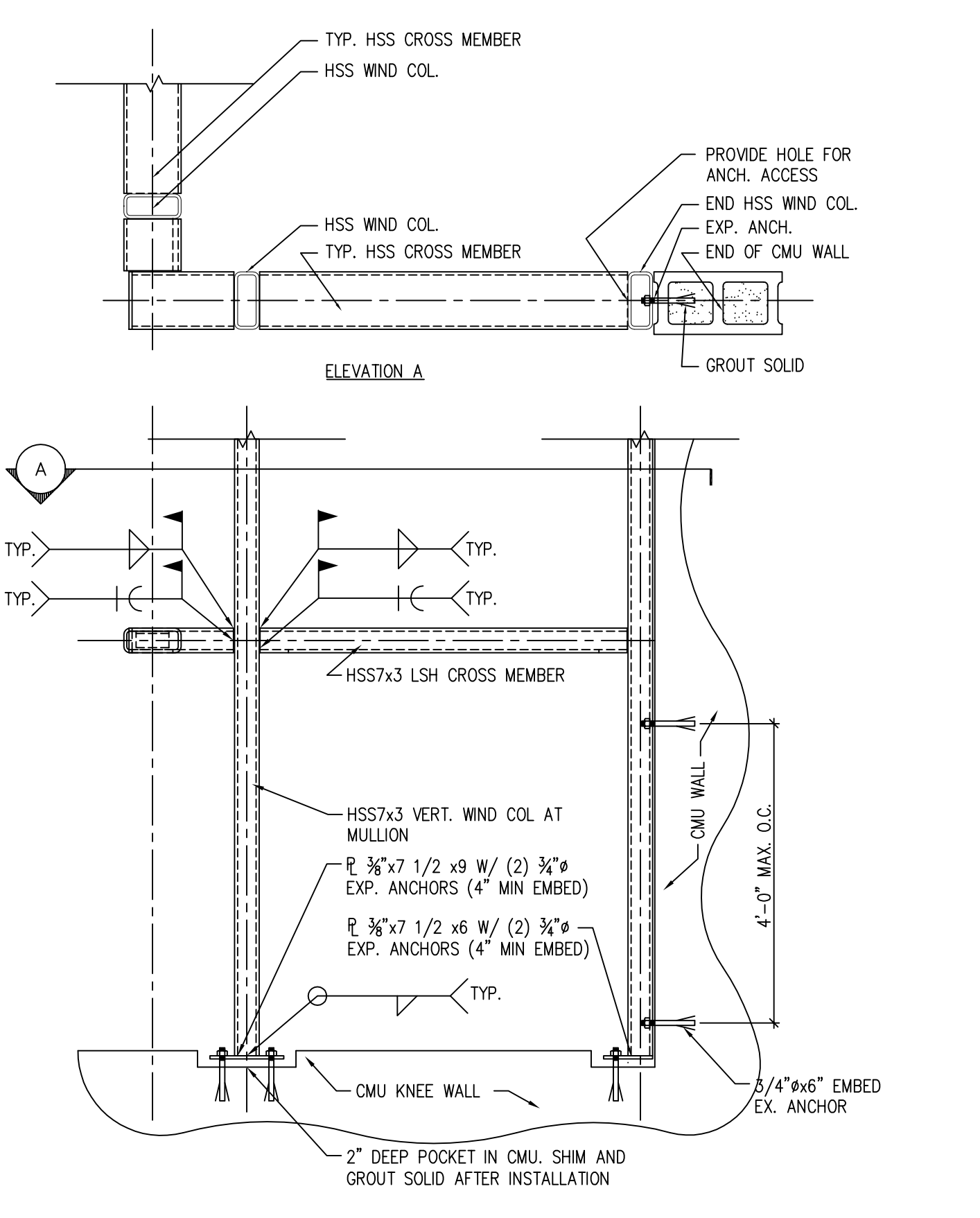
13 STAIRWELL AT ROOF  
S-401 SCALE: N.T.S.



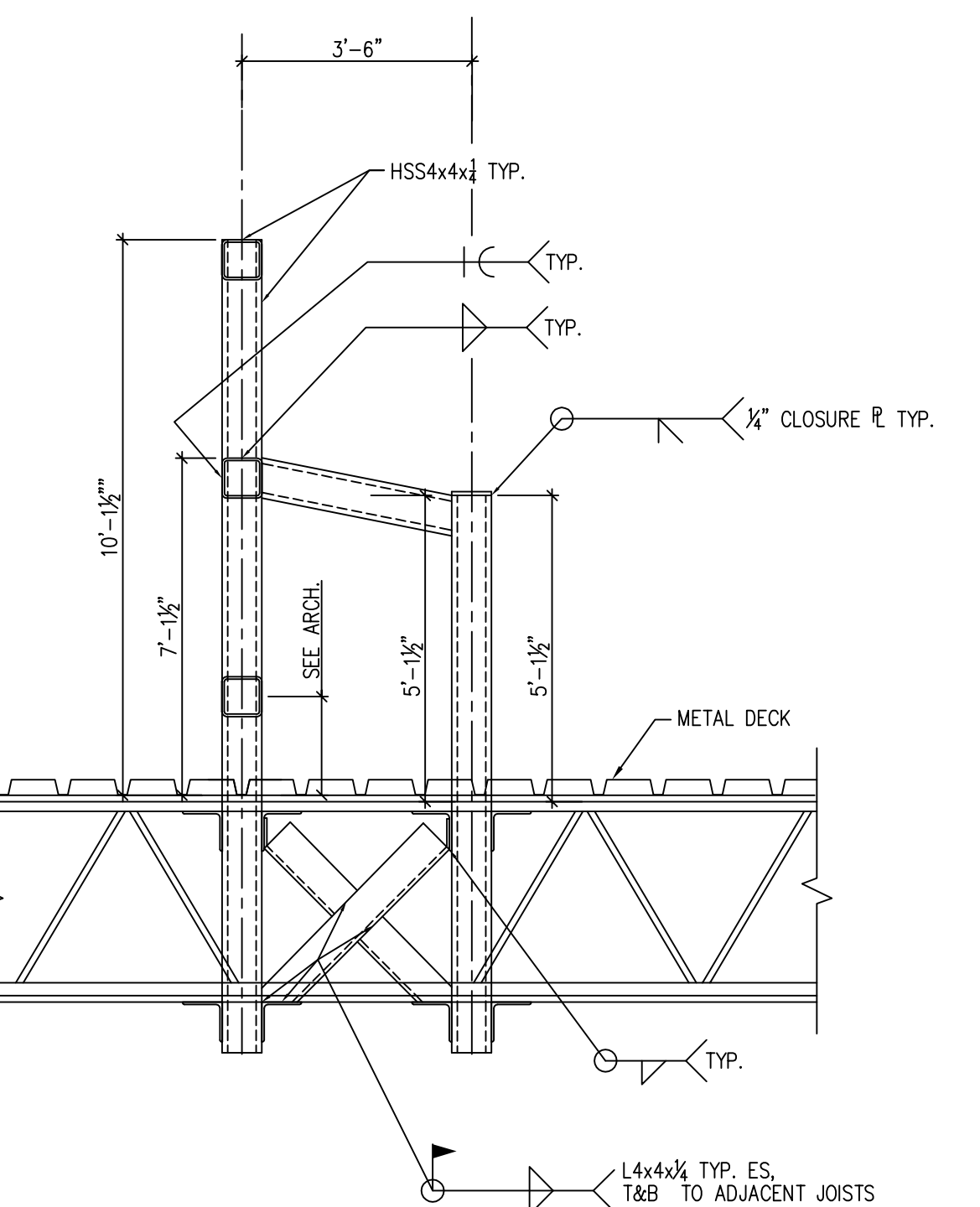
9 TYPICAL SLAB @ ELEVATOR DOOR  
S-401 SCALE: N.T.S.



16 HSS FRAME AT STAIR TOWER  
S-401 SCALE: N.T.S.



12 HSS FRAME AT STAIR TOWER  
S-401 SCALE: N.T.S.



8 ROOF SCREEN DETAIL  
S-401 SCALE: N.T.S.



**CANTY ELEMENTARY SCHOOL ANNEX**  
3740 NORTH PANAMA AVENUE  
CHICAGO, ILLINOIS 60634  
CHICAGO PUBLIC SCHOOLS  
CITY OF CHICAGO, MAYOR RAHM EMANUEL

Architect of Record  
**SMITH HARDING JOINT VENTURE**

224 SOUTH MICHIGAN AVENUE  
SUITE 245  
CHICAGO, ILLINOIS 60604  
312.922.2600 T  
312.922.8222 F

C.E. ANDERSON & ASSOCIATES  
Structural Engineers  
175 N Franklin Ave Suite  
Chicago, Illinois 60606

dbHMS ENGINEERING  
MEP and FP Engineers  
303 W Erie St Suite 510  
Chicago, Illinois 60654

TERRA ENGINEERING  
Civil Engineers  
225 W Ohio St 4th Floor  
Chicago, Illinois 60654

S.K. KEGAN & ASSOCIATES  
Landscape Architects  
9820 S Damen Ave  
Chicago, Illinois 60643

BAKER GROUP  
Food Service Consultant  
2220 E Paris Ave SE  
Grand Rapids, MI 43546

THRESHOLD ACOUSTICS  
Acoustician  
53 W Jackson Blvd Suite 815  
Chicago, Illinois 60604

WARNING: ASBESTOS CONTAINING BUILDING MATERIALS ARE OR MAY BE PRESENT IN THIS BUILDING. AN ASBESTOS MANAGEMENT PLAN IS AVAILABLE IN THE SCHOOL. FOR REVIEW UPON REQUEST. NO PERSON MAY DISTURB ASBESTOS CONTAINING MATERIALS UNLESS THAT PERSON IS A LICENSED ASBESTOS ABATEMENT WORKER OR CONDUCTS SUCH WORK IN ACCORDANCE WITH PROJECT SPECIFICATION(S) CONTAINING IN THE PROJECT DOCUMENTS AND IN COMPLIANCE WITH THE APPLICABLE REGULATIONS.

LEAD-BASED PAINT MAY BE PRESENT WITHIN THE BUILDING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO TAKE APPROPRIATE SAFETY MEASURES IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS INCLUDING OSHA 1926.22 COMPLIANCE, WASTE CHARACTERIZATION AND WASTE DISPOSAL. ALL WORK WITH SURFACES CONTAINING LEAD-BASED PAINT SHALL BE DONE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

Mark	Description	Date
A	ADDENDUM NO.1	05/26/15
	ISSUED FOR BID	05/07/15

PBC Project Name: ARTHUR CANTY ANNEX  
PBC Contract No.: 05750  
Project No.:  
Title:

**FRAMING DETAILS & SECTIONS**

Sheet  
**S-401**



**CANTY ELEMENTARY SCHOOL ANNEX**  
 3740 NORTH PANAMA AVENUE  
 CHICAGO, ILLINOIS 60634  
 CHICAGO PUBLIC SCHOOLS  
 CITY OF CHICAGO, MAYOR RAHM EMANUEL

Architect of Record  
**SMITH HARDING JOINT VENTURE**

224 SOUTH MICHIGAN AVENUE  
 SUITE 245  
 CHICAGO, ILLINOIS 60604  
 312.922.2600 T  
 312.922.6222 F

**C.E. ANDERSON & ASSOCIATES**  
 Structural Engineers  
 175 N Franklin Ave Suite 606  
 Chicago, Illinois 60606

**dbHMS ENGINEERING**  
 MEP and FP Engineers  
 303 W Erie St Suite 510  
 Chicago, Illinois 60654

**TERRA ENGINEERING**  
 Civil Engineers  
 225 W Ohio St 4th Floor  
 Chicago, Illinois 60654

**S.K. KEGAN & ASSOCIATES**  
 Landscape Architects  
 920 S Damen Ave  
 Chicago, Illinois 60643

**BAKER GROUP**  
 Food Service Consultant  
 220 E Park Ave SE  
 Grand Rapids, MI 43546

**THRESHOLD ACOUSTICS**  
 Acoustics  
 53 W Jackson Blvd Suite 815  
 Chicago, Illinois 60604

WARNING: ASBESTOS CONTAINING BUILDING MATERIALS ARE OR MAY BE PRESENT IN THIS BUILDING. AN ASBESTOS MANAGEMENT PLAN IS AVAILABLE IN THE SCHOOL FOR REVIEW UPON REQUEST. NO PERSON MAY DISTURB ASBESTOS CONTAINING MATERIALS UNLESS THAT PERSON IS A LICENSED ASBESTOS ABATEMENT WORKER OR CONDUCTS SUCH WORK IN ACCORDANCE WITH PROJECT SPECIFICATIONS) CONTAINING IN THE PROJECT DOCUMENTS AND IN COMPLIANCE WITH THE APPLICABLE REGULATIONS.

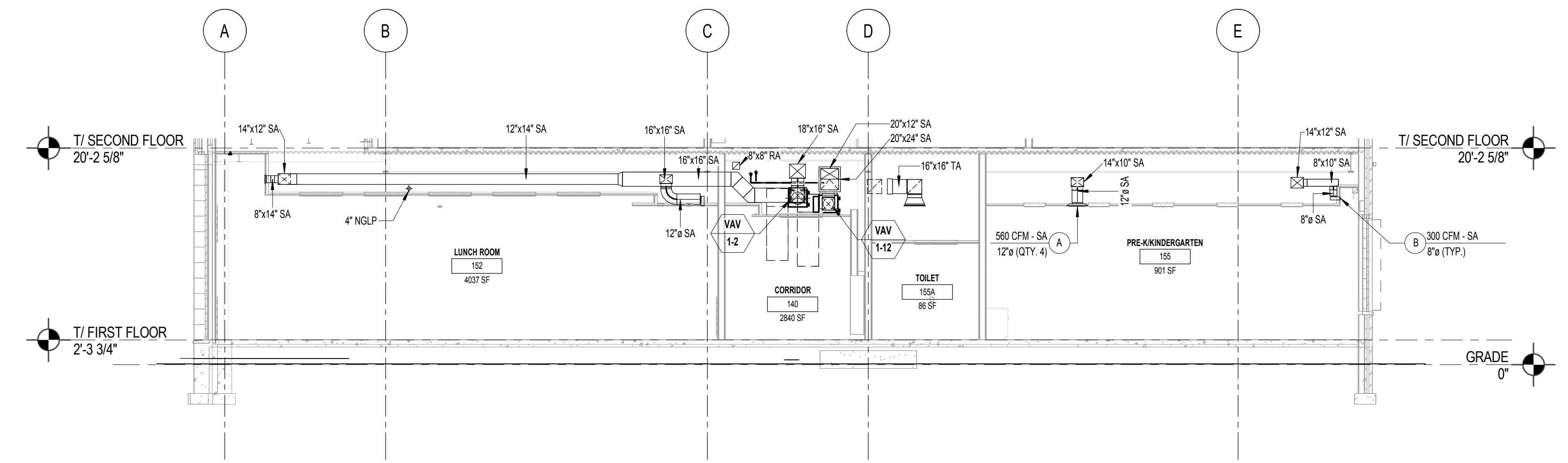
LEAD-BASED PAINT MAY BE PRESENT WITHIN THE BUILDING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO TAKE APPROPRIATE SAFETY MEASURES IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS INCLUDING OSHA (1926.62) COMPLIANCE, WASTE CHARACTERIZATION AND WASTE DISPOSAL. ALL WORK WITH SURFACES CONTAINING LEAD-BASED PAINT SHALL BE DONE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

Mark	Description	Date
1	ADDENDUM NO. 001	05.26.15
1	ISSUED FOR BID	05.07.15

PBC Project Name: ARTHUR CANTY ANNEX  
 PBC Contract No: 05750  
 Project No: 2014-05750-ANX

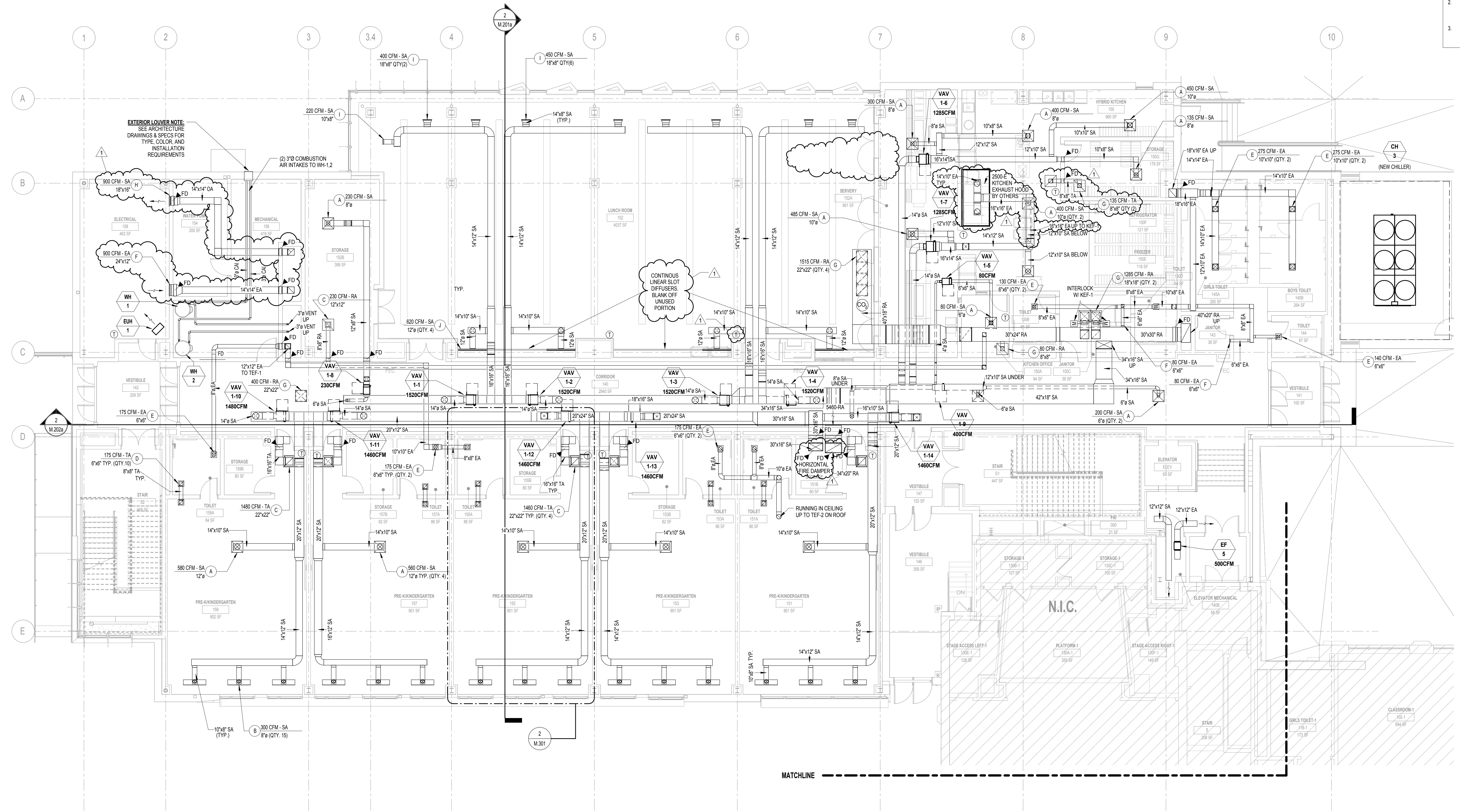
**FIRST FLOOR AREA A - PARTIAL MECHANICAL DUCTWORK PLAN**

Sheet **M.201a**

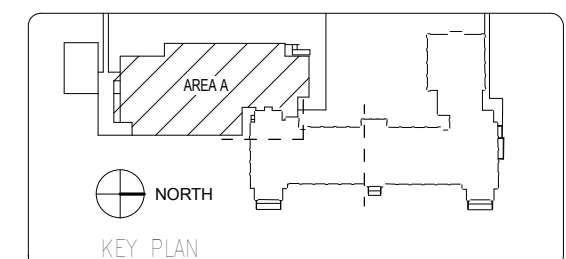


**SECTION E-W**  
 1/8" = 1'-0"

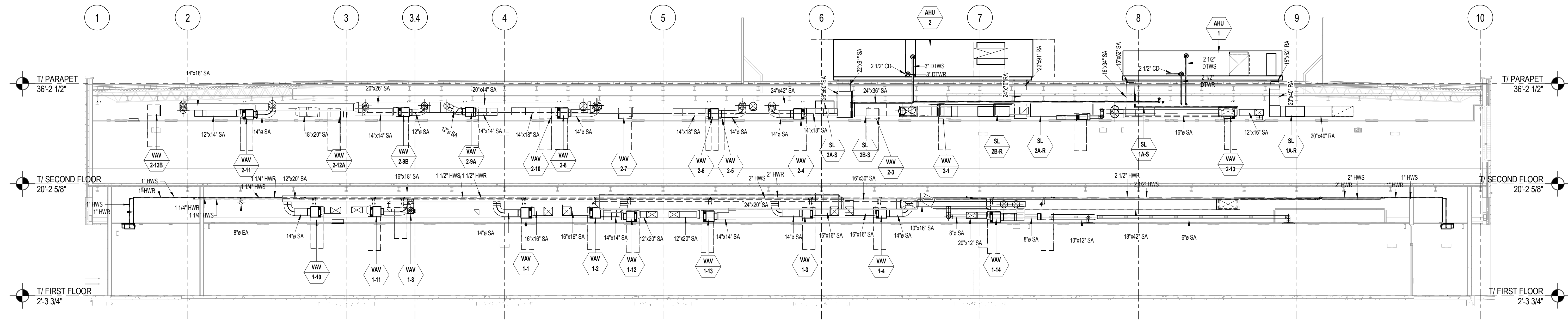
- GENERAL NOTES:**
1. ADD WIRE MESH SCREEN TO ALL RETURN OPENINGS.
  2. HVAC CONTRACTOR SHALL ADJUST LINEAR DIFFUSERS TO THROW AIR ALONG THE CEILING AND TOWARDS THE WINDOWS FOR THE MANUFACTURER'S RECOMMENDATIONS. COORDINATE FINAL LOCATION OF ALL DIFFUSERS, GRILLES AND REGISTERS WITH REFLECTED CEILING PLANS.



**1 FIRST FLOOR AREA A - PARTIAL MECHANICAL DUCTWORK PLAN**  
 1/8" = 1'-0"

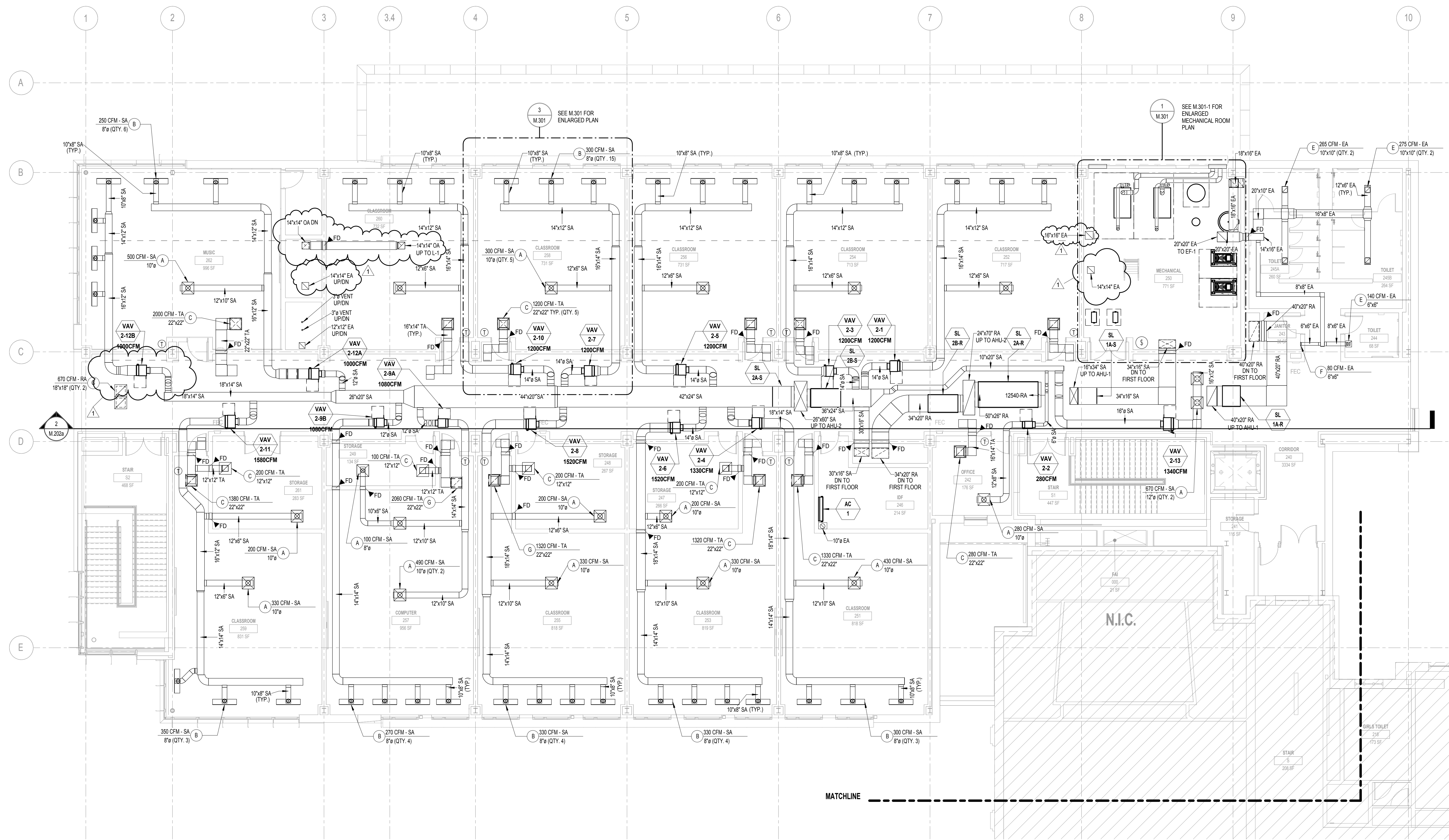


C:\Users\ashah\Documents\14-205\_CANTY ANNEX - MEP - sstahat

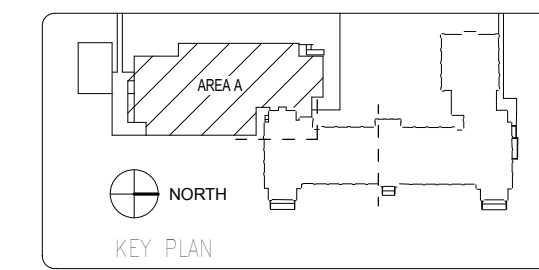


SECTION N-S FIRST & SECOND FLOOR CORRIDOR  
1/8" = 1'-0"

- GENERAL NOTES:
1. ADD WIRE MESH SCREEN TO ALL RETURN OPENINGS.
  2. HVAC CONTRACTOR SHALL ADJUST LINEAR DIFFUSERS TO THROW AIR ALONG THE CEILING AND TOWARDS THE WINDOWS PER THE MANUFACTURER'S RECOMMENDATIONS. COORDINATE FINAL LOCATION OF ALL DIFFUSERS, GRILLES AND REGISTERS WITH REFLECTED CEILING PLANS.
  - 3.



SECOND FLOOR AREA A - PARTIAL MECHANICAL DUCTWORK PLAN  
1/8" = 1'-0"



**CANTY ELEMENTARY SCHOOL ANNEX**  
3740 NORTH PANAMA AVENUE  
CHICAGO, ILLINOIS 60634  
CHICAGO PUBLIC SCHOOLS  
CITY OF CHICAGO, MAYOR RAHM EMANUEL

Architect of Record  
**SMITH HARDING JOINT VENTURE**

224 SOUTH MICHIGAN AVENUE  
SUITE 245  
CHICAGO, ILLINOIS 60604  
312.922.2600 T  
312.922.6222 F

**C.E. ANDERSON & ASSOCIATES**  
Structural Engineers  
175 N Franklin Ave Suite 1700  
Chicago, Illinois 60606

**dbHMS ENGINEERING**  
MEP and FP Engineers  
303 W Erie St Suite 510  
Chicago, Illinois 60654

**TERRA ENGINEERING**  
Civil Engineers  
225 W Ohio St 4th Floor  
Chicago, Illinois 60654

**S.K. KEGAN & ASSOCIATES**  
Landscape Architects  
9620 S Damen Ave  
Chicago, Illinois 60643

**BAKER GROUP**  
Food Service Consultant  
2220 E Park Ave SE  
Grand Rapids, MI 43546

**THRESHOLD ACOUSTICS**  
Acoustics  
53 W Jackson Blvd Suite 815  
Chicago, Illinois 60604

WARNING: ASBESTOS CONTAINING BUILDING MATERIALS ARE OR MAY BE PRESENT IN THIS BUILDING. AN ASBESTOS MANAGEMENT PLAN IS AVAILABLE IN THE SCHOOL FOR REVIEW UPON REQUEST. NO PERSON MAY DISTURB ASBESTOS CONTAINING MATERIALS UNLESS THAT PERSON IS A LICENSED ASBESTOS ABATEMENT WORKER OR CONDUCTS SUCH WORK IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND IN COMPLIANCE WITH THE APPLICABLE REGULATIONS.

LEAD-BASED PAINT MAY BE PRESENT WITHIN THE BUILDING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO TAKE APPROPRIATE SAFETY MEASURES IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS INCLUDING OSHA (1962) COMPLIANCE, WASTE CHARACTERIZATION AND WASTE DISPOSAL. ALL WORK WITH SURFACES CONTAINING LEAD-BASED PAINT SHALL BE DONE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

Issuance	Mark	Description	Date

ADDENDUM NO. 001 05.26.15  
ISSUED FOR BID 05.07.15

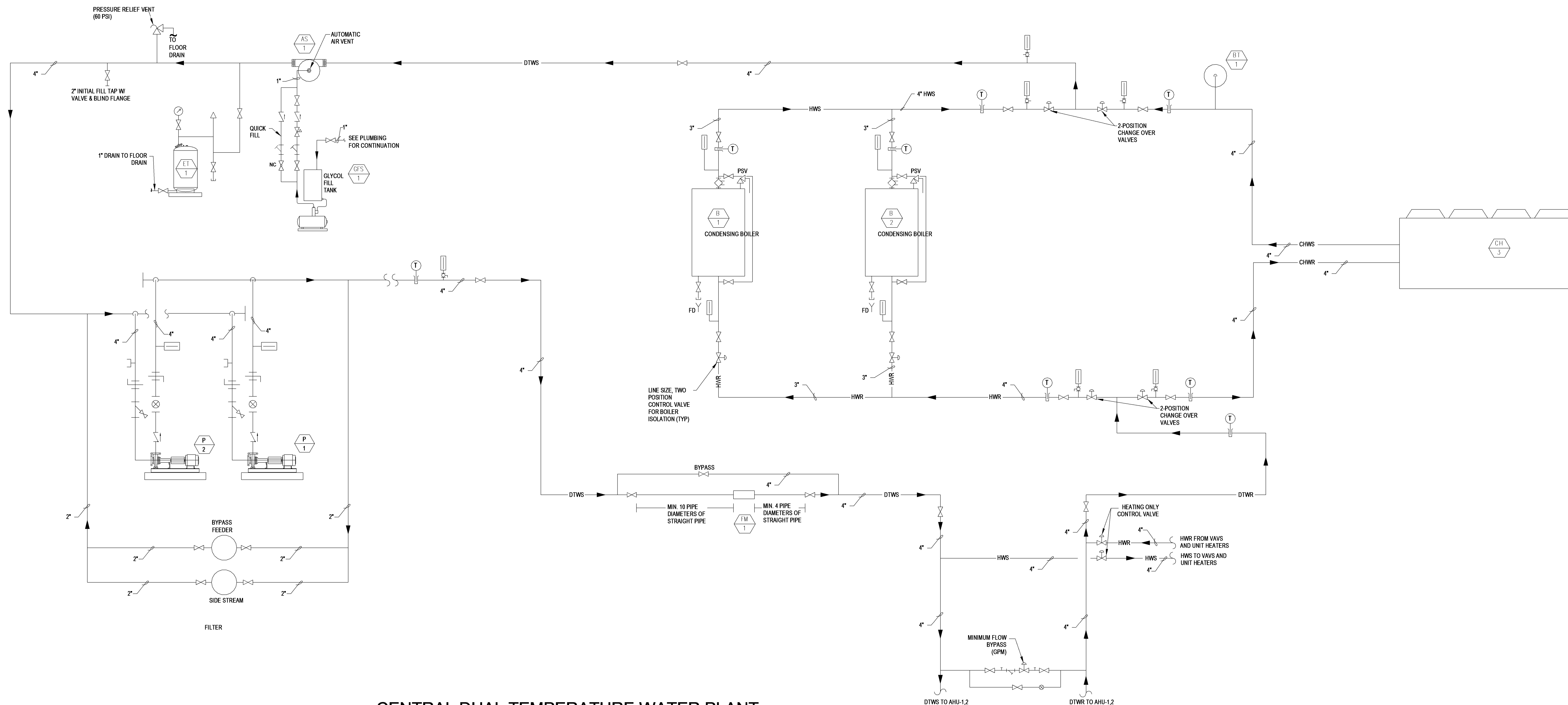
PBC Project Name: ARTHUR CANTY ANNEX  
PBC Contract No: 05750  
Project No: 2014-05750-ANX

SECOND FLOOR AREA A - PARTIAL MECHANICAL DUCTWORK PLAN

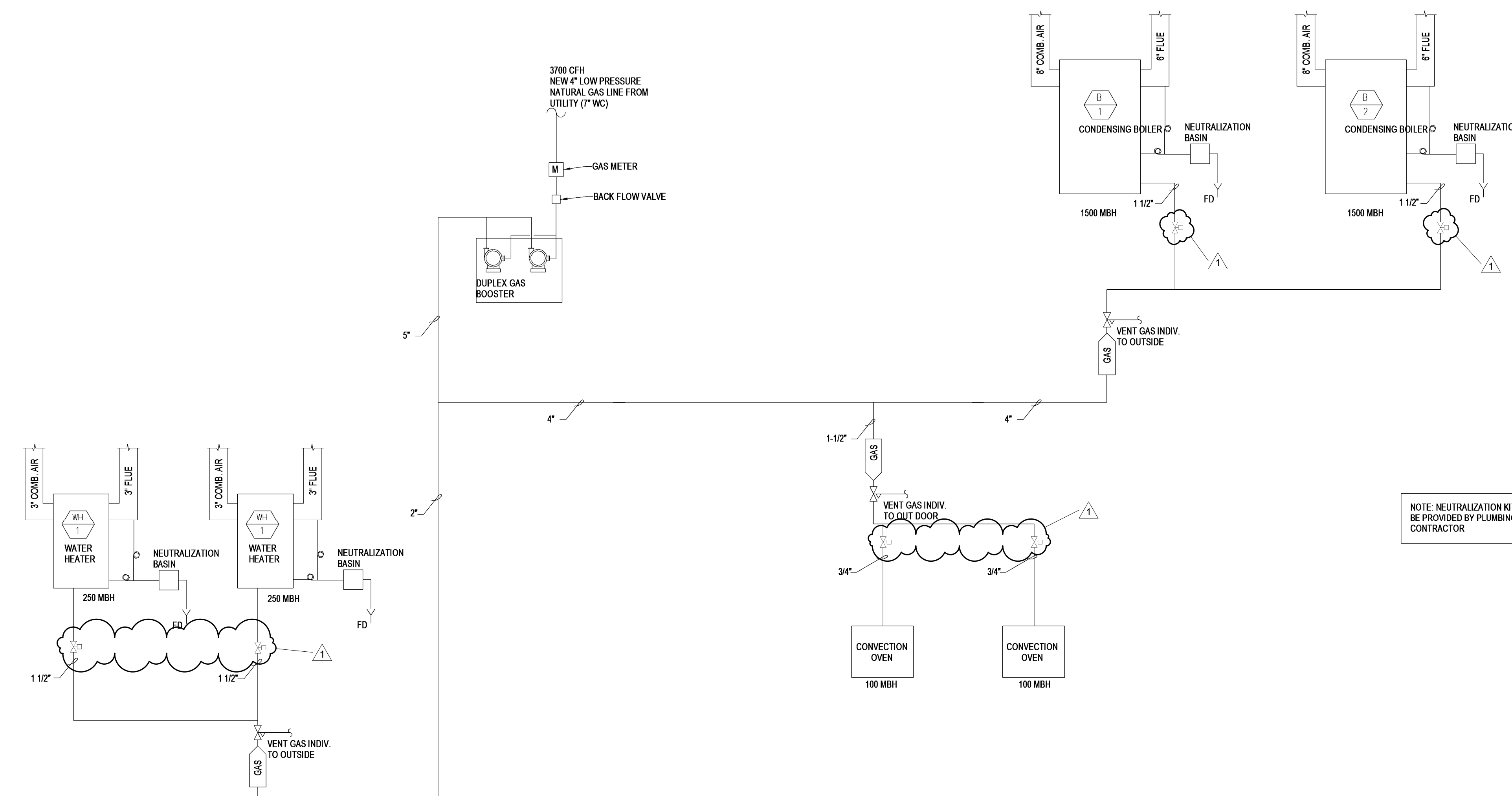
Sheet M.202a

C:\Users\stahh\Documents\14-205 CANTY ANNEX - MEP - stahh.rvt





**CENTRAL DUAL TEMPERATURE WATER PLANT**  
SCALE: N.T.S.



NOTE: NEUTRALIZATION KIT TO BE PROVIDED BY PLUMBING CONTRACTOR

**GAS PIPING DIAGRAM**

SCALE: N.T.S.



**CANTY ELEMENTARY SCHOOL ANNEX**  
3740 NORTH PANAMA AVENUE  
CHICAGO, ILLINOIS 60634  
CHICAGO PUBLIC SCHOOLS  
CITY OF CHICAGO, MAYOR RAHM EMMANUEL

Architect of Record  
**SMITH HARDING JOINT VENTURE**  
224 SOUTH MICHIGAN AVENUE  
SUITE 245  
CHICAGO, ILLINOIS 60604  
312.922.2600 T  
312.922.6222 F

**C.E. ANDERSON & ASSOCIATES**  
Structural Engineers  
175 N Franklin Ave Suite  
Chicago, Illinois 60606

**dbHMS ENGINEERING**  
MEP and FP Engineers  
303 W Erie St Suite 510  
Chicago, Illinois 60654

**TERRA ENGINEERING**  
Civil Engineers  
225 W Ohio St 4th Floor  
Chicago, Illinois 60654

**S.K. KEGAN & ASSOCIATES**  
Landscape Architects  
9620 S Damen Ave  
Chicago, Illinois 60643

**BAKER GROUP**  
Food Service Consultant  
2220 E Park Ave SE  
Grand Rapids, MI 43546

**THRESHOLD ACOUSTICS**  
Acoustician  
53 W Jackson Blvd Suite 815  
Chicago, Illinois 60604

WARNING: ASBESTOS CONTAINING BUILDING MATERIALS ARE OR MAY BE PRESENT IN THIS BUILDING. AN ASBESTOS MANAGEMENT PLAN IS AVAILABLE IN THE SCHOOL FOR REVIEW UPON REQUEST. NO PERSON MAY DISTURB ASBESTOS CONTAINING MATERIALS UNLESS THAT PERSON IS A LICENSED ASBESTOS ABATEMENT WORKER OR CONDUCTS SUCH WORK IN ACCORDANCE WITH PROJECT SPECIFICATIONS) CONTAINING IN THE PROJECT DOCUMENTS AND IN COMPLIANCE WITH THE APPLICABLE REGULATIONS.

LEAD-BASED PAINT MAY BE PRESENT WITHIN THE BUILDING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO TAKE APPROPRIATE SAFETY MEASURES IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS INCLUDING OSHA (1962-82) COMPLIANCE, WASTE CHARACTERIZATION AND WASTE DISPOSAL. ALL WORK WITH SURFACES CONTAINING LEAD-BASED PAINT SHALL BE DONE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

Mark	Description	Date

ADDENDUM NO. 001 05.26.15  
ISSUED FOR BID 05.07.15

PBC Project Name: ARTHUR CANTY ANNEX  
PBC Contract No: 05750  
Project No.: 2014-05750-ANNX

**MECHANICAL SYSTEM DIAGRAMS - WATERSIDE**

Sheet  
**M.400**



TAG		LOCATION	AREA SERVED	OUTSIDE AIR	SUPPLY FAN DATA										RETURN EXHAUST FAN DATA										ELECTRICAL DATA			MCA (A)	MOCP (A)	FILTER TAG	COOLING COIL TAG	HEATING COIL TAG	UNIT WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
ABBR.	#				SUPPLY AIR (CFM)	TOTAL SP (IN)	ESP (IN)	FAN SPEED (RPM)	# OF FANS	BHP	TYPE	MOTOR HP	RETURN AIR (CFM)	TOTAL SP (IN)	ESP (IN)	FAN SPEED (RPM)	# OF FANS	BHP	TYPE	MOTOR HP	VOLTS	PH	HZ	PH	PH	HZ										
AHU	1	ROOF	KITCHEN AND DINING	3,500	6,500	4.28	2.07	1768	1	5.98	PLENUM	7.5	6,500	1.77	0.56	1685	1	3.01	PLENUM	5	480 V	3	60	31.3	35	F-1	DTC-1	DTC-1	6828	JOHNSON CONTROLS / YORK	SOLUTION 48 X 69	1-10				
AHU	2	ROOF	CLASSROOMS	9,000	18,000	4.73	2.36	1562	1	18.54	PLENUM	20	18,000	2.55	1.07	1749	1	13.12	PLENUM	15	480 V	3	60	73	100	F-2	DTC-2	DTC-2	11539	JOHNSON CONTROLS / YORK	SOLUTION 72 X 108	1-10				

- FACTORY TERMINATED WIRING TO SINGLE POINT ELECTRICAL CONNECTION, DISCONNECT SWITCH
- VARIABLE FREQUENCY DRIVE ON SUPPLY AND RETURN FANS
- INSULATED ROOF CURB WITH PIPING CHASE
- PROVIDE HEAT TRACE KIT FOR FIELD INSTALLATION BY CONTRACTOR
- DOUBLE WALL, FOAM INSULATED PANELS W/ R-13 INSULATION
- PERFORATED LINER IN SUPPLY FAN SECTION, RETURN FAN SECTION, INLET PLENUM, AND DISCHARGE PLENUM
- DIRECT DRIVE FANS
- THERMAL BREAK DOORS ON ALL SECTIONS
- DOUBLE PANE VIEW PORT ON ALL DOORS
- BOTTOM SAFETY GRATE OVER SUPPLY/RETURN OPENINGS

TAG		LOCATION	AREA SERVED	CFM	FACE AREA (SQ. FT.)		QTY	TYPE	HEIGHT (IN)	LENGTH (IN)	MIN ROWS	MAX FPI	FLUID TYPE	TUBE DIA. (IN)	TUBE THICKNESS (IN)	MAX FACE VELOCITY (FPM)	AIR PD IN WC.	ENT. AIR				LVG. AIR				WATER DATA				GPM	EWT	LWT	MAX PD (FT)	VELOCITY (FPS)	VOLUME (CU.FT.)	TOTAL CAP. MBH	SENS. MBH	MANUFACTURER	MODEL	REMARKS
ABBR.	#				COIL DATA	DB (F)												WB (F)	DB (F)	WB (F)	DB (F)	WB (F)	DB (F)	WB (F)	DB (F)	WB (F)	DB (F)	WB (F)	DB (F)											
DTC-1	COOLING	AHU-1	KITCHEN AND DINING	6,500	15.3	1	DUAL TEMP	39 1/4"	56"	8	8	30% PROPYLENE GLYCOL	0.625	0.025	425	0.57	82.4	69.1	55.7	55.4	60.4	44	58	16.9	3.6	2.3	273.7	183.7	JOHNSON CONTROLS / YORK	SOLUTION 48 X 69 CABINET	1									
DTC-1	HEATING	AHU-1	KITCHEN AND DINING	6,360	15.3	1	DUAL TEMP	39 1/4"	56"	8	8	30% PROPYLENE GLYCOL	0.625	0.025	417	0.74	82	68.8	56.3	55.9	54	44	58	16.2	4.1	4.4	715.3	489.7	JOHNSON CONTROLS / YORK	SOLUTION 72 X 108 CABINET	1									
DTC-2	COOLING	AHU-2	CLASSROOMS	18,000	39.9	1	DUAL TEMP	60 1/2"	95"	6	11	30% PROPYLENE GLYCOL	0.625	0.025	451	0.74	82	68.8	56.3	55.9	54	44	58	16.2	4.1	4.4	715.3	489.7	JOHNSON CONTROLS / YORK	SOLUTION 72 X 108 CABINET	1									
DTC-2	HEATING	AHU-2	CLASSROOMS	16,950	39.9	1	DUAL TEMP	60 1/2"	95"	6	11	30% PROPYLENE GLYCOL	0.625	0.025	425	3	28	79.9			54	44	58	1.3	1	4.4	952.3		JOHNSON CONTROLS / YORK	SOLUTION 72 X 108 CABINET	1									

- STAINLESS STEEL COIL CASING

TAG		LOCATION	AREA SERVED	CFM	EFF. % (MERV)	FILTER TYPE			FACE AREA (SQ. FT.)	DIMENSIONS			P.D. DROP (IN WC)		FILTER SECTION DESIGN PD (IN WC)	MANUFACTURER	
ABBR.	#					PANEL	BAG	CARTRIDGE		FACE VEL FPM	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	CLEAN			DIRTY
F	1			6500	8			X	434	15 SF	36"	60"	2"	0.22	0.25	0.47	JOHNSON CONTROLS / YORK
F	2			18000	8			X	450	40 SF	60"	96"	2"	0.23	0.25	0.48	JOHNSON CONTROLS / YORK

TAG		DESCRIPTION	FREQUENCY LEVEL IN HERTZ SOUND LEVEL IN DB					UNIT WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
ABBR.	#		63	125	250	500	1000				
AHU-1		BOTTOM DISCHARGE	75	73	80	75	72	70	65	58	
AHU-1		BOTTOM RETURN	77	77	84	74	71	72	69	64	
AHU-1		EXHAUST AIR	71	72	79	73	71	70	65	57	
AHU-1		OUTSIDE AIR	70	71	79	72	69	68	63	56	
AHU-2		BOTTOM DISCHARGE	83	84	90	85	81	80	77	66	
AHU-2		BOTTOM RETURN	86	86	94	83	82	84	83	74	
AHU-2		EXHAUST AIR	77	80	82	90	85	82	81	67	
AHU-2		OUTSIDE AIR	79	81	89	84	81	79	78	66	
CH-3		BASELINE LEVELS	98	97	93	93	88	86	82	79	

TAG		LOCATION	BOILER TYPE	GAS TYPE	INLET GAS PRES. (IN WC)	INPUT (MBH)	ACTUAL OUTPUT (MBH)	REQUIRED OUTPUT (MBH)	EFF. %	EWT	LWT	FLUID TYPE	FLOW RATE (GPM)	MAX. P.D. @ 30" (MBH)	MAX. WORKING PRES. @ 210" (PSI)	RELIEF VALVE SETTING	ELECTRICAL			UNIT WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS	
ABBR.	#																VOLTS	PH	HZ					AMPS (FLA)
B	1	MECHANICAL ROOM	CONDENSING	NATURAL GAS	4-14"	1,500	1,311	106%	92	110	140	30% PROPYLENE GLYCOL	100	0.11	160		120 V	1	60	20	3128	FULTON	EDR 1500	1-6
B	2	MECHANICAL ROOM	CONDENSING	NATURAL GAS	4-14"	1,500	1,311	109%	92	110	140	30% PROPYLENE GLYCOL	100	0.11	160		120 V	1	60	20	3128	FULTON	EDR 1500	1-6

- FACTORY TERMINATED WIRING TO SINGLE POINT ELECTRICAL CONNECTION, DISCONNECT SWITCH
- FACTORY PROGRAMMABLE CONTROLLER WITH BAS COMPATIBLE INTERFACE
- BOILER FLUE LAYOUT TO BE REVIEWED AND APPROVED BY THE BOILER MANUFACTURER
- ACTUAL OUTPUT CAPACITY DERATED FOR 30% PROPYLENE GLYCOL
- PROVIDE pH NEUTRALIZATION KIT
- TURNDOWN RATIO 10:1

TAG		LOCATION	AREA SERVED	NOM TONS	EWT (F)	LWT (F)	AMBIENT AIR (F)	EVAPORATOR				FOULING FACTOR	FLUID	CONDENSER		COMPRESSOR		NO. OF REFRIGERANT CIRCUITS	REFRIGERANT TYPE	EER	NPLV	MCA	VOLTS	PH	HZ	UNIT WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS				
ABBR.	#							DESIGN FLOW (GPM)	MIN. FLOW (GPM)	MAX. FLOW (GPM)	MIN. LOOP VALUE (GAL)			MAX. WPD (F)	NO. FANS	KW EACH	TOTAL KW													NO.	TYPE	KW	RLA COMP. 1,2,3 / COMP. 4,5
CH	3	ON GRADE	CHILLED WATER LOOP	100.1	58	44	91	178	100	385	8.8	10	0.0001	30% PROPYLENE GLYCOL	6	1.25	7.5	5	SCROLL	101.4	27/27/27/53/53	2	R-410A	10.8	16.1	229	460 V	3	60	4816	JOHNSON CONTROLS / YORK	YLA0101H46XFBSDTX	1-14

- FACTORY TERMINATED WIRING TO SINGLE POINT ELECTRICAL CONNECTION, DISCONNECT SWITCH
- PROVIDE VARIABLE SPEED CONDENSER FANS
- FACTORY PROGRAMMABLE CONTROLLER WITH BAS COMPATIBLE INTERFACE
- FREZE PROTECTION, SUCTION LINE INSULATED
- ULTRA LOW SOUND OPTION
- COIL TRIM PANELS, GRILLES, UPPER HAIL GUARDS
- PROVIDE SINGLE POINT POWER BREAKER WITH LOCKABLE HANDLE
- PROVIDE SERVICE ISOLATION VALVES
- EVAPORATOR INSULATION SHALL BE 1-1/2" THICK
- FURNISH BAS INTERFACE-FACTORY INSTALLED AND FIELD COMMISSIONED
- SPRING ISOLATORS
- MINIMUM OF 15' AT RATED CONDITIONS
- COMPRESSOR SHALL BE VARIABLE SPEED SCROLL CHILLER
- PROVIDE FACTORY INSTALLED PRESSURE RELIEF VALVE PER CITY OF CHICAGO CODE REQUIREMENTS

TAG		LOCATION	SYSTEM SERVED	CFM	THROAT AREA (SQ.FT.)	FREE AREA (SQ.FT.)	THROAT VELOCITY (FPM)	SPD IN WC.	THROAT DIMENSIONS (IN) (L x W)	LOUVER DIMENSIONS (IN) (L x W)	UNIT WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
ABBR.	#													
L	1	ROOF-ANNEX	ELECTRICAL ROOM-ANNEX	900	2 SF	2.5	500	0.045	20x12	33X33X12.25	51	GREENHECK	WIH	1-3

- 24 VAC DAMPER ACTUATOR TO BE INTERLOCKED WITH EF-2
- ALUMINUM BRASS GREEN
- ROOF CURB

TAG		LOCATION	AREA SERVED	CFM	F.S.P. IN WC	FAN DATA				ELECTRICAL DATA			UNIT WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS	
ABBR.	#					TYPE	RPM	DRIVE	BHP	HP	VOLTS	PH					HZ
EF	1	ROOF-ANNEX	143, 144, 145A, 145B, 150B, 150C, 150D, 243, 244, 245A, 245B (ANNEX)	900	0.25	CENTRIFUGAL DOWNBLAST	1632	BELT	0.27	1/3	115 V	1	60	120	GREENHECK	GB-101-3	1-5
EF	2	ROOF-ANNEX	ELECTRICAL ROOM 15B (ANNEX)	1050	0.25	CENTRIFUGAL DOWNBLAST	1761	BELT	0.34	1/3	115 V	1	60	120	GREENHECK	GB-101-3	1-5
EF	3	ROOF-ANNEX	MECHANICAL ROOM 25B (ANNEX)	1050	0.25	CENTRIFUGAL DOWNBLAST	1761	BELT	0.34	1/3	115 V	1	60	120	GREENHECK	GB-101-3	1-5
EF	4	ROOF-EXISTING BUILDING	MDF ROOM 211A (EXISTING BUILDING)	400	0.201	CENTRIFUGAL DOWNBLAST	1050	DIRECT	0.04	1/30	115 V	1	60	47	GREENHECK	G-095-E	1,4,5,6
EF	5	FIRST FLOOR	ELEVATOR MACHINE ROOM 140B	1500	1	CENTRIFUGAL UPBLAST	1960	BELT	0.5	1/2	115 V	1	60	114	GREENHECK	CUBE-141-5	1-8
KEF	1	ROOF-ANNEX	HYBRID KITCHEN 150-EXHAUST HOOD (ANNEX)	525	0.75	CENTRIFUGAL UPBLAST	1577	BELT	0.17	1/8	115 V	1	60	120	GREENHECK	GB-081-6	1-3,8
TEF	1	ROOF-ANNEX	TOILETS 155A, 157A, 159A (ANNEX)	350	0.75	CENTRIFUGAL DOWNBLAST	1538	BELT	0.13	1/4	115 V	1	60	76	GREENHECK	GB-101HP-4	1-3,6

- PROVIDE ELECTRICAL DISCONNECT
- PROVIDE 24 VAC MOTORIZED BACKDRAFT DAMPER INTERLOCKED WITH AIR INTAKE LOUVER
- UL-762UL-705 RATED
- PROVIDE INSULATED ROOF CURB
- ALUMINUM BIRD SCREEN
- PROVIDE GRAVITY BACKDRAFT DAMPER
- PROVIDE HEAT BAFFLE, NON-STICK COATED WHEEL, BEARINGS WITH GREASE FITTINGS
- PROVIDE GREASE TRAP

TAG		LOCATION	AREA SERVED	SYSTEM SERVED	PUMP TYPE	FLUID TYPE	GPM	HEAD (FT)	EFFICIENCY (%)	BHP	HP	RPM	VOLTS	PH	HZ	MANUFACTURER	MODEL	REMARKS
ABBR.	#																	
P	1	MECHANICAL ROOM-2ND FLOOR	ENTIRE BUILDING	CHILLED WATER AND HOT WATER	CENTRIFUGAL, BASE-MOUNTED	30% PROPYLENE GLYCOL	200	88	64.81	7.26	10	3500	480 V	3	60	BELL & GOSSETT	1510 2-12AB	1,2,3,4
P	2	MECHANICAL ROOM-2ND FLOOR	ENTIRE BUILDING	CHILLED WATER AND HOT WATER	CENTRIFUGAL, BASE-MOUNTED	30% PROPYLENE GLYCOL	200	88	64.81	7.26	10	3500	480 V	3	60	BELL & GOSSETT	1510 2-12AB	1,2,3,4
P	3	MECHANICAL ROOM-2ND FLOOR	AHU-1	AHU-1 RECIRCULATION	INLINE CLOSE COUPLED	30% PROPYLENE GLYCOL	21	42.4	43.6	0.53	1	1750	208 V	3	60	BELL & GOSSETT	90 1-102A	1,2
P	4	MECHANICAL ROOM-2ND FLOOR	AHU-2	AHU-2 RECIRCULATION	INLINE CLOSE COUPLED	30% PROPYLENE GLYCOL	54	46.9	53.66	1.22	2	1750	208 V	3	60	BELL & GOSSETT	60 1-12X7	1,2

- HIGH TEMPERATURE SEALS
- VARIABLE FREQUENCY DRIVE
- PROVIDE INERTIA BASE
- PROVIDE 6" HOUSE KEEPING PAD

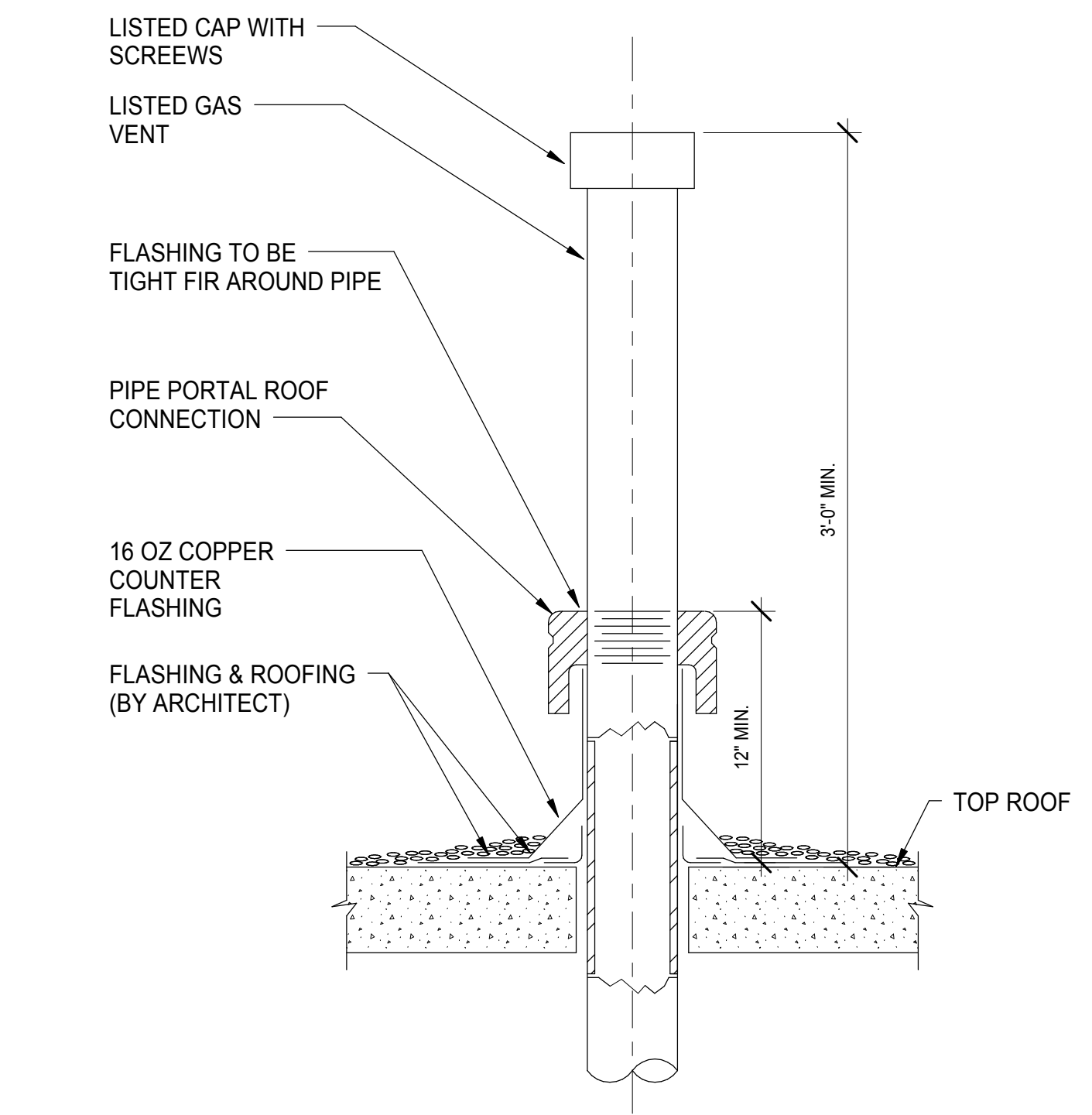
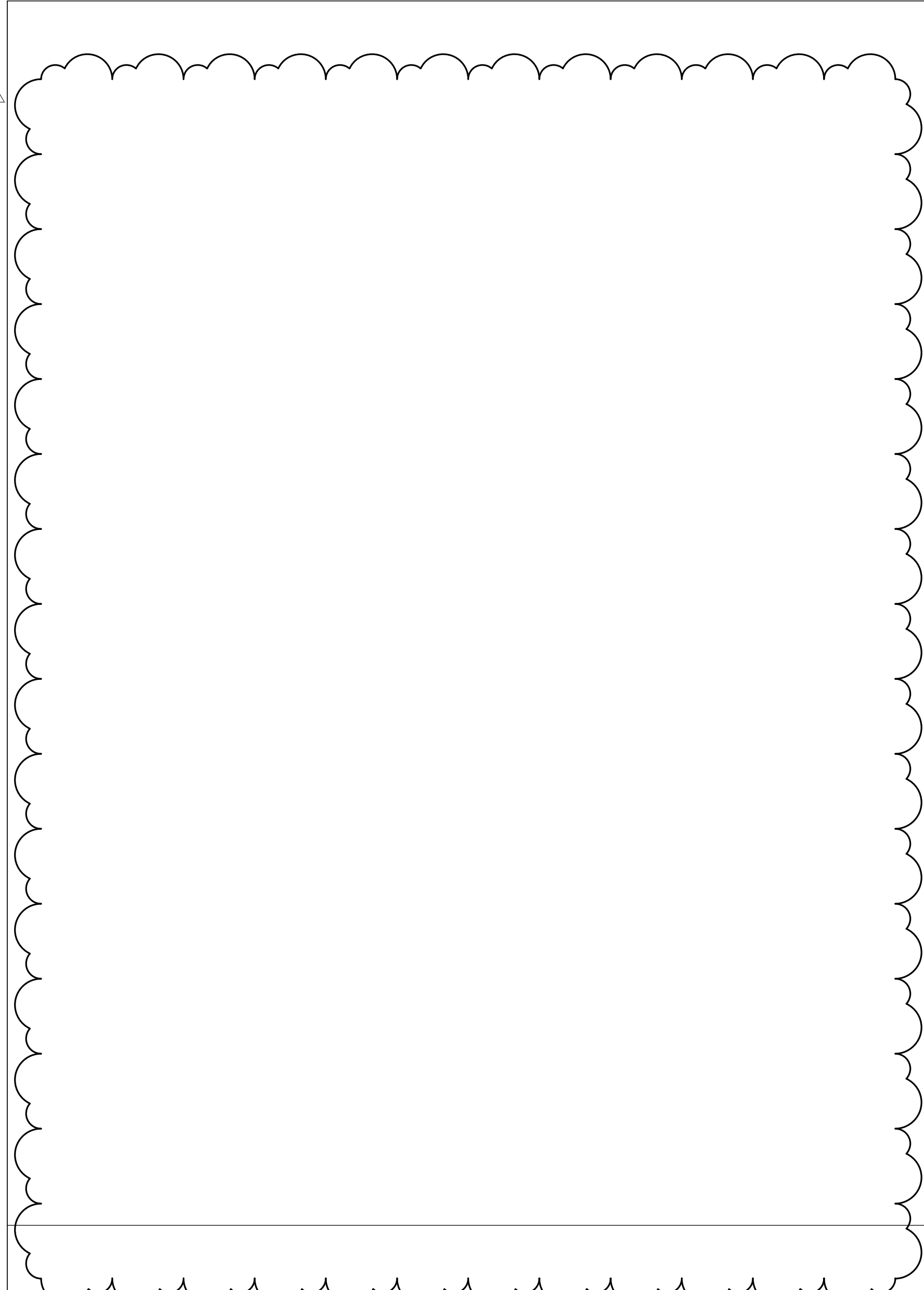
TAG		LOCATION	NOMINAL TONS	EVAPORATOR FAN		COOLING COIL DATA		ELECTRICAL DATA			UNIT WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS	
ABBR.	#			CFM	WATTS	TOTAL MBH	FACE AREA (SF)	MCA	MOCP	HZ					PH
AC	1	DF ROOM (ANNEX)	1.5	645	64	18	3	0.5	15	60	1	208 V	CARRIER	40QNC018	1
AC	2	MDF ROOM (EXISTING BUILDING)	1.5	645	64	18	3	0.5	15	60	1	208 V	CARRIER	40QNC018	1

- CONDENSATE PUMP, 247 PROGRAMMABLE T-STAT, AUTO RESTART

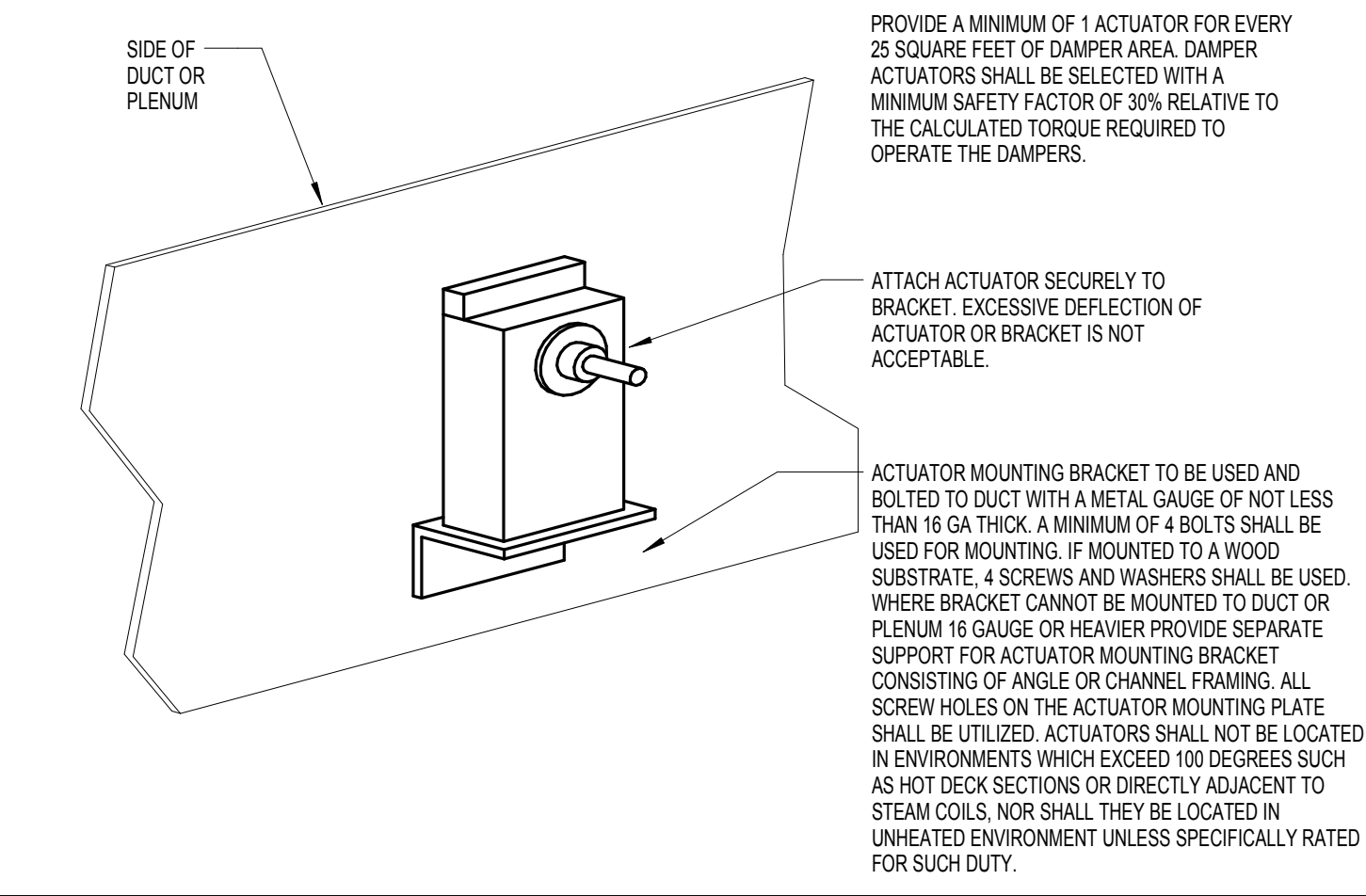
TAG		LOCATION	UNIT SERVED	INLET PRESSURE (IN WC)	DIFFERENTIAL PRESSURE (IN WC)	CAPACITY (CFH)	RPM	HP	VOLTS	PH	HZ	MANUFACTURER	MODEL	REMARKS
ABBR.	#													
GBP	1	MECHANICAL 156	ALL GAS EQUIPMENT (SEE PLANS)	3"	18"	3700	3500	1	208 V	3	60	SPENCER	SPENCERS591090X DUPLX GASCOUBE	1-8

- PROVIDE 100% REDUNDANT CAPACITY AND SPENCER GL075.75R NATURAL GAS BOOSTER WITH REQUIRED ACCESSORIES
- LOW INLET PRESSURE SWITCH - NEMA 1
- INLET AND DISCHARGE PRESSURE GAUGES
- INLET AND OUTLET PLUG VALVES
- RECIRCULATION VALVE - MANUAL
- FLEXIBLE EXPANSION JOINTS
- PROVIDE FULL MODULATING BYPASS VALVE AND AIR-COOLED HEAT EXCHANGER WITH FAN & XP MOTOR
- PROVIDE PRELIMINARY PERFORMANCE CURVE FOR GAS BOOSTER

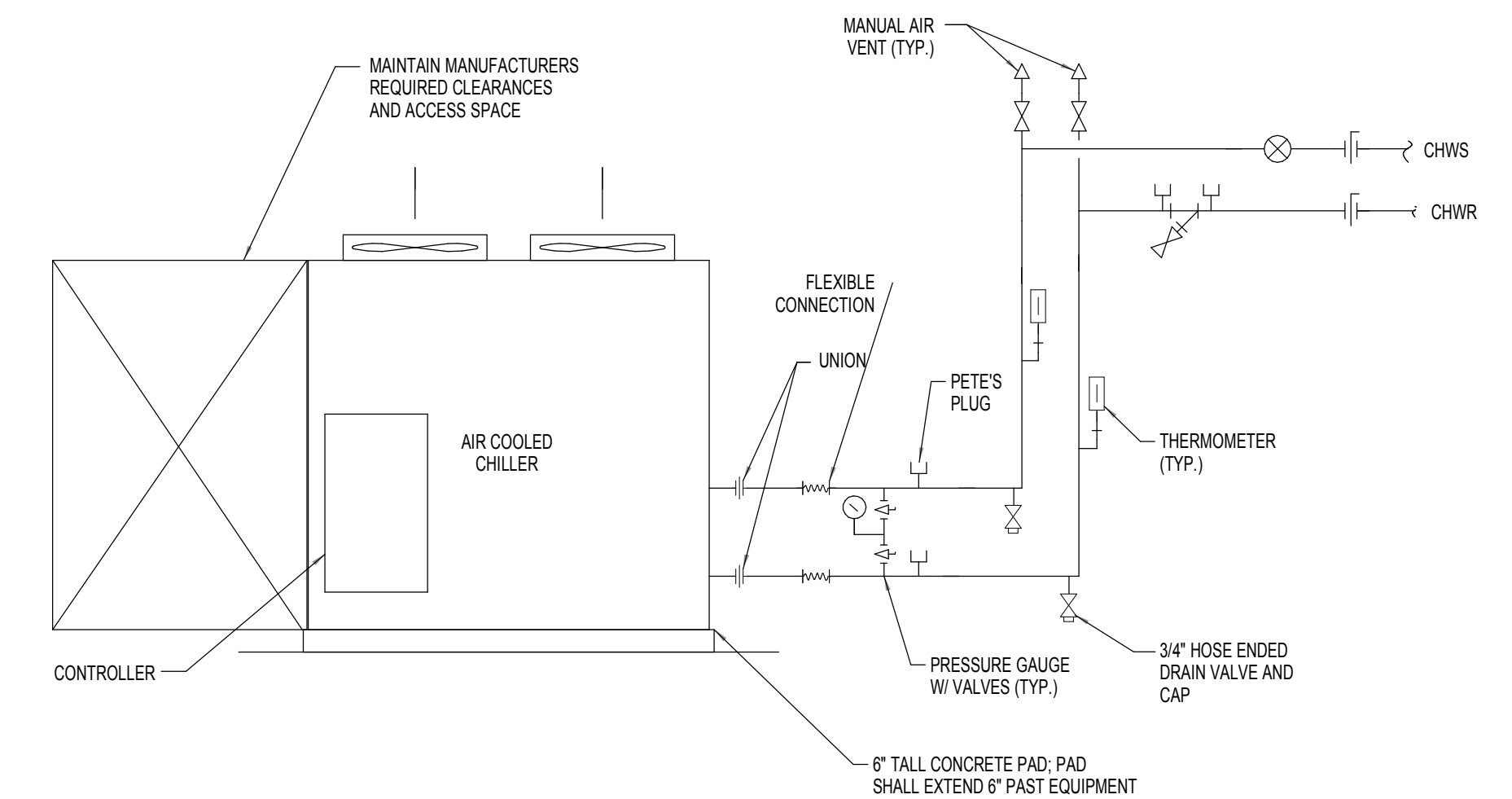
TAG		LOCATION	AMB. TEMP. (F)	SEER	TYPE	COMP QTY.	REFRIG. WEIGHT (LBS)	CONDENSER		ELECTRICAL DATA			UNIT WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
ABBR.	#							COND. FAN QTY.	HP	MCA	MOCP	VOLTS				
CU	1	AC-1 ROOF-ANNEX	95	13	SCROLL	1	R-410A	6	1	1/8	12.1	20	208 V	1		



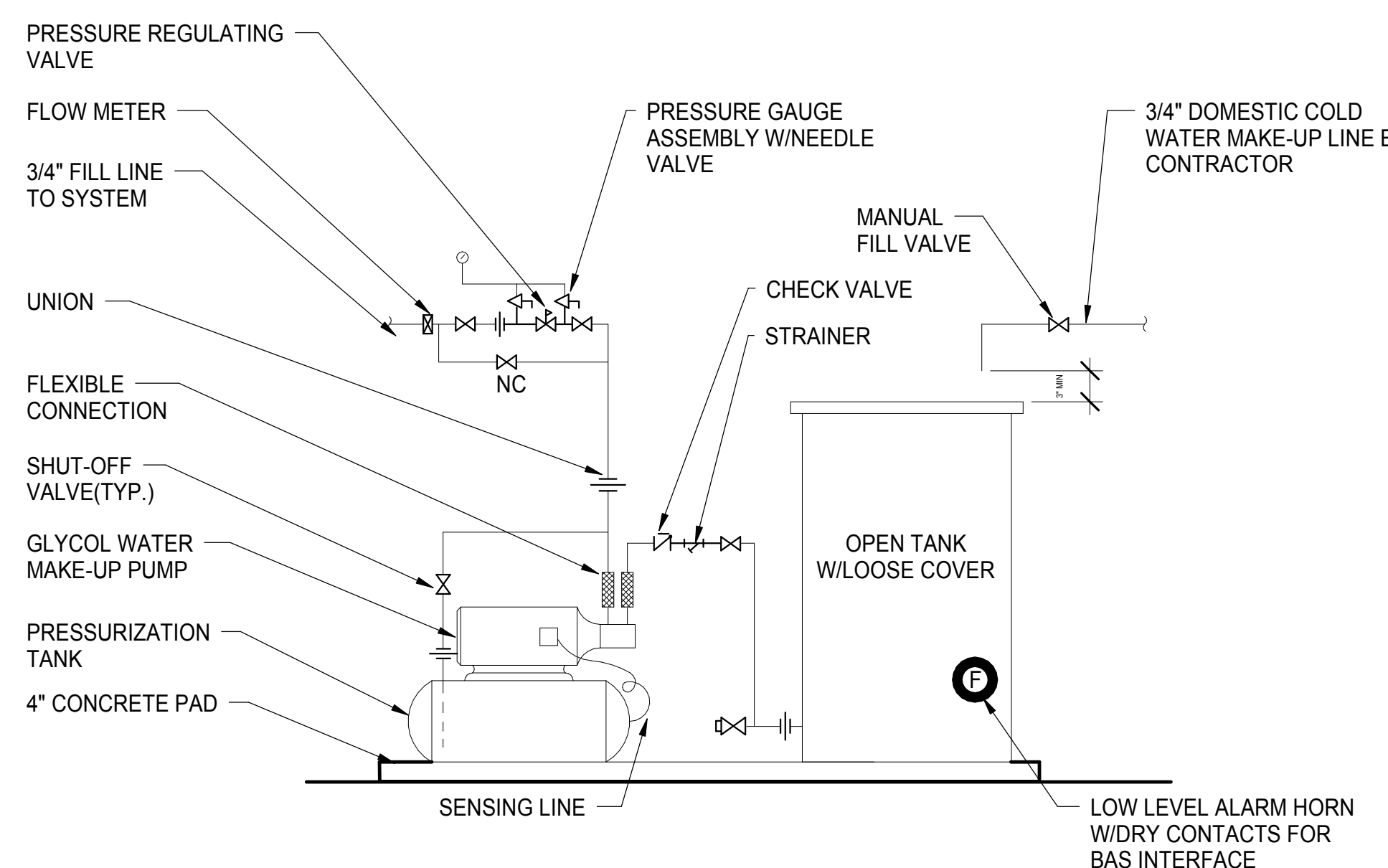
7 NATURAL GAS VENT THRU ROOF DETAIL  
SCALE: NTS



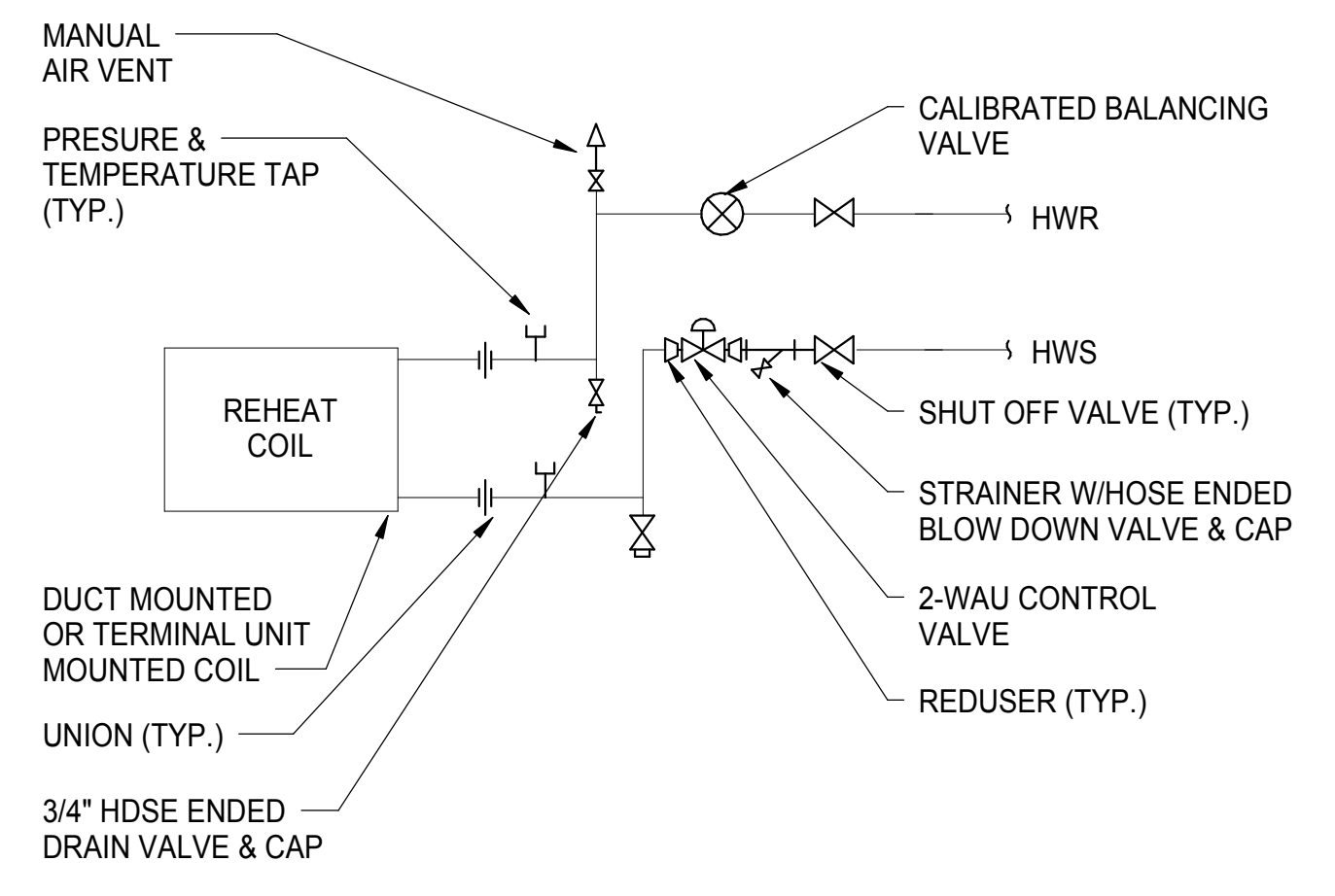
4 DAMPER ACTUATOR  
SCALE: NTS



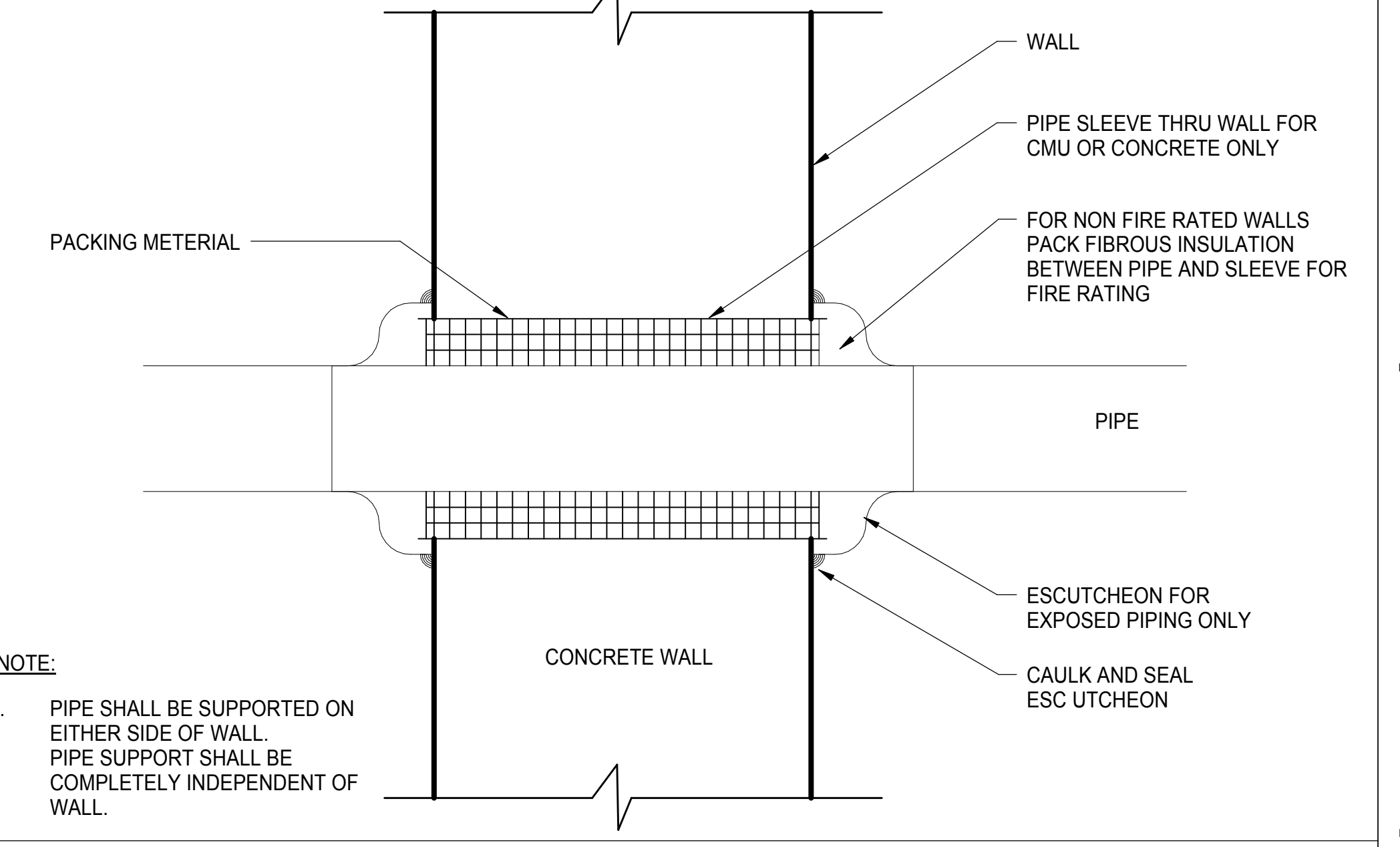
3 AIR-COOLED CHILLER PIPING DETAIL  
SCALE: NTS



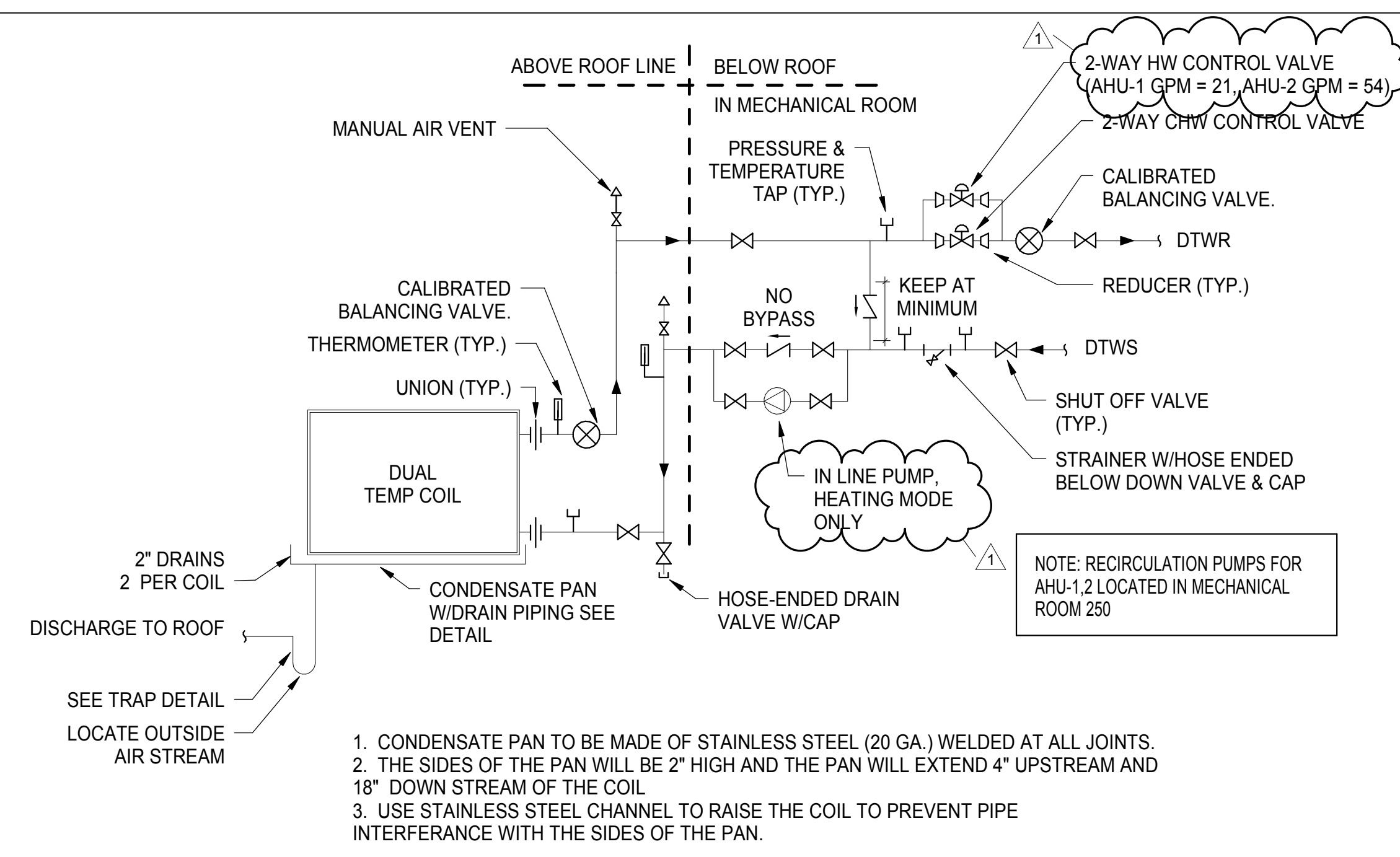
9 BREAK/MIXING TANK ASSEMBLY DETAIL FOR GLYCOL SOLUTION  
SCALE: NTS



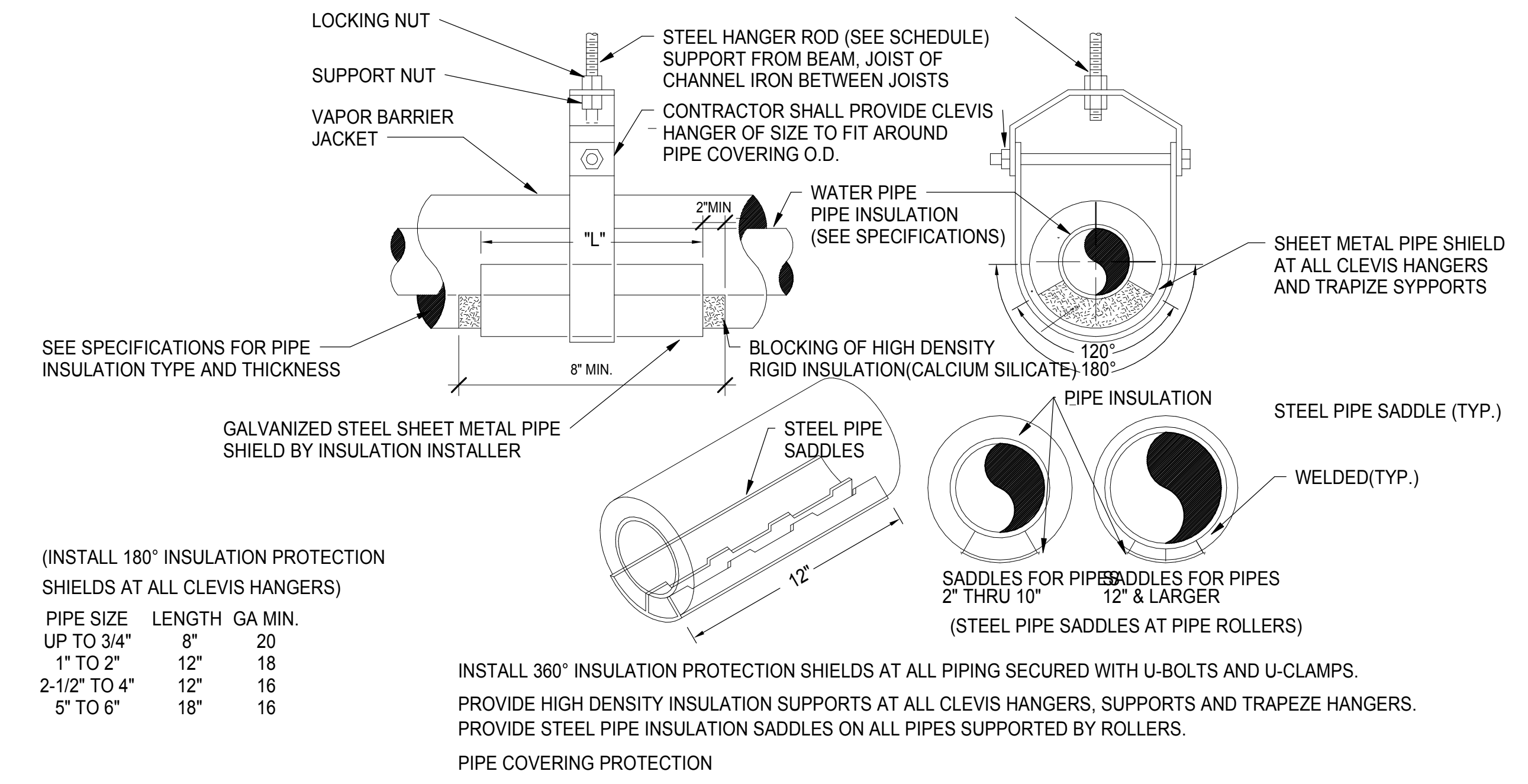
6 TYPICAL 2-WAY REHEAT COIL PIPING DETAIL  
SCALE: NTS



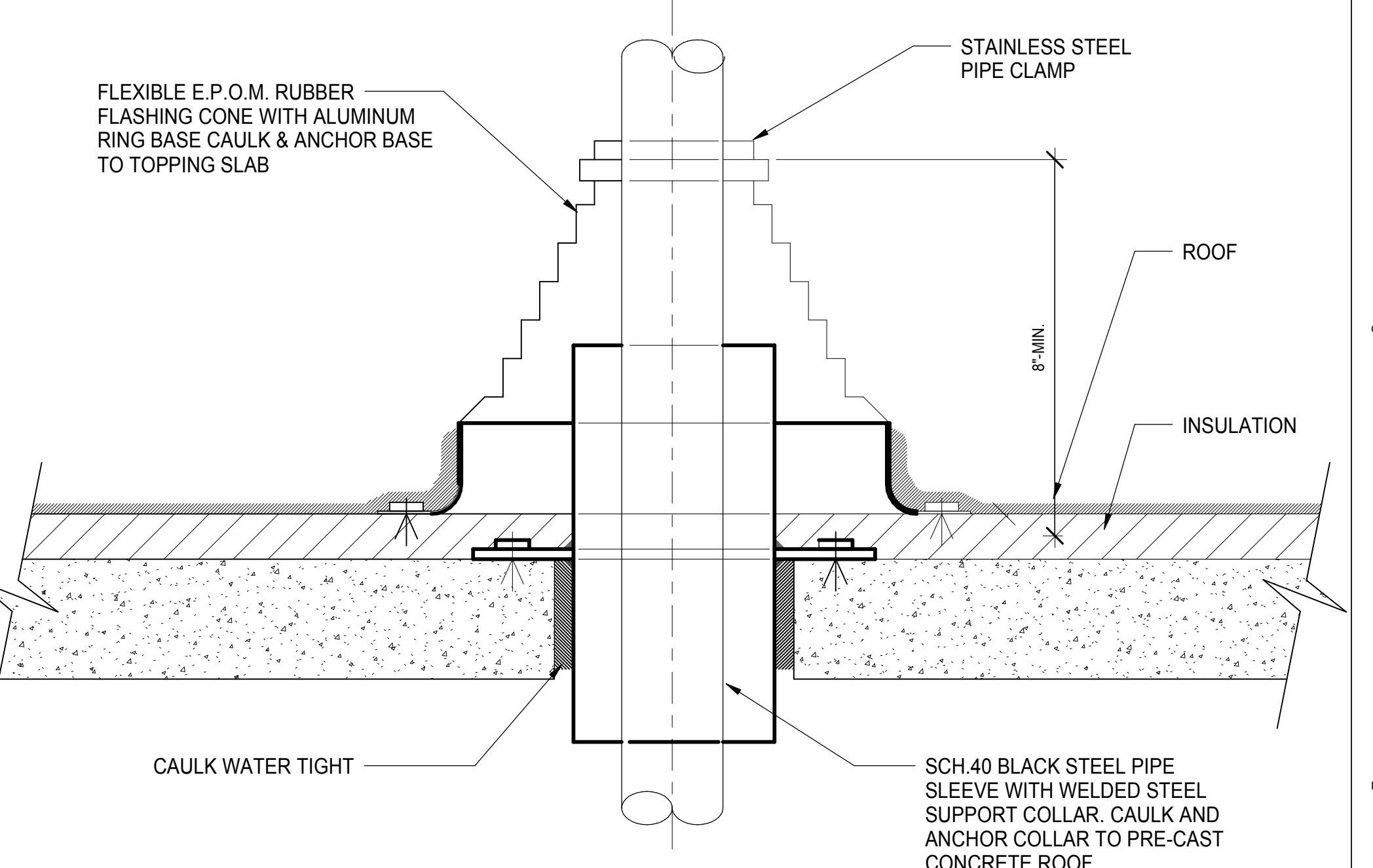
2 PIPE THRU WALL DETAIL  
SCALE: NTS



8 TYPICAL DUAL TEMP COIL PIPING DIAGRAM WITH RECIRCULATION PUMP  
SCALE: NTS



5 PIPE COVERING PROTECTION  
SCALE: NTS



1 NEW CONSTRUCTION SINGLE PIPE ROOF PENETRATION DETAIL  
SCALE: NTS



**CANTY ELEMENTARY SCHOOL ANNEX**  
3740 NORTH PANAMA AVENUE  
CHICAGO, ILLINOIS 60634  
CHICAGO PUBLIC SCHOOLS  
CITY OF CHICAGO, MAYOR RAHM EMMANUEL

Architect of Record  
**SMITH HARDING JOINT VENTURE**

224 SOUTH MICHIGAN AVENUE  
SUITE 245  
CHICAGO, ILLINOIS 60604  
312.922.2600 T  
312.922.8222 F

**C.E. ANDERSON & ASSOCIATES**  
Structural Engineers  
175 N Franklin Ave Suite  
Chicago, Illinois 60606

**dbHMS ENGINEERING**  
MEP and FP Engineers  
303 W Erie St Suite 510  
Chicago, Illinois 60654

**TERRA ENGINEERING**  
Civil Engineers  
225 W Ohio St 4th Floor  
Chicago, Illinois 60654

**S.K. KEGAN & ASSOCIATES**  
Landscape Architects  
9620 S Damen Ave  
Chicago, Illinois 60643

**BAKER GROUP**  
Food Service Consultant  
2220 E Park Ave SE  
Grand Rapids, MI 43546

**THRESHOLD ACOUSTICS**  
Acoustician  
53 W Jackson Blvd Suite 815  
Chicago, Illinois 60604

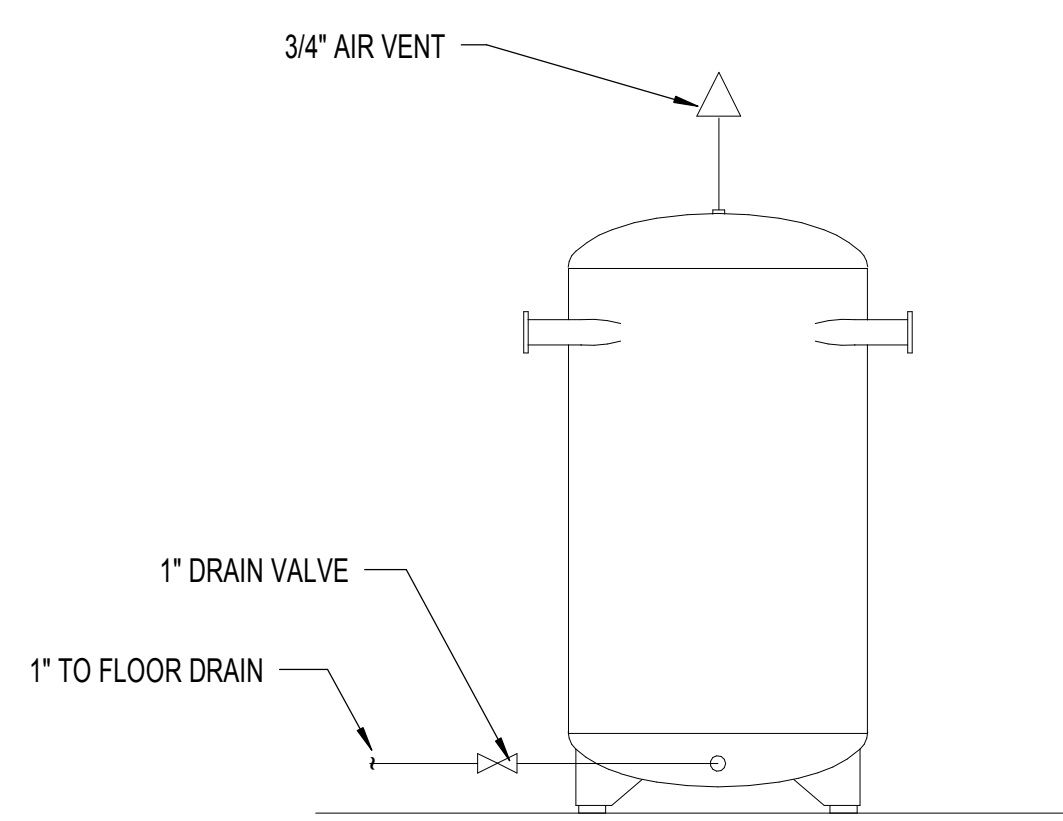
WARNING: ASBESTOS CONTAINING BUILDING MATERIALS ARE OR MAY BE PRESENT IN THIS BUILDING. AN ASBESTOS MANAGEMENT PLAN IS AVAILABLE IN THE SCHOOL FOR REVIEW UPON REQUEST. NO PERSON MAY DISTURB ASBESTOS CONTAINING MATERIALS UNLESS THAT PERSON IS A LICENSED ASBESTOS ABATEMENT WORKER OR CONDUCTS SUCH WORK IN ACCORDANCE WITH PROJECT SPECIFICATIONS) CONTAINING IN THE PROJECT DOCUMENTS AND IN COMPLIANCE WITH THE APPLICABLE REGULATIONS.

LEAD-BASED PAINT MAY BE PRESENT WITHIN THE BUILDING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO TAKE APPROPRIATE SAFETY MEASURES IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS INCLUDING OSHA (1926.62) COMPLIANCE, WASTE CHARACTERIZATION AND WASTE DISPOSAL. ALL WORK WITH SURFACES CONTAINING LEAD-BASED PAINT SHALL BE DONE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

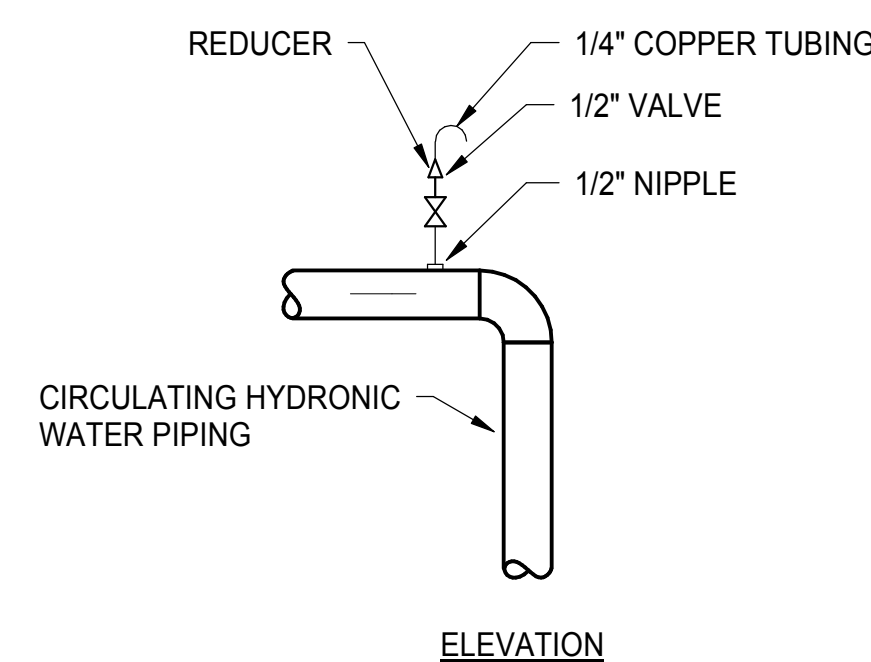
Mark	Description	Date
Δ	ADDENDUM NO. 001	05.26.15
1	ISSUED FOR BID	05.07.15

Issue  
PBC Project Name: ARTHUR CANTY ANNEX  
PBC Contract No: 05750  
Project No.: 2014-05750-ANX  
Title

**MECHANICAL DETAILS**

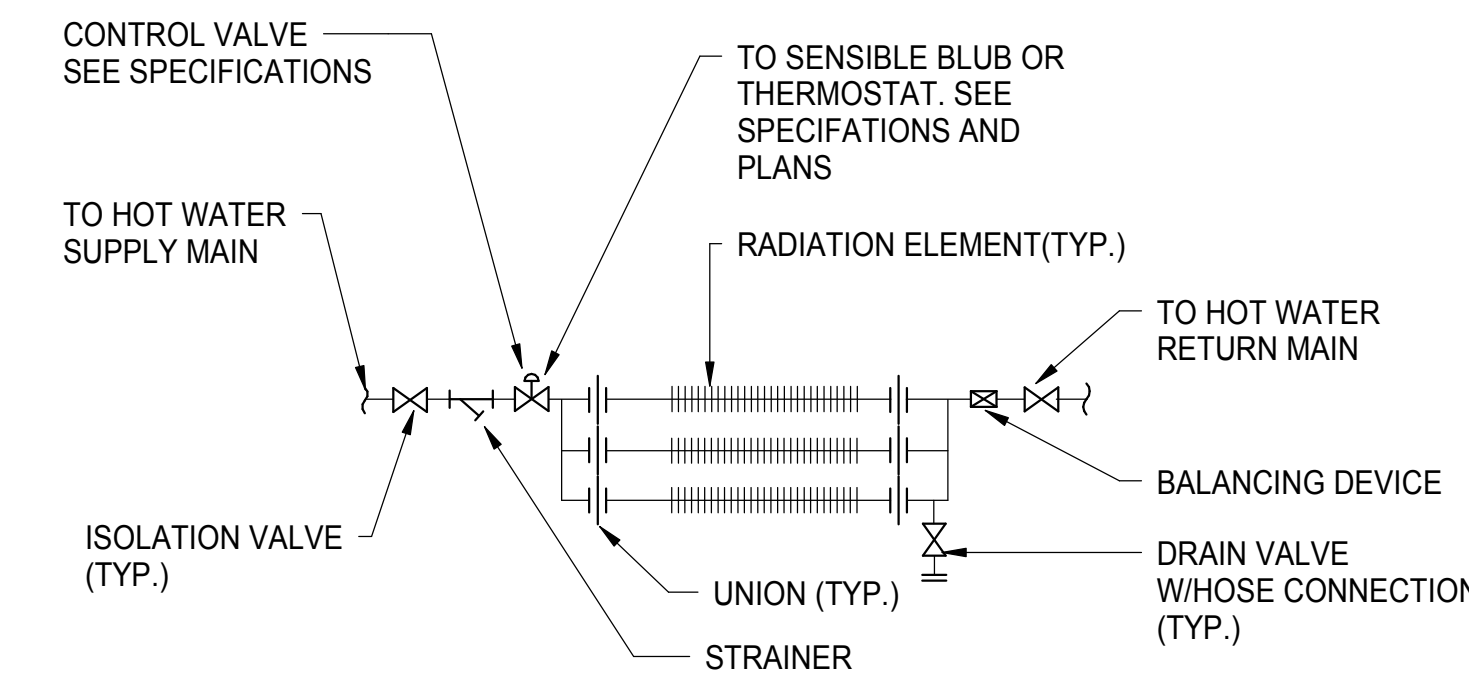


14 BUFFER TANK DETAIL NTS

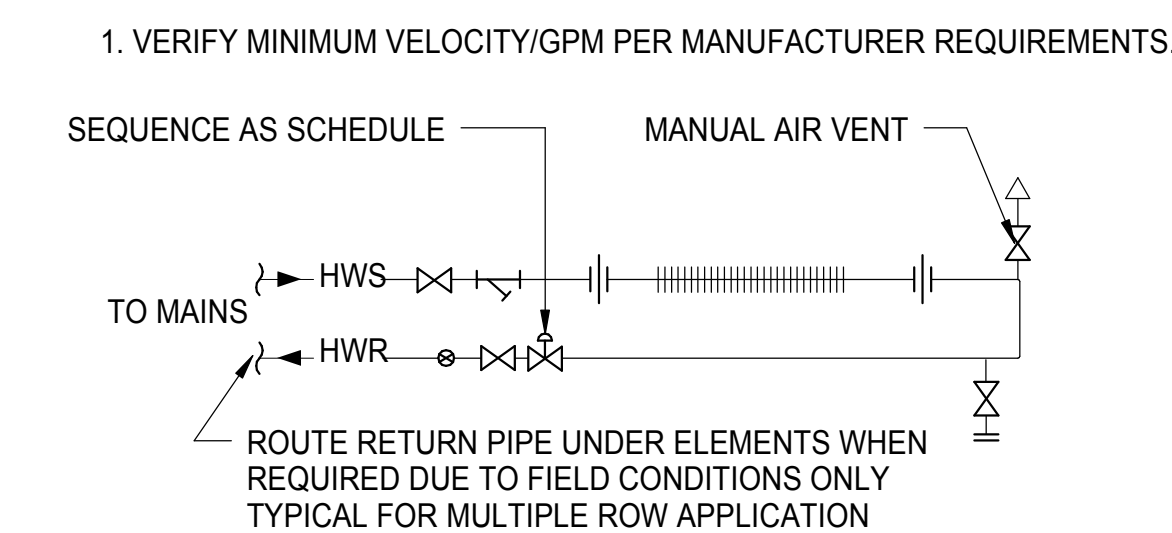


NOTES:  
 1. VENT ALL HIGH POINTS AS INDICATED ABOVE.  
 2. IF AUTOMATIC AIR VENTS ARE USED, PIPE DISCHARGE TO DRAIN.

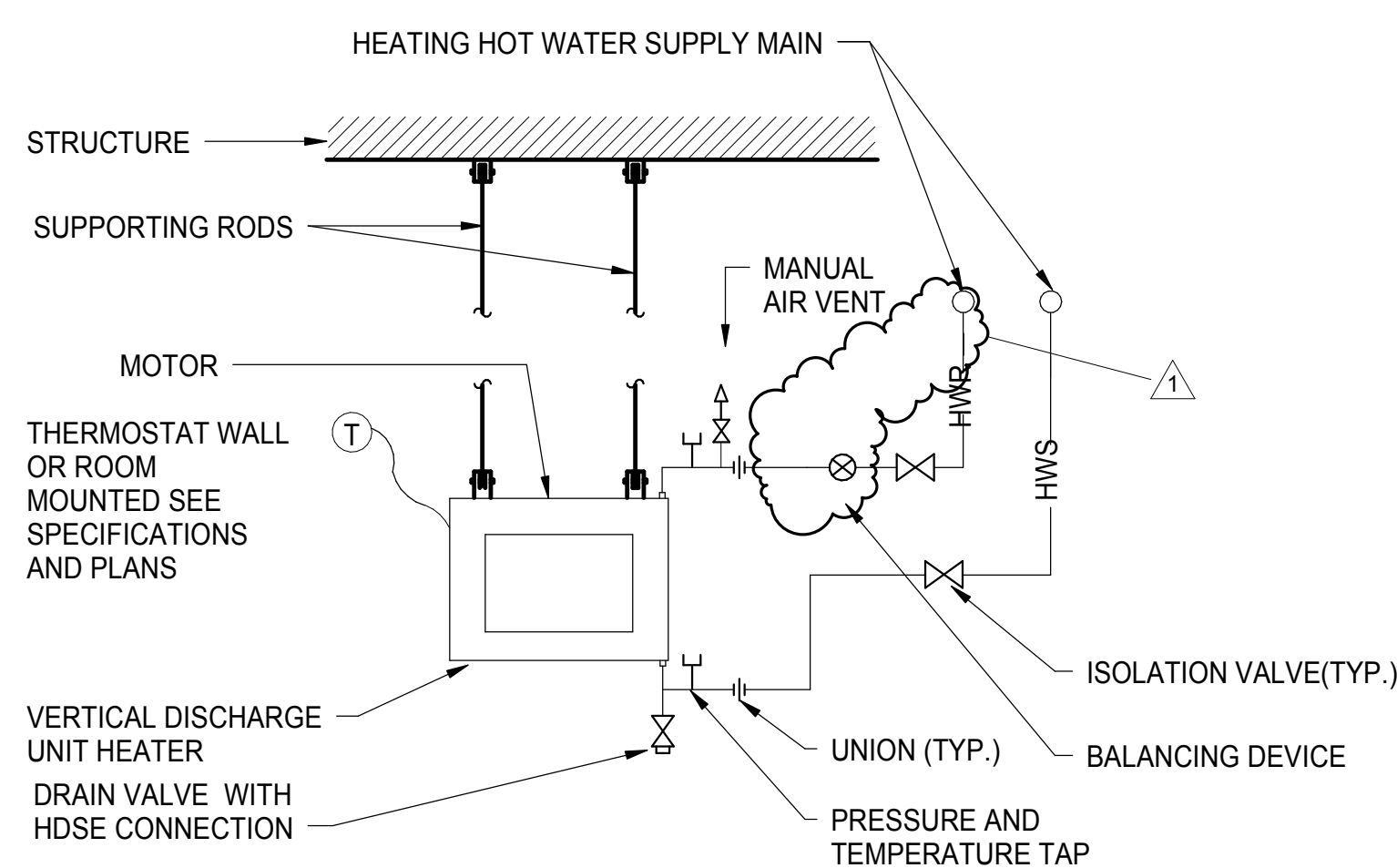
10 TYPICAL AIR VENT DETAIL NTS



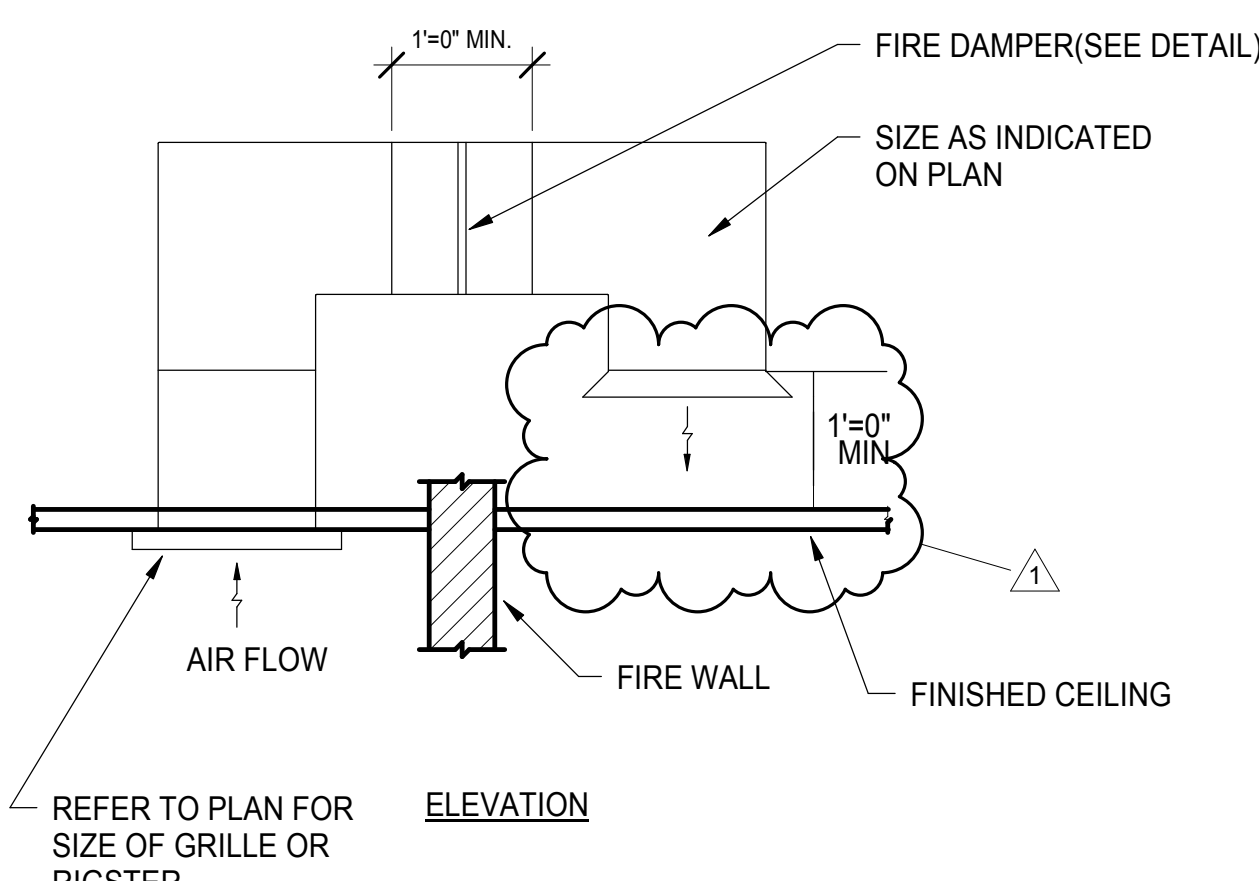
4 HOT WATER RADIATION PIPING DIAGRAM NTS



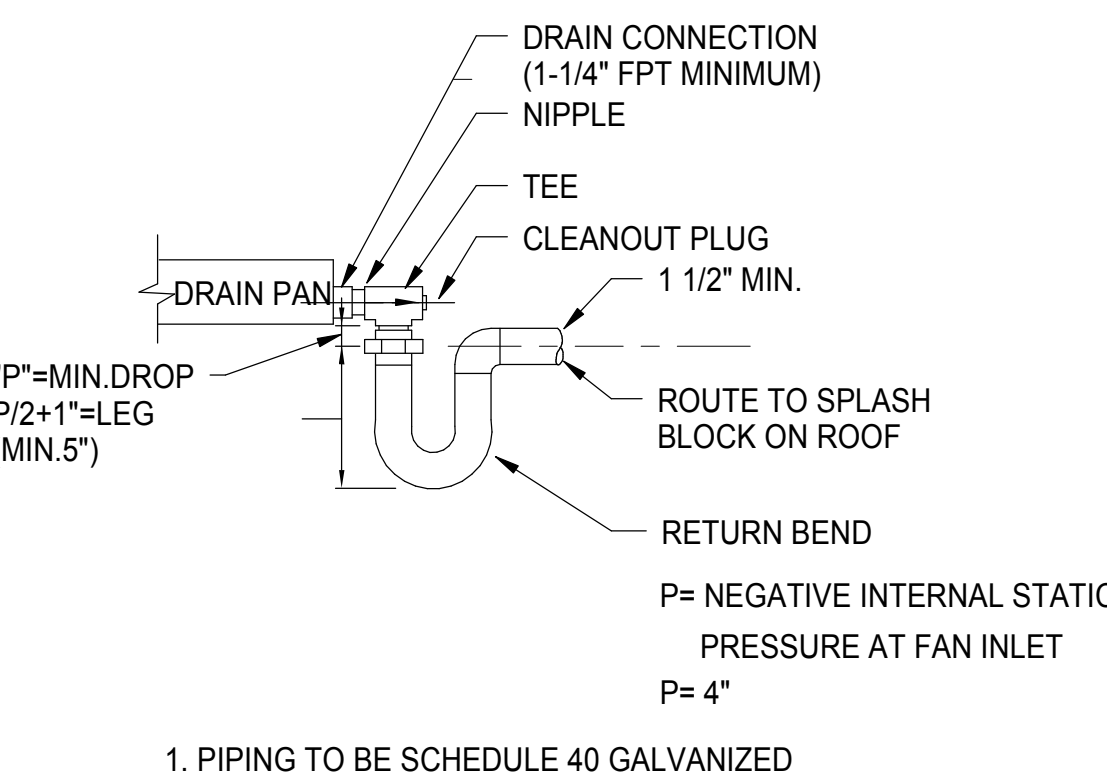
3 FLOOR MOUNTED EXPANSION TANK AND AIR SEPARATOR DETAIL NTS



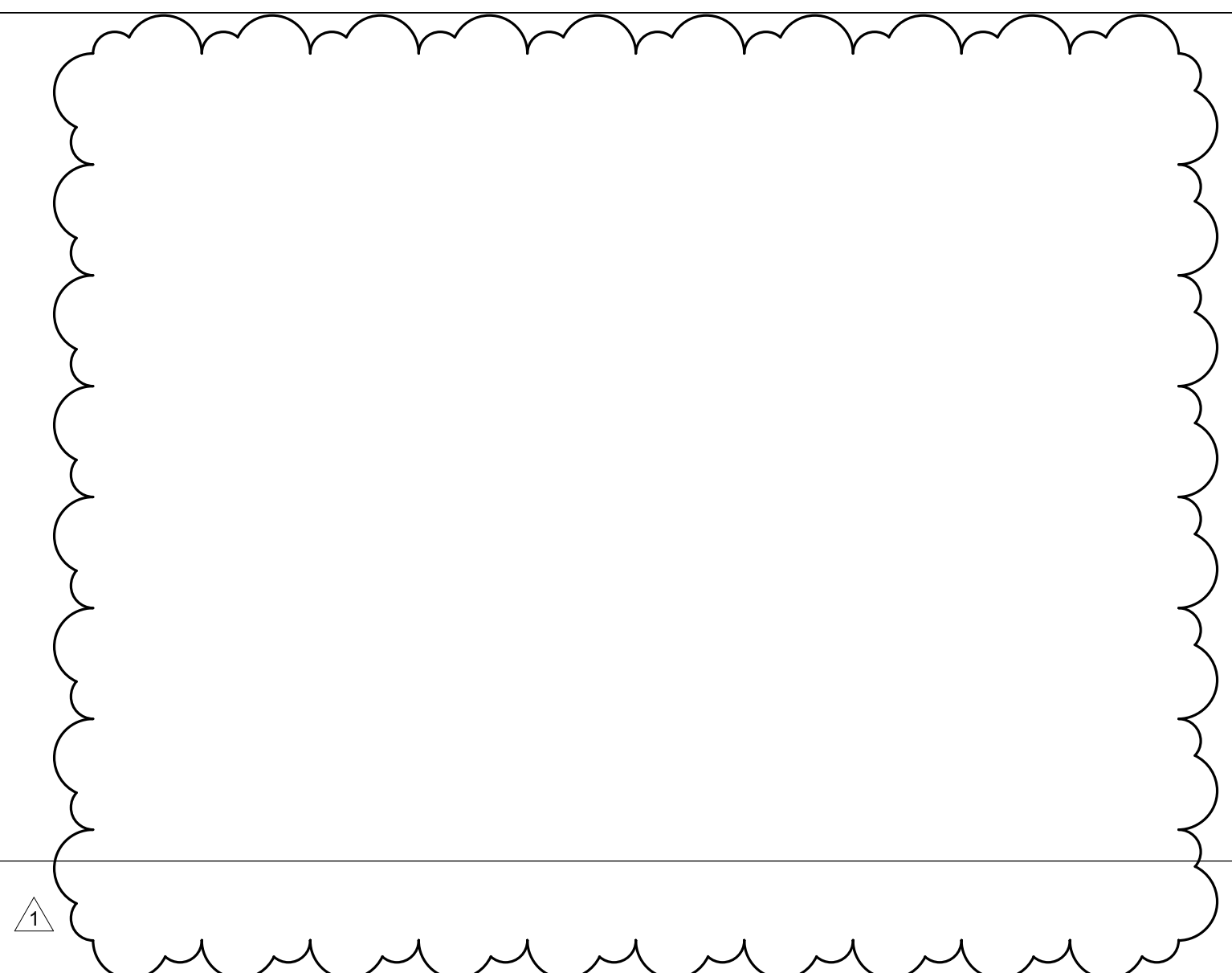
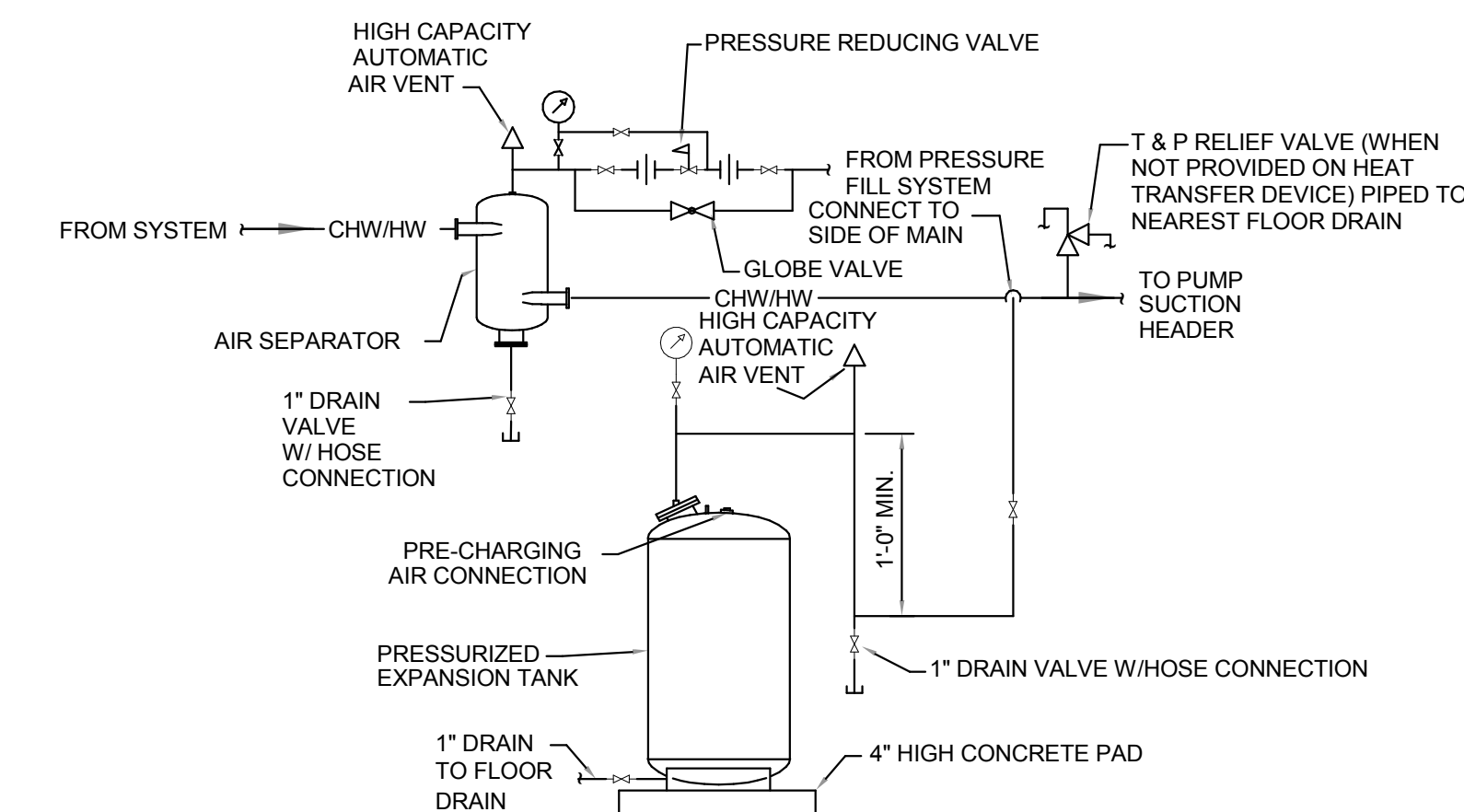
13 VERTICAL HOT WATER UNIT HEATER PIPING DIAGRAM NTS



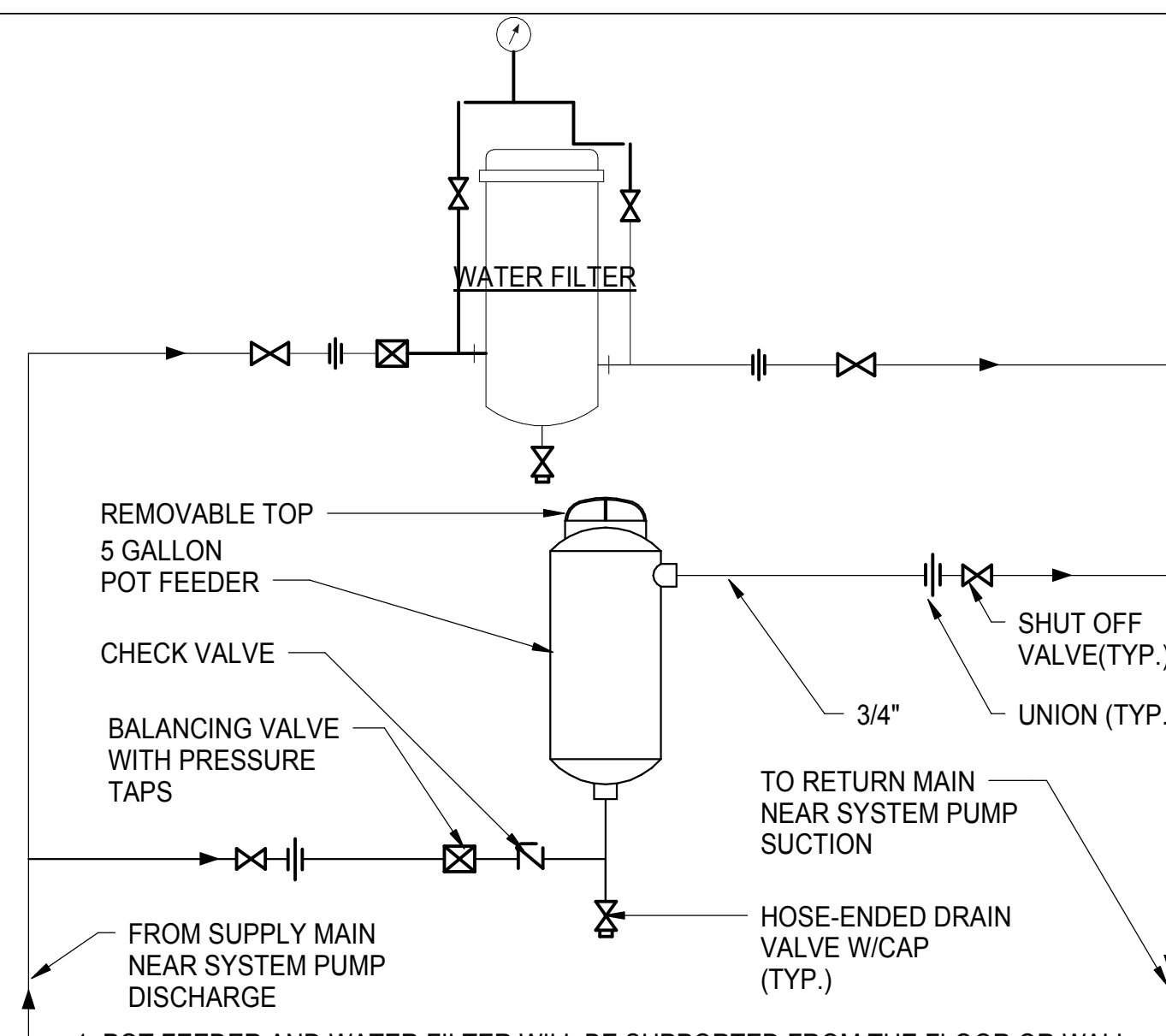
9 TYPICAL AIR TRANSFER DUCT DETAIL (ROOM TO ROOM) NTS



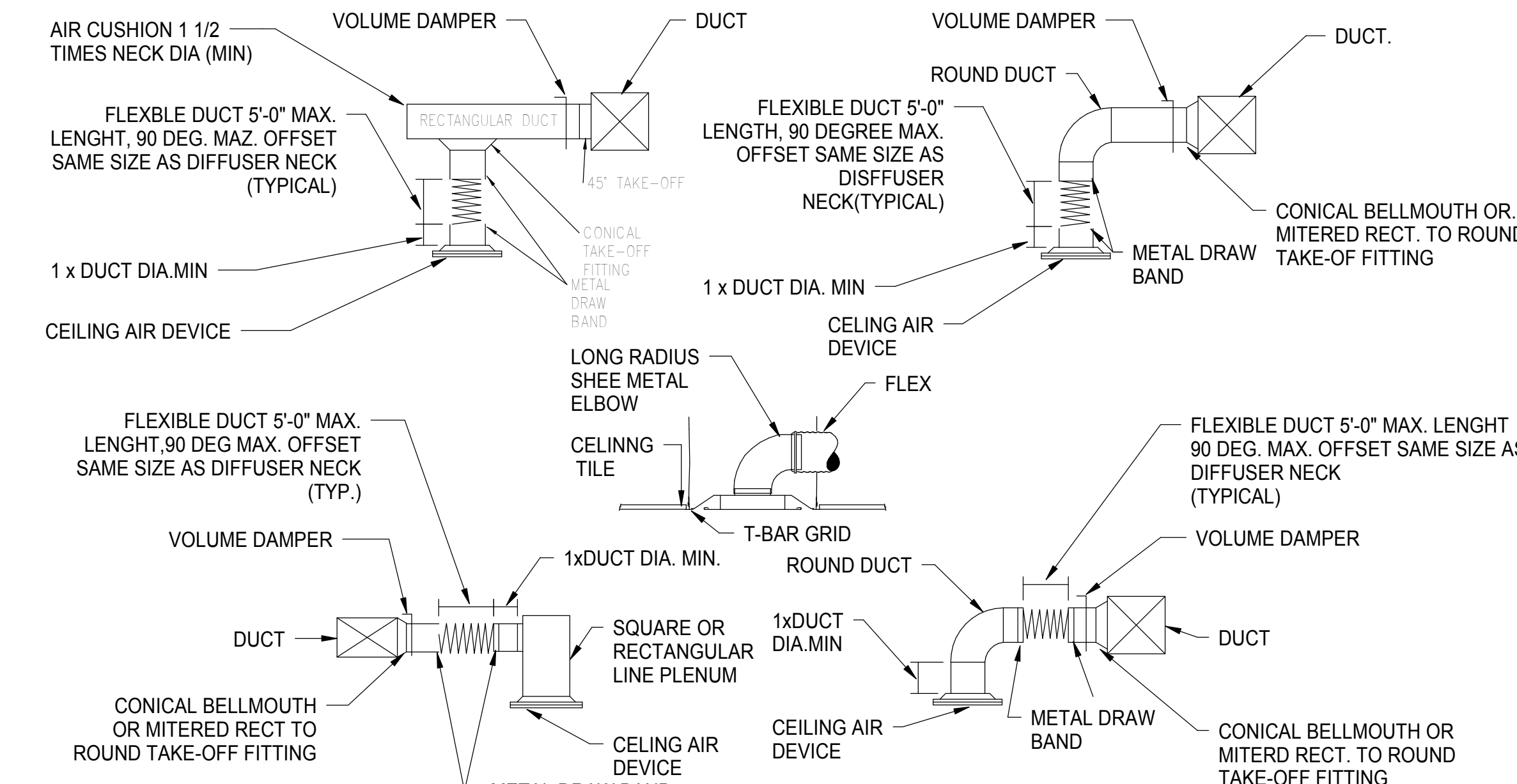
6 ROOF MOUNTED AHU CONDENSATE DRIP PAN SEALANT PIPING DETAIL NTS



11 BASE MOUNTED PUMP DETAIL NTS

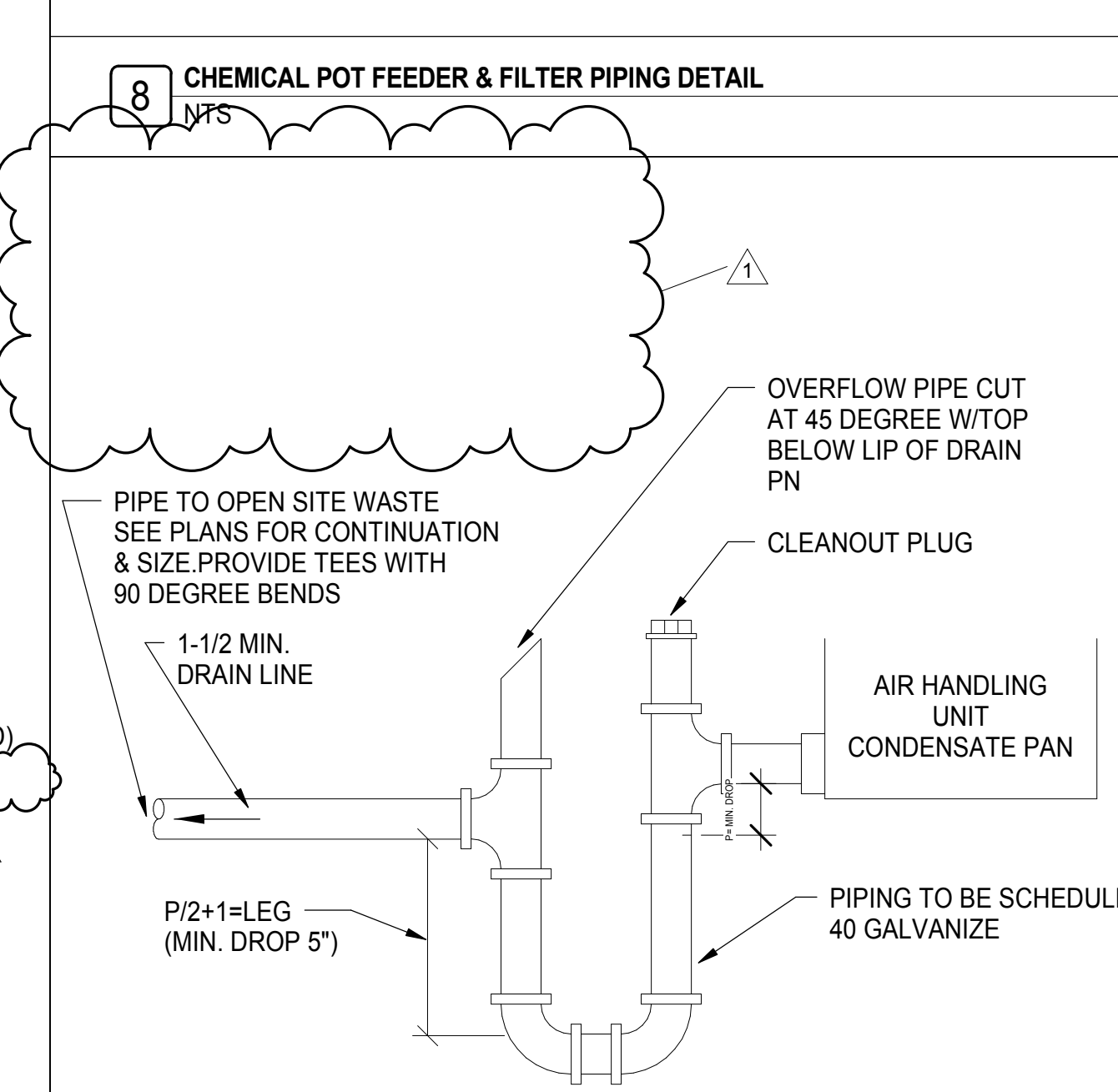


8 CHEMICAL POT FEEDER & FILTER PIPING DETAIL NTS

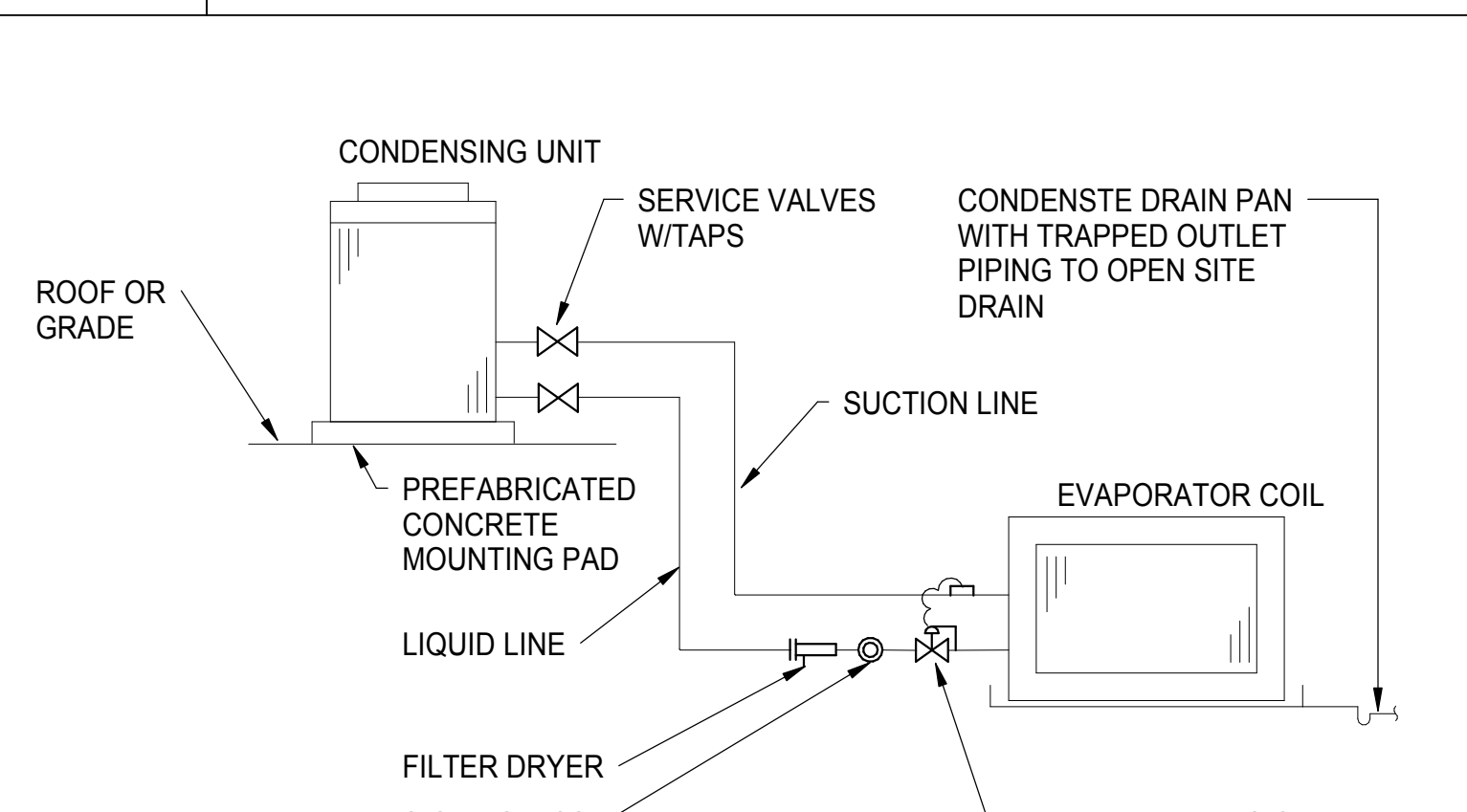


2 TYPICAL AIR DEVICE (INLET/OUTLET) INSTALLATION DETAIL NTS

NOTES:  
 1. SPIN COLLARS SHALL NOT BE PERMITTED.  
 2. SPECIAL CONDITIONS THAT CAN NOT MEET ONE OF THESE STANDARDS  
 3. SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION ON A CASE BY CASE BASIS. DETAILS ILLUSTRATE INSTALLATION WITH ROUND NECK DIFFUSERS AND DUCTS. SQUARE OR RECTANGULAR NECK DIFFUSERS AND DUCTS SHALL BE SIMILAR.

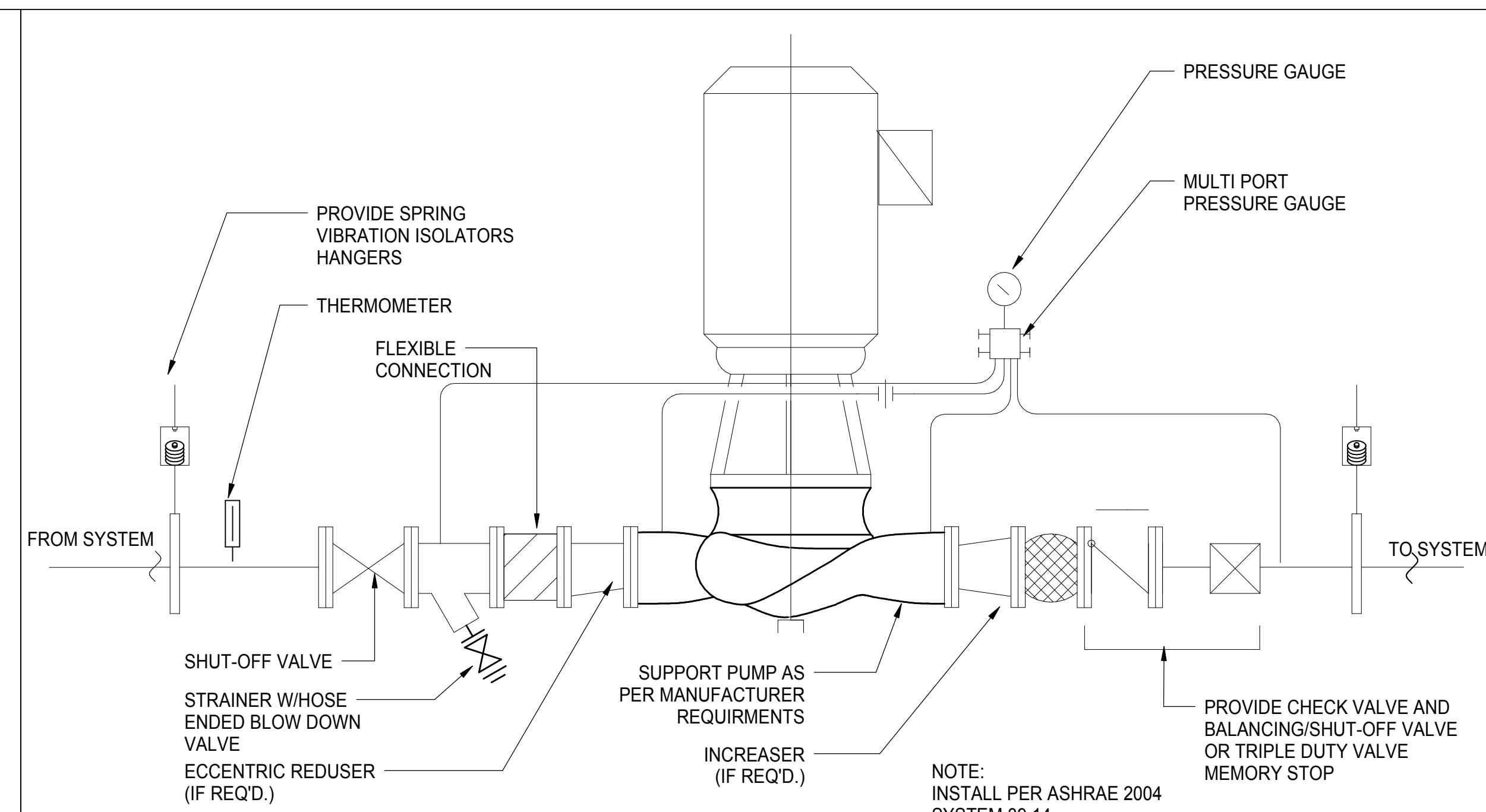


7 CONDENSATE DRIP PAN PIPING DETAIL FOR INDOOR NTS



NOTES:  
 1. ALL REFRIGERANT PIPING SHALL BE TYPE K COPPER OR ACR WITH SILVER SOLDER AS APPROVED BY THE CITY OF CHICAGO CODES.  
 2. REMOVE ALL EXPANSION DEVICES, ETC. FROM AIR STREAM.  
 3. PROVIDE 1/2" PRV AT COMPRESSOR DISCHARGE SET AT 400 PSI.  
 4. DISTANCE BETWEEN CONDENSER UNIT & EVAPORATOR COIL SHALL NOT EXCEED 50 FEET. REFER TO CONDENSATE DETAILS. PROVIDE DOUBLE SUCTIONS AS REQUIRED.  
 5. PIPING SHOWN FOR REFERENCE ONLY, PROVIDE TRAPS ETC. AS REQUIRED PER MANUFACTURER'S RECOMMENDATIONS.  
 6. FINAL PIPE SIZING SHALL BE BASED ON ACTUAL FIELD ROUTING OF PIPES AND PER MANUFACTURER'S RECOMMENDATIONS.

5 SPLIT SYSTEM REFRIGERANT PIPING DIAGRAM (5 TONS OR LESS) NTS



1 TYPICAL INLINE PUMP DETAIL NTS



**CANTY ELEMENTARY SCHOOL ANNEX**  
 3740 NORTH PANAMA AVENUE  
 CHICAGO, ILLINOIS 60634  
 CHICAGO PUBLIC SCHOOLS  
 CITY OF CHICAGO, MAYOR RAHM EMANUEL

Architect of Record  
**SMITH HARDING JOINT VENTURE**

224 SOUTH MICHIGAN AVENUE  
 SUITE 245  
 CHICAGO, ILLINOIS 60604  
 312.922.2600 T  
 312.922.6222 F

**C.E. ANDERSON & ASSOCIATES**  
 Structural Engineers  
 175 N Franklin Ave Suite  
 Chicago, Illinois 60606

**dbHMS ENGINEERING**  
 MEP and FP Engineers  
 303 W Erie St Suite 510  
 Chicago, Illinois 60654

**TERRA ENGINEERING**  
 Civil Engineers  
 225 W Ohio St 4th Floor  
 Chicago, Illinois 60654

**S.K. KEGAN & ASSOCIATES**  
 Landscape Architects  
 9820 S Damen Ave  
 Chicago, Illinois 60643

**BAKER GROUP**  
 Food Service Consultant  
 2220 E Park Ave SE  
 Grand Rapids, MI 43546

**THRESHOLD ACOUSTICS**  
 Acoustician  
 53 W Jackson Blvd Suite 815  
 Chicago, Illinois 60604

WARNING: ASBESTOS CONTAINING BUILDING MATERIALS ARE OR MAY BE PRESENT IN THIS BUILDING. AN ASBESTOS MANAGEMENT PLAN IS AVAILABLE IN THE SCHOOL FOR REVIEW UPON REQUEST. NO PERSON MAY DISTURB ASBESTOS CONTAINING MATERIALS UNLESS THAT PERSON IS A LICENSED ASBESTOS ABATEMENT WORKER OR CONDUCTS SUCH WORK IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND IN COMPLIANCE WITH THE APPLICABLE REGULATIONS.

LEAD-BASED PAINT MAY BE PRESENT WITHIN THE BUILDING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO TAKE APPROPRIATE SAFETY MEASURES IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS INCLUDING OSHA (1962-20) COMPLIANCE, WASTE CHARACTERIZATION AND WASTE DISPOSAL. ALL WORK WITH SURFACES CONTAINING LEAD-BASED PAINT SHALL BE DONE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

Mark	Description	Date
1	ADDENDUM NO. 001 ISSUED FOR BID	05.26.15
		05.07.15

PBC Project Name: ARTHUR CANTY ANNEX  
 PBC Contract No: 05750  
 Project No.: 2014-05750-ANX

Title  
**MECHANICAL DETAILS**

Sheet  
**M.603**

Issuance



EQUIPMENT SCHEDULE

<p>STEP 1 CONFIRM FINAL LOCATION OF EQUIP WITH THE MECH DRWS &amp; OEMS SHOPS PRIOR TO INSTALLING CONDUIT. SEE PWR DRWS FOR EQUIP TAG LOCATIONS</p> <p>STEP 2 REVIEW ARCH, KIT, MECH, PLUG, FIRE PROT SUBMITTALS SHOP DRWS FINAL EGP LOCATION, ELEVATION, &amp; PWR REQUIREMENTS PRIOR TO INSTALLING CONDUIT</p> <p>STEP 3 CONFIRM LOAD REQUIREMENTS WITH MECHS OEM PRIOR TO INSTALLING CONDUIT</p> <p>STEP 4 CONFIRM IN THE FIELD PNLBD-SWB RATINGS WITH MECHS OEM PRIOR TO INSTALLING CONDUITS. SEE PWR DRWS FOR PNLBD-SWB LOCATIONS</p>	<p>STEP 5 CONFIRM IN THE FIELD OCPD REQUIREMENTS WITH MECHS OEM PRIOR TO INSTALLING CONDUIT. OCPD RATINGS DERIVED FROM MECHS OEM SPECS OR MOTOR SIZING PER THE NEC</p> <p>STEP 6 CONFIRM IN THE FIELD FEEDER-BRANCH CIRCUIT SIZING WITH MECHS OEM PRIOR TO INSTALLING CONDUIT</p> <p>STEP 7 SEE FEEDER-BRANCH CIRCUIT SCHEDULE FOR TAG-WIRE SIZE</p> <p>STEP 8 CONFIRM IN THE FIELD CONTACTOR-STARTER-VFC-PRMS-DS SW RATINGS WITH MECHS OEM PRIOR TO INSTALLING CONDUIT</p>	<p>STEP 9 CONFIRM IN THE FIELD THERMAL OVERLOAD RATINGS WITH OEM PROVIDE OVERLOADS PER OEM SPECS</p> <p>STEP 10 CONFIRM IN THE FIELD WITH OEM PRIOR TO INSTALLING CONDUIT LOCATE DISC SW SWITCH WITHIN SFT &amp; WITHIN SIGHT OF THE MOTOR-LISTED EQUIP</p> <p>STEP 11 PROVIDE CONN TO MOTOR-LISTED EQUIP PROVIDE A CU EQUIP GROUND (EGC) FROM DISC SW SWITCH TO MOTOR LE-EQUIP CONNECTION POINT-JUNCTION BOX</p>	<p>FVNR FULL VOLT NON-REVERSING MAGNETIC STARTER</p> <p>FVR FULL VOLT REVERSING MAGNETIC STARTER</p> <p>VFC VARIABLE FREQUENCY CONTROLLER</p> <p>PRMS PWR RELAY-MANUAL STRTR W- OVERLOADS</p> <p>2SP1W TWO SPEED SINGLE WINDING FVNR MAG STRTR</p> <p>2SP2W TWO SPEED TWO WINDING FVNR MAG STRTR</p> <p>CPT CONTROL POWER TRANSFORMER</p> <p>IMUC INTERNAL MOUNTED UNIT CONTROLLER</p> <p>RMUC REMOTE MOUNTED UNIT CONTROLLER</p>	<p>PR POWER RELAY</p> <p>TC TIME CLOCK ONTRLR</p> <p>T-S TEMP-SENSOR SW</p> <p>W-STAT WALL LINE VOLT STAT</p> <p>WS WALL LINE VOLT STAT</p> <p>FB FURNISHED BY</p> <p>IB INSTALLED BY</p> <p>PC PROVIDED BY</p> <p>FDR FEEDER CIRCUIT</p>	<p>EM EMERGENCY POWER</p> <p>NML NORMAL POWER</p> <p>SBY STANDBY POWER</p> <p>NA NOT APPLICABLE</p> <p>BRNCH BRANCH CIRCUIT</p> <p>GC GENERAL CONTRACTOR</p> <p>KC KITCHEN CONTRACTOR</p> <p>MC MECHANICAL CONTRACTOR</p> <p>PC PLUMBING CONTRACTOR</p>	<p>FPC FIRE PROTECT CONTRACTOR</p> <p>OWN OWNER</p> <p>CPC CORD-PULP CONNECTION</p> <p>FWC FLEXIBLE WHIP CONDUIT</p> <p>HWC HARD WIRED CONN</p> <p>ENC NEMA ENCLOSURE</p> <p>LOC LOCKING</p> <p>REC RECEPTACLE</p> <p>OCPD OVERCURRENT PROTECT DEVICE</p> <p>OEM ORIGINAL EGP MANUFACTURER</p>
--	---	---	---	---	---	--

NOTES

- PROVIDE RACKING FOR STRTR TYPES (FVNR, FVR, PRMS, 2SP1W, & 2SP2W) PROVIDE THERMAL OVERLOADS PER OEM FIELD VERIFICATION PROVIDE TWO SETS FORM "C" AUX CONTACTS WITH STARTER PROVIDE 120VAC CONTROL COILS FOR (FVNR, FVR, 2SP1W, & 2SP2W) PROVIDE 24VAC CONTROL COIL FOR POWER RELAYS-MANUAL STRTR "PRMS"
- PROVIDE RACKING FOR VARIABLE FREQUENCY CONTROLLER "VFC" CALIBRATE OVERLOADS PER OEM FIELD VERIFICATION RESULTS PROVIDE FOUR SETS FORM "C" CONTACTS WITH VFC PROVIDE OEM START-UP & COMMISSIONING PRIOR TO PUNCHLIST PROVIDE WRITTEN VFC FIELD PROGRAMMED SETTINGS
- DISC SW SHALL BE IN SIGHT OF MOTOR-EQP & SHALL NOT EXCEED MAX DIST OF 5FT FROM MOTOR-EQP MAX HEIGHT OF DISC SW HANDLE SHALL NOT EXCEED 8'-3" PROVIDE SIX POLE DISC SW FOR TWO SPEED, ONE-TWO WINDING MOTORS VERIFY WITH OEM IF MAX FUSE SIZE IS MARKED ON NAME PLATE IF SO THEN EC SHALL PROVIDE FUSE DS SWITCH WITH TO FUSE TRIP SIZE TO 150% OF THE FLA OF MOTOR - EQP
- CONFIRM MOTOR ROTATION OPERATION WITH OEM REP PRIOR TO ENERGIZING MOTOR EQUIP PROVIDE GROUNDING-BONDING PER OEM SPECS EGP FLEX SHALL NOT EXCEED 72" MAX LENGTH CONFIRM CPC NEMA CONN WITH OEM
- PROVIDE A 120VAC CIRCUIT TO EACH MECHANICAL EQUIPMENT (AHU RTU, ERV, MAU, ETC.) FOR INTERNAL FAN HOUSING LIGHTING AND RECEPTACLE DEVICE CIRCUIT.

ITEM	EQUIPMENT				EQUIPMENT UNIT NAME				EQUIPMENT POWER CHARACTERISTICS & LOAD SPECIFICATIONS										FEED PWR	FEED FROM	OCPD: SW-CB FRAME-FR FUSE-CB TRIP-TR	FDR BRNCH	MOTOR-LISTED EQP - CONTROLLER-STARTER TYPES & LOCATIONS										LOCAL DISCONNECT SWITCH FOR LOCAL LOCK-OUT & TAG-OUT				MOTOR-LISTED EQUIP CONN & OEM REQUIREMENTS										REMARKS					
	No.	AREA #	NAME	TAG	No.	NAME - TAG - AREA - AREA #	V	Ø	N	G	PN	W	HP	MCA	FLA	KW	SW FR	CB FR					CB TR	P	TRNCH	PB	FB	IB	ROOM	SIZE	TYPE	ENC	CPT	DS-SW	OCPD	P	NOTE	PB	FB	IB	REC	LOC	NEMA	GFI	REC No	CPC		HWC	FWC	NOTE		
1	-	GRADE	CH	3	CHILLER CH-3 GRADE -	480	3	1	1	4	5	-	228.0	-	190.16	NML	MSB	NA	NA	400	250	3	13B	-	MC	EC	NA	VFC	3R	250	400	250	3	2	EC	-	-	400	3R	3	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
2	-	MECH RM 250	B	1	BOILER B-1 MECH RM 250 -	120	1	1	1	2	3	-	20.0	-	2.40	NML	MP-1	NA	NA	30	25	1	2G	EC	-	-	NA	IMUC	3R	NA	30	25	1	-	EC	-	-	30	3R	1	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
3	-	MECH RM 250	B	2	BOILER B-2 MECH RM 250 -	120	1	1	1	2	3	-	20.0	-	2.40	NML	MP-1	NA	NA	30	25	1	2G	EC	-	-	NA	IMUC	3R	NA	30	25	1	-	EC	-	-	30	3R	1	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
4	-	ROOF ANNEX	AHU	1	AIR HANDLING UNIT AHU-1 ROOF ANNEX -	480	3	1	1	4	5	-	31.3	-	25.99	NML	MSB	NA	NA	30	35	3	2G	EC	-	MC	EC	NA	VFC	3R	250	30	35	3	2	EC	-	-	30	3R	3	3	EC	-	-	NA	NA	NA	NA	YES	YES	4
5	-	ROOF ANNEX	AHU	2	AIR HANDLING UNIT AHU-2 ROOF ANNEX -	480	3	1	1	4	5	-	31.3	-	25.99	NML	MSB	NA	NA	30	35	3	2G	EC	-	MC	EC	NA	VFC	3R	250	30	35	3	2	EC	-	-	30	3R	3	3	EC	-	-	NA	NA	NA	NA	YES	YES	4
6	-	ROOF ANNEX	EF	1	EXHAUST FAN EF-1 ROOF ANNEX -	480	3	1	1	4	5	-	73.0	-	60.62	NML	MP-1	NA	NA	30	15	3	2B	EC	-	-	1	FVNR	3R	NA	30	15	3	1	EC	-	-	30	3R	3	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
7	-	ROOF ANNEX	EF	2	EXHAUST FAN EF-2 ROOF ANNEX -	120	1	1	1	2	3	1/3	-	7.2	0.86	NML	MP-1	NA	NA	30	15	1	1G	EC	-	-	1	FVNR	3R	NA	30	15	1	1	EC	-	-	30	3R	1	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
8	-	ROOF ANNEX	EF	3	EXHAUST FAN EF-3 ROOF ANNEX -	120	1	1	1	2	3	1/3	-	7.2	0.86	NML	MP-1	NA	NA	30	15	1	1G	EC	-	-	1	FVNR	3R	NA	30	15	1	1	EC	-	-	30	3R	1	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
9	-	ROOF ANNEX	EF	4	EXHAUST FAN EF-4 ROOF ANNEX -	120	1	1	1	2	3	1/2	-	3.3	0.40	NML	FPC-2	NA	NA	30	15	1	1G	EC	-	-	1	FVNR	3R	NA	30	15	1	1	EC	-	-	30	3R	1	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
10	-	ROOF ANNEX	EF	5	EXHAUST FAN EF-5 ELEV M RM 140B -	120	1	1	1	2	3	1/6	-	4.4	0.53	NML	MP-1	NA	NA	30	15	1	1G	EC	-	-	1	FVNR	3R	NA	30	15	1	1	EC	-	-	30	3R	1	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
11	-	ROOF ANNEX	KEF	1	KITCHEN EXHAUST FAN KEF-1 ROOF ANNEX -	208	1	1	1	3	4	3/4	-	7.6	1.58	NML	MP-1	NA	NA	30	15	2	2D	EC	-	-	1	FVNR	3R	NA	30	15	2	1	EC	-	-	30	3R	2	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
12	-	ROOF ANNEX	TEF	1	TOILET EXHAUST TEF-1 ROOF ANNEX -	120	1	1	1	2	3	1/6	-	4.4	0.53	NML	MP-1	NA	NA	30	15	1	1G	EC	-	-	1	FVNR	3R	NA	30	15	1	1	EC	-	-	30	3R	1	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
13	-	ROOF ANNEX	TEF	2	TOILET EXHAUST TEF-2 ROOF ANNEX -	120	1	1	1	2	3	1/4	-	5.8	0.70	NML	MP-1	NA	NA	30	15	1	1G	EC	-	-	1	FVNR	3R	NA	30	15	1	1	EC	-	-	30	3R	1	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
14	-	MECH RM 250	P	1	PUMP P-1 MECH RM 250 -	480	3	1	1	4	5	10	-	14.0	11.63	NML	HP-1	NA	NA	30	25	3	2B	EC	-	-	1	VFC	3R	NA	30	25	3	2	EC	-	-	30	3R	3	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
15	-	MECH RM 250	P	2	PUMP P-2 MECH RM 250 -	480	3	1	1	4	5	10	-	14.0	11.63	NML	HP-1	NA	NA	30	25	3	2B	EC	-	-	1	VFC	3R	NA	30	25	3	2	EC	-	-	30	3R	3	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
16	-	MECH RM 250	P	3	PUMP P-3 MECH RM 250 -	208	3	1	1	4	5	1	-	4.6	1.66	NML	MP-1	NA	NA	30	15	3	2B	EC	-	-	1	VFC	3R	NA	30	15	3	2	EC	-	-	30	3R	3	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
17	-	MECH RM 250	P	4	PUMP P-4 MECH RM 250 -	208	3	1	1	4	5	2	-	7.5	2.70	NML	MP-1	NA	NA	30	15	3	2B	EC	-	-	1	VFC	3R	NA	30	15	3	2	EC	-	-	30	3R	3	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
18	-	ANNEX IDF	AC	1	AIR COND UNIT AC-1 ANNEX IDF -	208	1	1	1	3	4	-	1.0	-	0.21	NML	MP-1	NA	NA	30	15	2	2D	MC	-	-	NA	W-STAT	1	NA	30	15	2	1	EC	-	-	30	1	2	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
19	-	EXST MDF	AC	2	AIR COND UNIT AC-2 EXST MDF -	208	1	1	1	3	4	-	1.0	-	0.21	NML	FPC-2	NA	NA	30	15	2	2D	MC	-	-	NA	W-STAT	1	NA	30	15	2	1	EC	-	-	30	1	2	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
20	-	ROOF ANNEX	CU	1	CONDENSING UNIT CU-1 ROOF ANNEX -	208	1	1	1	3	4	-	12.1	-	2.52	NML	MP-1	NA	NA	30	20	2	2D	MC	-	-	NA	W-STAT	1	NA	30	20	2	1	EC	-	-	30	1	2	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
21	-	ROOF EXST BLDG	CU	2	CONDENSING UNIT CU-2 ROOF EXST BLDG -	208	1	1	1	3	4	-	12.1	-	2.52	NML	FPC-2	NA	NA	30	20	2	2D	MC	-	-	NA	W-STAT	1	NA	30	20	2	1	EC	-	-	30	1	2	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
22	-	MECH RM 156	GBP	1	GAS BOOSTER PUMP GBP-1 MECH RM 156 -	208	3	1	1	4	5	1	-	4.6	1.66	NML	MP-1	NA	NA	30	15	3	2B	EC	-	-	1	FVNR	1	NA	30	15	3	1	EC	-	-	30	1	3	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
23	-	STAIR S2	CUH	1A	CABINET UNIT HEATER CUH-1A STAIR S2 -	120	1	1	1	2	3	-	4.7	-	0.57	NML	MP-1	NA	NA	30	15	1	1G	MC	-	-	NA	W-STAT	1	NA	30	15	1	1	EC	-	-	30	1	1	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
24	-	STAIR S2	CUH	1B	CABINET UNIT HEATER CUH-1B STAIR S2 -	120	1	1	1	2	3	-	4.7	-	0.57	NML	MP-1	NA	NA	30	15	1	1G	MC	-	-	NA	W-STAT	1	NA	30	15	1	1	EC	-	-	30	1	1	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
25	-	STAIR S1	CUH	2	CABINET UNIT HEATER CUH-2 STAIR S1 -	120	1	1	1	2	3	-	4.7	-	0.57	NML	MP-1	NA	NA	30	15	1	1G	MC	-	-	NA	W-STAT	1	NA	30	15	1	1	EC	-	-	30	1	1	3	EC	-	-	NA	NA	NA	NA	YES	YES	4	
26	-	VESTIBULE 142	CUH	3	CABINET UNIT HEATER CUH-3 VESTIBULE 142 -	120	1	1	1	2	3	-	4.7	-	0.57	NML	MP-1	NA	NA	30	15	1	1G	MC	-	-	NA																									

SWITCHBOARD: MSB											
LOCATION: ELECTRICAL 158			VOLTS: 480/277 Wye			A.I.C. Rating: 800A COPPER			NEUTRAL BUS: 100% RATED FULL COPPER WITH BUS DISCONNECT LINK		
FED FROM: COMED TRANSFORMER			PHASES: 3			MAIN BUS RATING & TYPE: 800 A			GROUND BUS: STANDARD, COPPER		
MOUNTING TYPE: SURFACE			WIRES: 4			MCB RATING: 800 A					
ENCLOSURE: NEMA 1			A.I.C. RATING: 65,000 AIC			NEUTRAL BUS: 100% RATED FULL COPPER			GROUND BUS: 100% RATED FULL COPPER		
OTHER: PROVIDE 4" HIGH CONCRETE PAD											
CCT NO.	DESCRIPTION	Load	FRAME SIZE	TRIP RATING	POLES	BREAKER TYPE	BREAKER RATING	NOTES	LOAD CLASS	CCT NO.	
1	CH-3	100 J250 VA	400 A	250 A	3	TM	80%	1.4			
2	AHU-1	60620 VA	250 A	100 A	3	TM	80%	1.4			
3	AHU-2	25965 VA	400 A	100 A	3	TM	80%	1.4			
4	DP-1 (VIA T-1)	0 VA	100 A	60 A	3	TM	80%	1.4			
5	SPD	69680 VA	400 A	400 A	3	TM	80%	1.4			
6	HP-1	0 VA	400 A	150 A	3	TM	80%	1.4			
7	SPARE	0 VA	400 A	150 A	3	TM	80%	1.4			
8	SPARE	0 VA	400 A	150 A	3	TM	80%	1.4			
TOTAL LOAD		640.10 kVA	469.13 kVA								
TOTAL AMPS:		770 A	564 A								

Notes:  
1. 65K AIC BREAKER RATING AT 480 VOLTS.  
2. PROVIDE ONE 4" EMPTY SPARE CONDUIT.  
3. BREAKER EQUIPPED WITH GROUND FAULT PROTECTION.  
4. REFER TO ELECTRICAL ONE-LINE RISER DIAGRAM FOR FEEDER SIZE.  
5. MAIN CIRCUIT BREAKER OF MSB SHALL BE 'LSIG' TYPE.  
TM = THERMAL MAGNETIC CASE BREAKER

PANEL BOARD: HP-1												
LOCATION: ELECTRICAL 158			VOLTS: 480/277 Wye			A.I.C. Rating: 65,000 AIC			NEUTRAL BUS: 100.00%			
MOUNTING TYPE: SURFACE			PHASES: 3			MAIN BUS RATING & TYPE: 400A COPPER			GROUND BUS: STANDARD, COPPER			
ENCLOSURE: NEMA 1			WIRES: 4			MCB RATING: MAIN LUGS ONLY						
ELECTRICAL DATA: 1277480V, 3PH, 4W												
CCT NO.	LOAD CLASS	Load Name	TRIP	POLES	A	B	C	POLES	TRIP	Load Name	LOAD CLASS	CCT NO.
H1-1	M	ELEV-1	70 A	3	9410	580		3	15 A	JP-1	M	H1-2
H1-3	--	--	--	--	9410	580		--	--	--	--	H1-4
H1-5	--	--	--	--	9410	580		--	--	--	--	H1-6
H1-7	M	BP-1	20 A	3	4650	0		3	25 A	SPARE	--	H1-8
H1-9	--	--	--	--	4650	0		--	--	--	--	H1-10
H1-11	--	--	--	--	4650	0		--	--	--	--	H1-12
H1-13	M	EF-1	15 A	3	833	0		3	25 A	SPARE	--	H1-14
H1-15	--	--	--	--	833	0		--	--	--	--	H1-16
H1-17	--	--	--	--	833	0		--	--	--	--	H1-18
H1-19	M	P-1	25 A	3	3877	0		3	25 A	SPARE	--	H1-20
H1-21	--	--	--	--	3877	0		--	--	--	--	H1-22
H1-23	--	--	--	--	3877	0		--	--	--	--	H1-24
H1-25	M	P-2	25 A	3	3877	0		1	20 A	SPARE	--	H1-26
H1-27	--	--	--	--	3877	0		1	20 A	SPARE	--	H1-28
H1-29	--	--	--	--	3877	0		1	20 A	SPARE	--	H1-30
H1-31	--	SPARE	0 A	1	0	0		1	20 A	SPARE	--	H1-32
H1-33	--	SPARE	0 A	1	0	0		1	20 A	SPARE	--	H1-34
H1-35	--	SPARE	0 A	1	0	0		1	20 A	SPARE	--	H1-36
H1-37	--	SPARE	0 A	1	0	0		1	20 A	SPARE	--	H1-38
H1-39	--	SPARE	0 A	1	0	0		1	20 A	SPARE	--	H1-40
H1-41	--	SPARE	0 A	1	0	0		1	20 A	SPARE	--	H1-42
TOTAL LOAD:		23.23 kVA	23.23 kVA	23227 VA								
TOTAL AMPS:		83.85 A	83.85 A	84 A								

LOAD CLASSIFICATIONS:

	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS
H	0 VA	0.00%	0 VA	TOTAL CONNECTED LOAD: 69680 VA
L	0 VA	0.00%	0 VA	TOTAL EST. DEMAND: 55744 VA
M	69680 VA	80.00%	55744 VA	TOTAL CONN.: 84 A
R	0 VA	0.00%	0 VA	
K	0 VA	0.00%	0 VA	

NOTES:

PANEL BOARD: IDF-IG													
LOCATION: IDF 246			VOLTS: 120/208 Wye			A.I.C. Rating: 22,000 AIC			NEUTRAL BUS: 100.00%				
MOUNTING TYPE: SURFACE			PHASES: 3			MAIN BUS RATING & TYPE: 225A COPPER			GROUND BUS: STANDARD, COPPER				
ENCLOSURE: NEMA 1			WIRES: 4			MCB RATING: 125 A							
ELECTRICAL DATA: 120/208V, 3PH, 4W													
CCT NO.	LOAD CLASS	Load Name	TRIP	POLES	A	B	C	POLES	TRIP	Load Name	LOAD CLASS	CCT NO.	
IDF-IG-1	R	R IDF 246	20 A	1	720	1200		1	20 A	IDF EQMT RACH POWERSTRIP IDF...	R	IDF-IG-2	
IDF-IG-3	R	R IDF 246	20 A	1		660	1200	1	20 A	IDF EQMT RACH POWERSTRIP IDF...	R	IDF-IG-4	
IDF-IG-5	R	CRE STORAGE 157B	20 A	1		1200	1200	1	20 A	IDF EQMT RACH POWERSTRIP IDF...	R	IDF-IG-6	
IDF-IG-7	R	CRE STORAGE 153B	20 A	1	1200	1200		1	20 A	IDF EQMT RACH POWERSTRIP IDF...	R	IDF-IG-8	
IDF-IG-9	R	CRE STORAGE 152B	20 A	1		1200	1200	1	20 A	IDF EQMT RACH POWERSTRIP IDF...	R	IDF-IG-10	
IDF-IG-11	R	CRE STORAGE 247	20 A	1		1200	1200	1	20 A	IDF EQMT RACH POWERSTRIP IDF...	R	IDF-IG-12	
IDF-IG-13	R	CRE STORAGE 261	20 A	1	1200	1200		1	20 A	IDF EQMT RACH POWERSTRIP IDF...	R	IDF-IG-14	
IDF-IG-15	R	CRE STORAGE 249	20 A	1		1200	1200	1	20 A	IDF EQMT RACH POWERSTRIP IDF...	R	IDF-IG-16	
IDF-IG-17	R	CRE CLASSROOM 260	20 A	1		1200	1200	1	20 A	IDF EQMT RACH POWERSTRIP IDF...	R	IDF-IG-18	
IDF-IG-19	R	CRE CLASSROOM 254	20 A	1	1200	1200		1	20 A	IDF EQMT RACH POWERSTRIP IDF...	R	IDF-IG-20	
IDF-IG-21	R	CRE KITCHEN OFFICE 150A	20 A	1		1200	1200	1	20 A	IDF EQMT RACH POWERSTRIP IDF...	R	IDF-IG-22	
IDF-IG-23	--	SPARE	20 A	1			0	1200	1	20 A	IDF EQMT RACH POWERSTRIP IDF...	R	IDF-IG-24
IDF-IG-25	--	SPARE	20 A	1	0	1200		1	20 A	IDF EQMT RACH POWERSTRIP IDF...	R	IDF-IG-26	
IDF-IG-27	--	SPARE	20 A	1		0	1200	1	20 A	IDF EQMT RACH POWERSTRIP IDF...	R	IDF-IG-28	
IDF-IG-29	--	SPARE	20 A	1			0	1200	1	20 A	IDF EQMT RACH POWERSTRIP IDF...	R	IDF-IG-30
IDF-IG-31	--	SPARE	20 A	1	0	0		1	20 A	SPARE	--	IDF-IG-32	
IDF-IG-33	--	SPARE	20 A	1		0	0	1	20 A	SPARE	--	IDF-IG-34	
IDF-IG-35	--	SPARE	20 A	1		0	0	1	20 A	SPARE	--	IDF-IG-36	
IDF-IG-37	--	SPARE	20 A	1	0	0		1	20 A	SPARE	--	IDF-IG-38	
IDF-IG-39	--	SPARE	20 A	1		0	0	1	20 A	SPARE	--	IDF-IG-40	
IDF-IG-41	--	SPARE	20 A	1			0	1	20 A	SPARE	--	IDF-IG-42	
TOTAL LOAD:		10.32 kVA	10.26 kVA	9600 VA									
TOTAL AMPS:		86.85 A	86.35 A	80 A									

LOAD CLASSIFICATIONS:

	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS
H	0 VA	0.00%	0 VA	TOTAL CONNECTED LOAD: 30180 VA
L	0 VA	0.00%	0 VA	TOTAL EST. DEMAND: 15090 VA
M	0 VA	0.00%	0 VA	TOTAL CONN.: 84 A
R	30180 VA	50.00%	15090 VA	
K	0 VA	0.00%	0 VA	

NOTES:

PANEL BOARD: DP-1												
LOCATION: ELECTRICAL 158			VOLTS: 120/208 Wye			A.I.C. Rating: 42,000 AIC			NEUTRAL BUS: 100.00%			
MOUNTING TYPE: SURFACE			PHASES: 3			MAIN BUS RATING & TYPE: 800A COPPER			GROUND BUS: STANDARD, COPPER			
ENCLOSURE: NEMA 1			WIRES: 4			MCB RATING: 800 A						
ELECTRICAL DATA: 120/208V, 3PH, 4W												
CCT NO.	LOAD CLASS	Load Name	TRIP	POLES	A	B	C	POLES	TRIP	Load Name	LOAD CLASS	CCT NO.
1	R, K	KP-1	200 A	3	14770	9987		3	150 A	MP-1	M, H	2
3	--	--	--	--		13160	10842			--	--	4
5	--	--	--	--			9950	12102		--	--	6
7	R, M, K	KP-2	200 A	3	15983	8660		3	150 A	RP-1A	Other...	8
9	--	--	--	--		13493	5040			--	--	10
11	--	--	--	--			11843	5124		--	--	12
13	L	LP-1	100 A	3	7585	5500		3	150 A	RP-1B	L, R, M	14
15	--	--	--	--		7073	5480			--	--	16
17	--	--	--	--			3909	4440		--	--	18
19	L	LP-2	100 A	3	7166	10500		3	150 A	RP-2A	R, M	20
21	--	--	--	--		3143	9800			--	--	22
23	--	--	--	--			2400	8460		--	--	24
25	--	SPARE	150 A	3	0	3120		3	150 A	RP-2B	R, M	26
27	--	--	--	--		0	3120			--	--	28
29	--	--	--	--			0	2400		--	--	30
31	--	SPARE	150 A	3	0	27280		3	400 A	DP-2	R	32
33	--	--	--	--		0	26640			--	--	34
35	--	--	--	--			0	24700		--	--	36
37	--	SPACE	--	--	0	0		--	--	SPACE	--	38
39	--	SPACE	--	--	0	0		--	--	SPACE	--	40
41	--	SPACE	--	--	--	--		0	0	SPACE	--	42
TOTAL LOAD:		110.55 kVA	97.79 kVA	85328 VA								
TOTAL AMPS:		937.24 A	830.90 A	711 A								

LOAD CLASSIFICATIONS:

	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS
H	5500 VA	100.00%	5500 VA	TOTAL CONNECTED LOAD: 293845 VA
L	31475 VA	100.00%	31475 VA	TOTAL EST. DEMAND: 191965 VA
M	51330 VA	80.00%	41064 VA	TOTAL CONN.: 815 A
R	130300 VA	50.00%	65150 VA	
K	75040 VA	65.00%	48776 VA	

NOTES:

PANEL BOARD: MP-1													
LOCATION: ELECTRICAL 158			VOLTS: 120/208 Wye			A.I.C. Rating: 22,000 AIC			NEUTRAL BUS: 100.00%				
MOUNTING TYPE: SURFACE			PHASES: 3			MAIN BUS RATING & TYPE: 225A COPPER			GROUND BUS: STANDARD, COPPER				
ENCLOSURE: NEMA 1			WIRES: 4			MCB RATING: MAIN LUGS ONLY							
ELECTRICAL DATA: 120/208V, 3PH, 4W													
CCT NO.	LOAD CLASS	Load Name	TRIP	POLES	A	B	C	POLES	TRIP	Load Name	LOAD CLASS	CCT NO.	
M1-1	M	CUH-1A	15 A	1	570	700		1	15 A	TEF-2	M	M1-2	
M1-3	M	CUH-1B	15 A	1		570	1260	2	20 A	CU-1	M	M1-4	
M1-5	M	CUH-2	15 A	1			570	1260	1	15 A	CU-3	M	M1-6
M1-7	M	CUH-3	15 A	1	570	700		1	15 A	EF-3	M	M1-8	
M1-9	M	CUH-4	15 A	1									

FOOD SERVICE EQUIPMENT							REMARKS
ITEM NO. & DESCRIPTION	QUANTITY	COLD WATER	HOT WATER	DIRECT WASTE	INDIRECT WASTE		
06 HAND SINKS	3	3/4"	3/4"	2"	-		PROVIDE WITH TMV-2 SET AT 105° F
16 STEAMER	1	-	3/4"	-	-		PROVIDE WITH DOV-1
17 WORKTABLE W/ SINK	1	3/4"	3/4"	-	-		FINAL CONNECTIONS INSTALL BY FOOD SERVICE EQUIPMENT INSTALLING CONTRACTOR.
19 PREP TABLE W/ SINK & OVERSHELF	1	1/2"	1/2"	-	-	FS	FINAL CONNECTIONS INSTALL BY FOOD SERVICE EQUIPMENT INSTALLING CONTRACTOR.
20 DISPOSER	1	1/2"	-	3"	-		PROVIDE WITH VACUUM BREAKER
21 POTSINK	1	3/4"	3/4"	-	-	FS	PROVIDE WITH TWO ROUGH-INS FOR TWO FAUCETS

**NOTES**

- THE ABOVE SCHEDULE REPRESENTS FOOD SERVICE EQUIPMENT & FIXTURES THAT REQUIRE PLUMBING SUPPORT. REFER TO THE FOOD SERVICE/KITCHEN CONSULTANT'S DRAWINGS FOR ROUGH-IN REQUIREMENTS & EXACT LOCATIONS OF ALL FOOD SERVICE FIXTURES & EQUIPMENT.
- PLUMBING CONTRACTOR SHALL PROVIDE AND ROUTE INDIRECT WASTE PIPING FROM KITCHEN FIXTURES & EQUIPMENT TO ADJACENT FLOOR SINK(S) AS REQUIRED, & SPILL OVER FLOOR SINK(S) WITH CODE APPROVED AIR GAP(S). NO DIRECT SANITARY CONNECTION OF THIS TYPE OF EQUIPMENT IS ALLOWED. CONTRACTOR SHALL ALSO PROVIDE A MINIMUM OF 1" THICK INSULATION (WITH APPROVED SANITARY BARRIER WRAP) FOR CONDENSATE AND/OR REFRIGERATED WASTE PIPING DISCHARGING INTO FLOOR SINKS TO PREVENT SWEATING (I.E. ALL PIPING CONVEYING DRAINAGE LOWER THAN 60° F). SEE FOOD SERVICE/KITCHEN CONSULTANT'S DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- PROVIDE EMERGENCY DRAIN PAN ASSEMBLY DIRECTLY UNDERNEATH ALL DRAINAGE PIPING LOCATED ABOVE FOOD SERVICE AREAS. PROVIDE MINIMUM 1" COPPER DRAIN PIPE CONNECTION AT DRAIN PAN LOW POINTS, & ROUTE TO NEAREST FLOOR SINK WITH APPROVED AIR GAP.
- SEE FOOD SERVICE PLANS FOR ROUGH-IN ELEVATIONS

SPECIALTY FIXTURES						
SYMBOL	TYPE	MFR	MODEL NO.	NOTES/OPTIONS		
DCDA-1	DOUBLE CHECK DETECTOR ASSEMBLY BACKFLOW PREVENTER	WATTS	SERIES 7740CCDA	STAINLESS STEEL, ASSE 1048 RATED, UL LISTED, FM APPROVED, FIRE PROTECTION SERVICE, 8" SIZE, TESTABLE UNIT. FURNISHED BY FIRE PROTECTION CONTRACTOR, INSTALLED BY PLUMBING CONTRACTOR.		
DCVA-1	DOUBLE CHECK VALVE ASSEMBLY BACKFLOW PREVENTER	WATTS	SERIES 007	BRONZE, ASSE 1015 RATED, 2" SIZE, TESTABLE UNIT. PROVIDE WITH STRAINER & ACCESS PANEL COVER AS REQUIRED. INSTALL AT MAXIMUM 5'-0" AFF.		
DDV-1	DUAL CHECK VALVE ASSEMBLY	WATTS	SERIES 7	ASSE 1024 RATED, 3/4" SIZE, BRONZE BODY CONSTRUCTION. PROVIDE WITH STRAINER.		
TM1-1	MASTER TEMPERATURE MIXING VALVE ASSEMBLY	POWERS	LFSH1432	ASSE 1017 RATED, HILO TYPE SINGLE MIXING VALVE UNIT, 10 GPM FLOW RATE AT 5 PSI PRESSURE DROP, 3/4" INLETS & 1" OUTLET CONNECTIONS. INSTALL ON FIELD FABRICATED CHANNEL SUPPORT ASSEMBLY WITH REGIC PUMP, ADJACENT TO WATER HEATERS.		
TM2-2	TEMPERATURE MIXING VALVE ASSEMBLY	WATTS	LFUSO-B-M2	ASSE 1016/1070 RATED, POINT-OF-USE TEMPERING VALVE, 3/8" INLETS & OUTLET, 0.5 GPM AT 1 PSI PRESSURE DROP, 1.5 PSIG MINIMUM OPERATING PRESSURE, TO PSIG MAXIMUM. INSTALL AT FIXTURE WITH LOCKING ADJUSTMENT KNOB. PROVIDE CHECK VALVES AT H2O/W SUPPLY INLETS. LEAD-FREE BRASS BODY CONSTRUCTION. OUTLET TEMPERATURE: 105° F.		
TM3-3	TEMPERATURE MIXING VALVE ASSEMBLY	GUARDIAN	G3000	ANSI Z368.1-2009 RATED, POINT-OF-USE TEMPERING VALVE, 1/2" INLETS & OUTLET. INSTALL AT ALL EYEFACE WASH STATIONS. PROVIDE CHECK VALVES AT H2O/W SUPPLY INLETS. LEAD-FREE BRASS BODY CONSTRUCTION. OUTLET TEMPERATURE: 90° F.		
ET1-1	THERMAL EXPANSION TANK	WATTS	DELTA 30	THERMAL EXPANSION TANK WITH INTERNAL BUTYL DIAPHRAGM. ASME RATED, 15 GALLON TANK VOLUME, 10 GALLON ACCEPTANCE VOLUME. FDA APPROVED FOR POTABLE WATER. PROVIDE FOR EACH WATER HEATER.		
ET2-2	THERMAL EXPANSION TANK	WATTS	DELTA 30	THERMAL EXPANSION TANK WITH INTERNAL BUTYL DIAPHRAGM. ASME RATED, 15 GALLON TANK VOLUME, 10 GALLON ACCEPTANCE VOLUME. FDA APPROVED FOR POTABLE WATER. PROVIDE FOR EACH WATER HEATER.		
NFWH-1	NON-FREEZE WALL HYDRANT	WOODFORD	865	CHROME FREEZELESS WALL HYDRANT ASSEMBLY WITH SQUARE WALL BOX & DOOR. INTEGRAL VACUUM BREAKER & LOOSE KEY HANDLE. PROVIDE STAINLESS STEEL ACCESS PANEL AS REQUIRED FOR SERVICING.		
HB-1	INTERIOR WASHDOWN HOSE BIBB	CHICAGO FAUCET	965	WALL MOUNTED SILL COOK, LOOSE KEY, SOLID CHROME PLATED, SOLID BRASS CONSTRUCTION. INSTALL ELEVATED VACUUM BREAKER, 7'-9" A.F.F.		
GL-1	GREASE INTERCEPTOR	ZURN MANUFACTURER	Z1170	INSTALL PER MANUFACTURER'S SPECIFICATIONS.		
SL-1	SOLIDS INTERCEPTOR	JAY R SMITH	874-SS	REMOVABLE STAINLESS STEEL PERFORATED DEBRIS BASKET, 1-1/2" PLAIN END OUTLET AND INLET CONNECTIONS. INSTALL PER MANUFACTURER'S RECOMMENDATIONS FOR MAINTENANCE PURPOSES. STAINLESS STEEL BODY. COORDINATE LOCATION WITH ADA REQUIREMENTS.		

NOTE: MANUFACTURERS AND MODEL NUMBERS LISTED, INDICATE THE BASIS OF DESIGN. OTHER MANUFACTURERS AND PRODUCTS ARE ACCEPTABLE IF LISTED IN THE SPECIFICATIONS, AND THE ENGINEER OF RECORD DETERMINES THEM TO BE EQUIVALENT TO THE SPECIFIC PRODUCTS LISTED WITHIN THE SCHEDULES. REFER TO SPECIFICATIONS FOR LIST OF MANUFACTURERS FOR EACH PRODUCT.

WATER HEATER SCHEDULE											
SYMBOL	LOCATION	TYPE	STORAGE (GALLON)	RECOVERY (GPH)	TEMP RISE (°F)	ELECTRICAL/GAS		WATER OUTLET TEMP	MFR	MODEL NO.	REMARKS
						VPHKW	BTUHR INPUT				
WH 1	MECHANICAL ROOM	GAS FIRED, HIGH EFFICIENCY, CONDENSING TYPE DOMESTIC WATER HEATER	100	582	100	120V/1φ	250,000	140° F	A.O. SMITH	BTH-250A	GAS FIRED, HIGH EFFICIENCY, CONDENSING TYPE DOMESTIC WATER HEATER, MODULATING BURNER WITH 5:1 TURNDOWN, 80% EFFICIENCY, LOW NOX, 70% CONDENSATE NEUTRALIZATION. PROVIDE WITH P&TRV, CONDENSATE NEUTRALIZATION KIT.
WH 2	MECHANICAL ROOM	GAS FIRED, HIGH EFFICIENCY, CONDENSING TYPE DOMESTIC WATER HEATER	100	582	100	120V/1φ	250,000	140° F	A.O. SMITH	BTH-250A	GAS FIRED, HIGH EFFICIENCY, CONDENSING TYPE DOMESTIC WATER HEATER, MODULATING BURNER WITH 5:1 TURNDOWN, 80% EFFICIENCY, LOW NOX, 70% CONDENSATE NEUTRALIZATION. PROVIDE WITH P&TRV, CONDENSATE NEUTRALIZATION KIT.

NOTE: MANUFACTURERS AND MODEL NUMBERS LISTED, INDICATE THE BASIS OF DESIGN. OTHER MANUFACTURERS AND PRODUCTS ARE ACCEPTABLE IF LISTED IN THE SPECIFICATIONS, AND THE ENGINEER OF RECORD DETERMINES THEM TO BE EQUIVALENT TO THE SPECIFIC PRODUCTS LISTED WITHIN THE SCHEDULES. REFER TO SPECIFICATIONS FOR LIST OF MANUFACTURERS FOR EACH PRODUCT.

PUMP SCHEDULE										
SYMBOL	TYPE	GPM	TDH FEET	MOTOR			CONTROLS	REMARKS	MFR	MODEL NO.
				VPHHZ	HP	RPM				
RCP 1	HOT WATER RECIRCULATION PUMP	5	11	208/180	1/2	2650	247/865 PROGRAMMABLE TIMER CLOCK.	BUILDING HOT WATER RECIRCULATION PUMP, IN LINE, SINGLE STAGE, ALL BRONZE OR STAINLESS STEEL CONSTRUCTION. PROVIDE WITH AQUASTAT LEAD FREE CERTIFIED.	BELL & GOSSETT	NF-25 SPEED 3
RCP 2	HOT WATER RECIRCULATION PUMP	2	12	115/180	2/3	3300	247/865 PROGRAMMABLE TIMER CLOCK.	140' KITCHEN HOT WATER RECIRCULATION PUMP, IN LINE, SINGLE STAGE, ALL BRONZE OR STAINLESS STEEL CONSTRUCTION. PROVIDE WITH AQUASTAT LEAD FREE CERTIFIED.	BELL & GOSSETT	NF-105LW SPEED 3
BP 1	DUPLEX DOMESTIC BOOSTER PUMP	93 (EACH)	113 (25 PSI)	480/360	3HP (EACH)	3450	VARIABLE FREQUENCY DRIVE SYSTEM INTEGRAL TO BOOSTER PUMP PACKAGE (SINGLE DISCONNECT WITH WIRING TO CONTROL PANEL BY ELECTRICAL). POWER SUPPLY TO ACCOMMODATE SIMULTANEOUS OPERATION OF ALL PUMPS.	FACTORY BUILT, SKID MOUNTED PACKAGE SYSTEM COMPLETE WITH PUMPS, CONTROLS, ALARMS & ACCESSORIES. DUPLEX CONFIGURATION WITH VARIABLE FREQUENCY DRIVE SYSTEM. PROVIDE WITH 34 GALLON HYDRO-PNEUMATIC TANK WITH 18 GALLON ACCEPTANCE VOLUME.	EZ FLOW	00E2A291250V1XC
EPP 1	ELEVATOR SUMP PUMP	50	31 (14 PSI)	115/180	1/2 HP	-	ZOLLER 10-1038 ALUMINUM PANEL, 10-1520 OIL SMART PUMP SWITCH	PROVIDE WITH BATTERY BACK-UP.	ZOLLER	940-3014
SE 1	SEWAGE EJECTOR PUMP	50	31 (14 PSI)	115/180	1/2 HP	-	ZOLLER 10-1038 ALUMINUM PANEL, 10-1520 OIL SMART PUMP SWITCH	PROVIDE WITH BATTERY BACK-UP & DRY CONTACT FOR B.A.S.	ZOLLER	940-3014

NOTE: MANUFACTURERS AND MODEL NUMBERS LISTED, INDICATE THE BASIS OF DESIGN. OTHER MANUFACTURERS AND PRODUCTS ARE ACCEPTABLE IF LISTED IN THE SPECIFICATIONS, AND THE ENGINEER OF RECORD DETERMINES THEM TO BE EQUIVALENT TO THE SPECIFIC PRODUCTS LISTED WITHIN THE SCHEDULES. REFER TO SPECIFICATIONS FOR LIST OF MANUFACTURERS FOR EACH PRODUCT.

PLUMBING FIXTURE SCHEDULE										
TAG	QTY	FIXTURE			TRAP	SUPPLIES	FLOW CONTROL GPM GFF-GPC	ADDITIONAL REQUIREMENTS & NOTES		
		TYPE	MFR / MODEL	TYPE				MFR / MODEL		
WC-1	5	WATER CLOSET HIGH EFFICIENCY (HET) WALL MOUNT ELONGATED, VITREOUS CHINA, 1 1/2" TOP SPUD	KOHLER K-4325	MANUAL EXPOSED WATER CLOSET FLUSHOMETER	SLOAN 111-1.28	INTEGRAL	1.28 GPF		PROVIDE WITH WALL CARRIER AND WHITE OPEN FRONT SEAT. PROVIDE A MINIMUM OF 35 PSIG TO FLUSH VALVE.	
WC-2	13	ADA-WATER CLOSET HIGH EFFICIENCY (HET) WALL MOUNT ELONGATED, VITREOUS CHINA, 1 1/2" TOP SPUD	KOHLER K-4325	MANUAL EXPOSED WATER CLOSET FLUSHOMETER	SLOAN 111-1.28	INTEGRAL	1.28 GPF		PROVIDE WITH WALL CARRIER AND WHITE OPEN FRONT SEAT. PROVIDE A MINIMUM OF 35 PSIG TO FLUSH VALVE.	
WC-3	4	ADA-WATER CLOSET HIGH EFFICIENCY (HET) WALL MOUNT ELONGATED, VITREOUS CHINA, 1 1/2" TOP SPUD	KOHLER K-4325	AUTOMATIC SENSOR ACTIVATED, HARD WIRED, CONCEALED WATER CLOSET FLUSHOMETER	SLOAN 111-1.28-SS-TWO SWB	INTEGRAL	1.28 GPF		PROVIDE WITH WALL CARRIER AND WHITE OPEN FRONT SEAT. PROVIDE A MINIMUM OF 35 PSIG TO FLUSH VALVE.	
WC-4	5	WATER CLOSET HIGH EFFICIENCY (HET) WALL MOUNT ELONGATED, VITREOUS CHINA, 1 1/2" TOP SPUD	KOHLER K-4325	MANUAL CONCEALED WATER CLOSET FLUSHOMETER	SLOAN 111-1.28	INTEGRAL	1.28 GPF		PROVIDE WITH WALL CARRIER AND WHITE OPEN FRONT SEAT. PROVIDE A MINIMUM OF 35 PSIG TO FLUSH VALVE.	
UR-1	4	URINAL HIGH EFFICIENCY WALL MOUNT, VITREOUS CHINA, 3/4" TOP SPUD	KOHLER K-4904-ET	MANUAL EXPOSED HIGH EFFICIENCY URINAL FLUSHOMETER	SLOAN 186-0.125 HEU	INTEGRAL	0.125 GPF		PROVIDE WITH WALL CARRIER (20 PSIG MINIMUM OPERATING PRESSURE).	
UR-2	2	ADA-URINAL HIGH EFFICIENCY WALL MOUNT, VITREOUS CHINA, 3/4" TOP SPUD	KOHLER K-4904-ET	MANUAL EXPOSED HIGH EFFICIENCY URINAL FLUSHOMETER	SLOAN 186-0.125 HEU	INTEGRAL	0.125 GPF		PROVIDE WITH WALL CARRIER INSTALL AT ADA HEIGHT (20 PSIG MINIMUM OPERATING PRESSURE).	
LAV-1	4	WALL HUNG, VITREOUS CHINA, 3-HOLE, ADA, 21"x18"	KOHLER K-2032	MANUAL METERING, 4" CENTER-SET SPOUT	CHICAGO FAUCETS 3400-ABCP	OFFSET GRID STRAINER, 11/4"x11/2" 17 GAUGE P-TRAP	1/2" 1/2" CAST BRASS, HEAVY PATTERN QUARTER-TURN BALL VALVE WITH POLISHED CHROME RISER TUBE CONNECTORS	0.5 GPM AERATOR (FACTORY PROVIDED)	PROVIDE WITH CONCEALED ARM SUPPORT, TEMPERATURE MIXING VALVE TMV-2 (20 PSIG MINIMUM OPERATING PRESSURE).	
LAV-2	8	ADA-LAVATORY WALL HUNG, VITREOUS CHINA, 3-HOLE, ADA, 21"x18"	KOHLER K-2032	MANUAL METERING, 4" CENTER-SET SPOUT	CHICAGO FAUCETS 3400-ABCP	OFFSET GRID STRAINER, 11/4"x11/2" 17 GAUGE P-TRAP	1/2" 1/2" CAST BRASS, HEAVY PATTERN QUARTER-TURN BALL VALVE WITH POLISHED CHROME RISER TUBE CONNECTORS	0.5 GPM AERATOR (FACTORY PROVIDED)	PROVIDE WITH CONCEALED ARM SUPPORT, TEMPERATURE MIXING VALVE TMV-2 (20 PSIG MINIMUM OPERATING PRESSURE). INSTALL AT ADA HEIGHT.	
LAV-3	8	ADA-LAVATORY WALL HUNG, VITREOUS CHINA, 3-HOLE, ADA, 21"x18"	KOHLER K-2032	MANUAL METERING, 4" CENTER-SET SPOUT	CHICAGO FAUCETS 3400-ABCP	OFFSET GRID STRAINER, 11/4"x11/2" 17 GAUGE P-TRAP	1/2" 1/2" CAST BRASS, HEAVY PATTERN QUARTER-TURN BALL VALVE WITH POLISHED CHROME RISER TUBE CONNECTORS	0.5 GPM AERATOR (FACTORY PROVIDED)	PROVIDE WITH CONCEALED ARM SUPPORT, TEMPERATURE MIXING VALVE TMV-2 (20 PSIG MINIMUM OPERATING PRESSURE). REFER TO ARCHITECTURAL DRAWINGS FOR INSTALLATION HEIGHT.	
EW-1	13	ELECTRIC COOLER WALL MOUNTED	ACORN A1314088	PUSH-BUTTON ACTIVATED CHROME PLATED BRASS BUBBLER		OFFSET GRID STRAINER, 11/4"x11/2" 17 GAUGE P-TRAP	1/2" 1/2" CAST BRASS, HEAVY PATTERN QUARTER-TURN BALL VALVE WITH COPPER RISER TUBE CONNECTOR		INSTALL IN STANDARD, ADA, OR CHILD CONFIGURATION AS INDICATED ON ARCHITECTURAL DRAWINGS. (20 PSIG MINIMUM OPERATING PRESSURE). PROVIDE WITH WALL MOUNTING PLATE.	
EW-2	1	ELECTRIC COOLER WALL MOUNTED WITH BOTTLE FILLING STATION	ELKAY EZS8WSSK	PUSH-BUTTON ACTIVATED CHROME PLATED BRASS BUBBLER		OFFSET GRID STRAINER, 11/4"x11/2" 17 GAUGE P-TRAP	1/2" 1/2" CAST BRASS, HEAVY PATTERN QUARTER-TURN BALL VALVE WITH COPPER RISER TUBE CONNECTOR		INSTALL IN STANDARD, ADA, OR CHILD CONFIGURATION AS INDICATED ON ARCHITECTURAL DRAWINGS. (20 PSIG MINIMUM OPERATING PRESSURE). PROVIDE WITH WALL MOUNTING PLATE.	
MB-1	3	MOP BASIN FLOOR MOUNTED, PRECAST TERRAZZO, 24"x24"x12"	FIAT T58-200	WALL MOUNTED SERVICE FAUCET WITH PRECIPITATION BREAKER INSTALLED 7' 8" A.F.F.	CHICAGO 911-CP	INTEGRAL, STAINLESS STEEL, STRAINER WITH 3" C.I. P-TRAP		2.2 GPM	PROVIDE WITH FIAT 889-CC MOP HANGER, 832-AA HOSE & HOOK, & MSG-2424 STAINLESS STEEL WALL GUARDS.	
FD-1	16	8" FLOOR DRAIN CAST IRON, FINISHED AREAS	JAY R SMITH 2010			2" (OR 4" BELOW GRADE) CAST IRON DEEP SEAL TRAP			PROVIDE WITH ADJUSTABLE NICKEL BRONZE STRAINER & VANDAL PROOF SCREWS, STAINLESS STEEL STRAINER, VANDAL PROOF SCREWS, AND ACID RESISTANT COATING IN SCIENCE CLASSROOM.	
FD-2	7	8" FLOOR DRAIN CAST IRON UNFINISHED AREAS	JAY R SMITH 2220-C			4" CAST IRON DEEP SEAL TRAP			PROVIDE WITH CAST IRON GRATE, SLOTTED SEDIMENT BUCKET WITH LIFTING BAR.	
FD-3	5	8" FLOOR DRAIN CAST IRON, KITCHEN/FOOD SERVICE AREA	JAY R SMITH 3100			2" CAST IRON DEEP SEAL TRAP			PROVIDE WITH SQUARE NICKEL BRONZE 100' STAINLESS STEEL STRAINER, VANDAL PROOF SCREWS, AND ACID RESISTANT COATING.	
FCO-1	20	8" FLOOR CLEANOUT CAST IRON, FINISHED AREAS	MFAB C1100-1-C						PROVIDE WITH VANDAL PROOF SCREWS	
FS-1	5	4" FLOOR SINK CAST IRON, ARC CAST IRON, KITCHEN/FOOD SERVICE AREA	MFAB FS1520-FL			4" CAST IRON DEEP SEAL TRAP			PROVIDE WITH ACID RESISTANT COATED INTERIOR (ARC), DOME STRAINER NICKEL BRONZE RIM WITH SECURED 1/2" GRATE, INSTALLED 1" A.F.F.	
FS-2	1	8" FLOOR SINK CAST IRON, ARC CAST IRON, PUMP ROOM	MFAB FS1520-FL			6" CAST IRON DEEP SEAL TRAP			PROVIDE WITH ACID RESISTANT COATED INTERIOR (ARC), DOME STRAINER & NICKEL BRONZE RIM WITH SECURED 1/2" GRATE.	
RD-1	14	15" ROOF DRAIN CAST IRON	JR SMITH 1015C-R-C-OD ADJUSTABLE EXTENSION						ROOF DRAIN WITH CAST IRON BODY & COLLAR. PROVIDE WITH ADJUSTABLE EXTENSION, SUMP RECEIVER, UNDERDRAIN CLAMP, CHALK OUTLET & CAST IRON DOME BOTTOM OUTLET (SEE PLAN FOR OUTLET PIPE SIZE).	
SK-1	6	STAINLESS STEEL SELF-RIMMING SINGLE BOWL SINK	ELKAY LR40251	MANUAL LEVER GOOSNECK	CHICAGO FAUCETS 2014GNAE8V3737A8	OFFSET GRID STRAINER	1/2" 1/2" CAST BRASS, HEAVY PATTERN QUARTER-TURN BALL VALVE WITH COPPER RISER TUBE CONNECTOR	2.2 GPM AERATOR (FACTORY PROVIDED)	PROVIDE WITH TEMPERATURE MIXING VALVE TMV-2 & INSULATION OVER WASTE & SUPPLIES. PROVIDE WITH SLL IN LIEU OF P-TRAP WHERE SHOWN, ADA COMPLIANT.	

NOTE: MANUFACTURERS AND MODEL NUMBERS LISTED, INDICATE THE BASIS OF DESIGN. OTHER MANUFACTURERS AND PRODUCTS ARE ACCEPTABLE IF LISTED IN THE SPECIFICATIONS, AND THE ENGINEER OF RECORD DETERMINES THEM TO BE EQUIVALENT TO THE SPECIFIC PRODUCTS LISTED WITHIN THE SCHEDULES. REFER TO SPECIFICATIONS FOR LIST OF MANUFACTURERS FOR EACH PRODUCT.



**CANTY ELEMENTARY SCHOOL ANNEX**  
 3740 NORTH PANAMA AVENUE  
 CHICAGO, ILLINOIS 60634  
 CHICAGO PUBLIC SCHOOLS  
 CITY OF CHICAGO, MAYOR RAHM EMANUEL

Architect of Record  
**SMITH HARDING JOINT VENTURE**

224 SOUTH MICHIGAN AVENUE  
 SUITE 245  
 CHICAGO, ILLINOIS 60604  
 312.922.2600 T  
 312.922.8222 F

**C.E. ANDERSON & ASSOCIATES**  
 Structural Engineers  
 175 N Franklin Ave Suite 6066  
 Chicago, Illinois 60606

**dbHMS ENGINEERING**  
 MEP and FP Engineers  
 303 W Erie St Suite 510  
 Chicago, Illinois 60654

**TERRA ENGINEERING**  
 Civil Engineers  
 225 W Ohio St 4th Floor  
 Chicago, Illinois 60654

**S.K. KEGAN & ASSOCIATES**  
 Landscape Architects  
 9620 S Damen Ave  
 Chicago, Illinois 60643

**BAKER GROUP**  
 Food Service Consultant  
 2220 E Park Ave SE  
 Grand Rapids, MI 43546

**THRESHOLD ASSOCIATES**  
 Acoustics/IB  
 53 W Jackson Blvd Suite 815  
 Chicago, Illinois 60604

WARNING: ASBESTOS CONTAINING BUILDING MATERIALS ARE OR MAY BE PRESENT IN THIS BUILDING. AN ASBESTOS MANAGEMENT PLAN IS AVAILABLE IN THE SCHOOL FOR REVIEW UPON REQUEST. NO PERSON MAY DISTURB ASBESTOS CONTAINING MATERIALS UNLESS THAT PERSON IS A LICENSED ASBESTOS ABATEMENT WORKER OR CONDUCTS SUCH WORK IN ACCORDANCE WITH PROJECT SPECIFICATIONS) CONTAINING IN THE PROJECT DOCUMENTS AND IN COMPLIANCE WITH THE APPLICABLE REGULATIONS.

LEAD-BASED PAINT MAY BE PRESENT WITHIN THE BUILDING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO TAKE APPROPRIATE SAFETY MEASURES IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS INCLUDING OSHA (1962-82) COMPLIANCE, WASTE CHARACTERIZATION AND WASTE DISPOSAL. ALL WORK WITH SURFACES CONTAINING LEAD-BASED PAINT SHALL BE DONE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

Issuance		
Mark	Description	Date
1	ADDENDUM NO. 001	05.26.15
	ISSUED FOR BID	05.07.15

PBC Project Name: ARTHUR CANTY ANNEX  
 PBC Contract No: 05750  
 Project No.: 2014-05750-ANX

Title  
**PLUMBING SCHEDULES**

Sheet  
**P.500**

C:\Users\aferrandez\Documents\14-205\_CANTY ANNEX\_MEP\_aferrandez.rvt





## SECTION 23 64 23

### SCROLL WATER CHILLERS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Section includes packaged, air-cooled, electric-motor-driven, scroll water chillers for capacities up to 150 tons.

##### 1.2 DEFINITIONS

- A. IPLV: Integrated part-load value. A single number part-load efficiency figure of merit calculated per the method defined by ARI 550/590 and referenced to ARI standard rating conditions.

##### 1.3 SUBMITTALS

- A. Product Data: Include refrigerant, rated capacities, operating characteristics, furnished specialties, and accessories.

1. Performance at ARI standard conditions and at conditions scheduled (provide COP/EER/KW per Ton and IPLV for water, COP/EER/KW per Ton and NPLV for 30% PG conditions).
2. Partload Performance at ARI standard unloading conditions scheduled (provide COP/EER/KW per Ton and IPLV for water and COP/EER/KW per Ton and NPLV for 30% PG conditions).
3. Minimum evaporator flow rate & maximum rate of change.
4. Refrigerant type and capacity of water chiller.
5. Oil capacity of water chiller.
6. Fluid capacity of evaporator.
7. Fluid capacity of condenser.
8. Characteristics of safety relief valves.
9. Minimum entering condenser-air temperature
10. Sound data.
11. If manufacturer requires control of external devices provide a description of the control required and the proposed method of control including hardware.
12. Standard training video for owner and commissioning authority review if it is to be used as an alternate to video taping of training.

- B. LEED Submittals:

1. Prerequisite EA2: Provide certification that the minimum efficiency is equal to the requirements of ASHRAE 90.1-latest edition. Include performance at ARI standard conditions, unloading conditions and at conditions scheduled (provide COP/EER/KW per Ton and IPLV for water, COP/EER/KW per Ton and NPLV for 30% PG conditions).
2. Credit EA1: Provide certification that the minimum efficiency better the requirements of ASHRAE 90.1-latest edition as scheduled. Include performance at ARI standard

- conditions, unloading conditions and at conditions scheduled (provide COP/EER/KW per Ton and IPLV for water, COP/EER/KW per Ton and NPLV for 30% PG conditions).
3. Credit EA4: Certification that refrigerants are free of HCFCs.
  4. Credit EA5: Certification that the equipment provided is equipped to provide continuous monitoring of energy consumption over time to the BAS.
- C. Shop Drawings: Complete set of manufacturer's prints of water chiller assemblies, control panels, sections and elevations, and unit isolation. Include the following:
1. Assembled unit dimensions.
  2. Weight and load distribution.
  3. Required clearances for maintenance and operation.
  4. Size and location of piping and wiring connections.
  5. Wiring Diagrams: Power, signal, and control wiring. Single line schematic drawing of all power field hookup requirements, indicating all items that are furnished.
  6. Schematic diagram of control system indicating points for field connection. Diagram shall fully delineate field and factory wiring.
- D. Coordination Drawings: Floor plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
1. Piping roughing-in requirements.
  2. Wiring roughing-in requirements, including spaces reserved for electrical equipment.
  3. Access requirements, including working clearances for mechanical controls and electrical equipment, and tube pull and service clearances.
- E. Certificates: For certification required in "Quality Assurance" Article.
- F. Source quality-control test reports.
- G. Startup service reports. Submit written reports documenting the activities required by 3.2 – Chiller Installation, 3.3 – Connections, and 3.5 – Contractor Start-Up and Reporting. These reports are to be submitted two weeks after the startup is completed.
- H. Operation and Maintenance Data: For each water chiller to include in emergency, operation, and maintenance manuals.
- I. Warranty: Sample of special warranty.
- J. Training Reports: Submit training reports documenting dates and attendance.
- 1.4 QUALITY ASSURANCE
- A. ARI Certification: Certify water chiller performance according to requirements in ARI 550/590, "Water Chilling Packages Using the Vapor Compression Cycle."
- B. ASHRAE Compliance:
1. ASHRAE 15 for safety code for mechanical refrigeration.
  2. ASHRAE Guideline 3 for refrigerant leaks, recovery, and handling and storage requirements.

3. ASHRAE/IESNA 90.1 for energy efficiency.

- C. ASME Compliance: Fabricate and stamp water chiller heat exchangers to comply with ASME Boiler and Pressure Vessel Code.
- D. Comply with NFPA 70.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Ship water chillers from the factory fully charged with refrigerant and filled with oil.

#### 1.6 COORDINATION

- A. For a chiller mounted on a concrete base, coordinate sizes and locations of concrete bases with actual equipment provided.
- B. For chillers mounted on structural steel, coordinate sizes, locations, and anchoring attachments of structural-steel support structures.
- C. For roof mounted chillers, coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.
- D. If the manufacturer requires devices other than the chiller to be controlled as part of the operation of the chiller the manufacturer will be responsible for providing all required controls and for the installation of the controls. The proposed controls must comply with the requirements of the Division 23 Section "Building Automation System (BAS)" and provide all the functions required by the BAS. These controls must be coordinated and submitted with the BAS control submittal.

#### 1.7 WARRANTY

- A. Written manufacturer warranty covering parts and labor for a period of one year from equipment start-up or eighteen months from shipment whichever is greater.
- B. Extended Compressor and Motor Warranty: Written manufacturer's warranty covering parts and labor for compressor or motor failures within a period of 5 years from equipment start-up.

### **PART 2 - PRODUCTS**

#### 2.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide products by one of the following
  1. Carrier; a United Technologies Company.
  2. McQuay International.
  3. Trane Company
  4. York; a Johnson Controls Company.

## 2.2 PACKAGED AIR-COOLED WATER CHILLERS

- A. Description: Factory-assembled and run-tested water chiller complete with base and frame, condenser casing, compressors, compressor motors and motor controllers, evaporator, condenser coils, condenser fans and motors, electrical power, controls, and accessories.
- B. Cabinet:
1. Base: Galvanized-steel base extending the perimeter of water chiller. Secure frame, compressors, and evaporator to base to provide a single-piece unit.
  2. Frame: Rigid galvanized-steel frame secured to base and designed to support cabinet, condenser, control panel, and other chiller components not directly supported from base.
  3. Casing: Galvanized steel.
  4. Finish: Coat base, frame, and casing with a corrosion-resistant coating capable of withstanding a 500 hour salt-spray test according to ASTM B 117.
  5. Sound-reduction package consisting of the following:
    - a. Acoustic enclosure around compressors.
    - b. Reduced-speed fans with acoustic treatment.
    - c. Designed to reduce sound level without affecting performance.
- C. Compressors:
1. Description: Positive-displacement direct drive with hermetically sealed casing.
  2. Each compressor provided with suction and discharge service valves, crankcase oil heater, and suction strainer.
  3. Operating Speed: Nominal 3600 rpm for 60-Hz applications.
  4. Capacity Control: On-off compressor cycling,
  5. Oil Lubrication System: Automatic pump with strainer, sight glass, filling connection, filter with magnetic plug, and initial oil charge.
  6. Vibration Isolation: Mount individual compressors on vibration isolators.
- D. Compressor Motors:
1. Hermetically sealed and cooled by refrigerant suction gas.
  2. High-torque, two-pole induction type with inherent thermal-overload protection on each phase.
- E. Compressor Motor Controllers:
1. Across the Line: NEMA ICS 2, Class A, full voltage, nonreversing.
- F. Refrigeration:
1. Refrigerant: R-410a. 407c is only acceptable if 410a is not available.
  2. Refrigerant Compatibility: Parts exposed to refrigerants shall be fully compatible with refrigerants, and pressure components shall be rated for refrigerant pressures.
  3. Refrigerant Circuit: Each circuit shall include a thermal-expansion valve, refrigerant charging connections, a hot-gas muffler, compressor suction and discharge shutoff valves, a liquid-line shutoff valve, a replaceable-core filter-dryer, a sight glass with moisture indicator, a liquid-line solenoid valve, and an insulated suction line.

G. Evaporator:

1. Brazed-plate or shell-and-tube design, as indicated.
2. Shell and Tube:
  - a. Description: Direct-expansion, shell-and-tube design with fluid flowing through the shell and refrigerant flowing through the tubes within the shell.
  - b. Code Compliance: Tested and stamped according to ASME Boiler and Pressure Vessel Code.
  - c. Shell Material: Carbon steel.
  - d. Shell Heads: Removable carbon-steel heads with multipass baffles designed to ensure positive oil return and located at each end of the tube bundle.
  - e. Shell Nozzles: Fluid nozzles located along the side of the shell and terminated with mechanical-coupling end connections for connection to field piping.
  - f. Tube Construction: Individually replaceable copper tubes with enhanced fin design, expanded into tube sheets.
  - g. Tested and stamped according to ASME Boiler and Pressure Vessel Code
  - h. The water-side working pressure shall be a minimum of 150 psig
  - i. The refrigerant-side working pressure shall be a minimum of 350 psig for R-407c refrigerant or 445 psig for R-410a refrigerant.
3. Brazed Plate:
  - a. Direct-expansion, single or two pass, brazed-plate design.
  - b. Type 316 stainless-steel construction.
  - c. Code Compliance: Tested and stamped according to ASME Boiler and Pressure Vessel Code.
  - d. Fluid Nozzles: Terminate with mechanical-coupling end connections for connection to field piping.
  - e. The water-side working pressure shall be a minimum of 300 psig
  - f. The refrigerant-side working pressure shall be a minimum of 300 psig
4. Heater: Factory-installed and -wired electric heater with integral controls designed to protect the evaporator to minus 20 deg F in the off-cycle.

H. Air-Cooled Condenser:

1. Plate-fin coil with integral sub cooling on each circuit
  - a. Construct coils of seamless copper tubes mechanically bonded to aluminum alloy fins with full drawn collars.
  - b. Design working pressure shall be 450 psig for R-407c refrigerant or 656 psig for R-410a refrigerant.
  - c. Hail Protection: Provide condenser coils with louvers, baffles, or hoods to protect against hail damage.
2. Fans: Direct-drive propeller type with statically and dynamically balanced fan blades, arranged for vertical air discharge.
3. Fan Motors: Totally enclosed nonventilating (TENV) or totally enclosed air over (TEAO) enclosure, with permanently lubricated bearings, and having built-in over current- and thermal-overload protection.

4. Fan Guards: Steel safety guards with corrosion-resistant coating.
- I. Electrical Power:
1. Factory-installed and -wired switches, motor controllers, transformers, and other electrical devices necessary shall provide a single-point field power connection to water chiller.
  2. House in a unit-mounted, Type 3R enclosure with hinged access door with lock and key or padlock and key.
  3. Wiring shall be numbered and color-coded to match wiring diagram.
  4. Install factory wiring outside of an enclosure in a raceway.
  5. Field power interface shall be to NEMA KS 1, heavy-duty, nonfused disconnect switch.
  6. Provide branch power circuit to each motor and to controls with one of the following disconnecting means:
    - a. NEMA KS 1, heavy-duty, fusible switch with rejection-type fuse clips rated for fuses. Select and size fuses to provide Type 2 protection according to IEC 60947-4-1.
    - b. NEMA KS 1, heavy-duty, nonfusible switch.
    - c. NEMA AB 1, motor-circuit protector (circuit breaker) with field-adjustable, short-circuit trip coordinated with motor locked-rotor amperes.
  7. Provide each motor with over current protection.
  8. Overload relay sized according to UL 1995, or an integral component of water chiller control microprocessor.
  9. Phase-Failure and Under voltage: Solid-state sensing with adjustable settings.
  10. Transformer: Unit-mounted transformer with primary and secondary fuses and sized with enough capacity to operate electrical load plus spare capacity.
    - a. Power unit-mounted controls where indicated.
  11. Control Relays: Auxiliary and adjustable time-delay relays.
  12. Indicate the following for water chiller electrical power supply:
    - a. Current, phase to phase, for all three phases.
    - b. Voltage, phase to phase and phase to neutral for all three phases.
    - c. Three-phase real power (kilowatts).
    - d. Three-phase reactive power (kilovolt amperes reactive).
    - e. Power factor.
    - f. Running log of total power versus time (kilowatt hours).
    - g. Fault log, with time and date of each.
- J. Controls:
1. Stand-alone, microprocessor based.
  2. Enclosure: Share enclosure with electrical power devices or provide a separate enclosure of matching construction.
  3. Operator Interface: Multiple-character liquid-crystal display with LED backlighting for nighttime viewing, and keypad. Provide one keypad and display panel per chiller. Display module shall have a NEMA 4x housing suitable for outdoor environments. At a minimum, display the following conditions:
    - a. Date and time.

- b. Operating or alarm status.
  - c. Operating hours.
  - d. Outside-air temperature if required for chilled-water reset.
  - e. Temperature and pressure of operating set points.
  - f. Entering and leaving temperatures of chilled water.
  - g. Refrigerant pressures in evaporator and condenser.
  - h. Saturation temperature in evaporator and condenser.
  - i. No cooling load condition.
  - j. Elapsed time meter (compressor run status).
  - k. Pump status.
  - l. Antirecycling timer status.
  - m. Percent of maximum motor amperage.
  - n. Current-limit set point.
  - o. Number of compressor starts.
4. Control Functions:
- a. Manual or automatic startup and shutdown time schedule.
5. Entering and leaving chilled-water temperatures, control set points, and motor load limit. Leaving chilled water reset control based on return water temperature, outdoor air temperature or a 4 to 20 mA input signal from the BAS.
- a. Current limit and demand limit.
  - b. External water chiller emergency stop.
  - c. Antirecycling timer.
  - d. Automatic lead-lag switching.
  - e. Energy usage monitoring with output to the BAS.
6. Manual-Reset Safety Controls: The following conditions shall shut down water chiller and require manual reset:
- a. Low evaporator pressure or high condenser pressure.
  - b. Low chilled-water temperature.
  - c. Refrigerant high pressure.
  - d. High or low oil pressure (each compressor circuit).
  - e. High oil temperature.
  - f. Loss of chilled-water flow.
  - g. Control device failure.
  - h. Loss of refrigerant charge
7. Edit the following two paragraphs and sub-paragraphs to ensure compatibility with the building automation system for the project. Each building should use either BACnet or LON protocol.
8. Building Management System Interface: Factory-installed hardware and software to enable building management system to monitor, control, and display water chiller status and alarms. Unit controller shall be compatible with standard BAS protocols.
9. Factory mounted DDC controller(s) shall support operation on a BACnet® or LONMARK® network via one of the data link / physical layers listed below as specified by the successful building automation system (BAS) supplier.
- a. BACnet MS/TP master (Clause 9)

- b. BACnet IP, (Annex J)
  - c. BACnet ISO 8802-3, (Ethernet)
  - d. LONMARK FTT-10A. The unit controller shall be LONMARK<sup>®</sup> certified.
- K. The information communicated between the BAS and the factory mounted unit controllers shall include the reading and writing of data to allow unit monitoring, control and alarm notification as specified in the unit sequence of operation and the unit points list. Refer to Division 23 Section "Building Automation System (BAS) - Sequence of Operation" for sequences of operation and Controls drawings.
- 1. For chillers communicating over a LONMARK network, the corresponding LONMARK eXternal Interface File (XIF) shall be provided with the chiller submittal data.
    - a. For chillers communicating over a BACnet network, all communication from the chiller unit controller as specified in the points list shall be via standard BACnet objects. Proprietary BACnet objects shall not be allowed. BACnet communications shall conform to the BACnet protocol (ANSI/ASHRAE135-2001). A BACnet Protocol Implementation Conformance Statement (PICS) shall be provided along with the unit submittal.
- L. Insulation:
- 1. Material: Closed-cell, flexible elastomeric, thermal insulation complying with ASTM C 534, Type I, for tubular materials and Type II, for sheet materials.
  - 2. Thickness: 3/4 inch
  - 3. Factory-applied insulation over cold surfaces of water chiller components.
    - a. Adhesive: As recommended by insulation manufacturer and applied to 100 percent of insulation contact surface. Seal seams and joints.
  - 4. Apply protective coating to exposed surfaces of insulation.
- M. Accessories:
- 1. Factory-furnished, chilled water flow switches for field installation.
  - 2. Individual compressor suction and discharge pressure gages with shutoff valves for each refrigeration circuit.
  - 3. Factory-furnished neoprene or spring isolators for field installation.
- N. Capacities and Characteristics:
- 1. Efficiency:
    - a. Chiller shall have a COP, NPLV and IPLV better than ASHRAE Standard 90.1 – latest edition under ARI test procedures. When chillers with higher efficiencies than the Standard are scheduled on the drawings, the more efficient value shall be the minimum project requirement.
  - 2. Evaporator Configuration: Integral to chiller
  - 3. Evaporator Fouling Factor: 0.0001 sq. ft. x h x deg F/Btu
  - 4. Number of Refrigeration Circuits: Two or more.
  - 5. Controls Power Connection: Fed through integral transformer



6. Noise Rating: Achieve the sound level performance indicated on the equipment schedules when measured according to ARI 370.

### 2.3 SOURCE QUALITY CONTROL

- A. Perform functional test of water chillers before shipping.
- B. Rate sound power level according to ARI 370 procedure.

## **PART 3 - EXECUTION**

### 3.1 EXAMINATION

- A. Examine areas to receive chillers for compliance with installation tolerances and other conditions affecting chiller performance. Examine proposed route of moving chillers into place and verify that it is free of interferences. Verify piping rough-in locations. Verify branch circuit wiring suitability. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Final locations of the chillers on the Drawings are approximate, unless dimensioned. Determine exact locations before roughing-in piping and electrical work.

### 3.2 WATER CHILLER INSTALLATION

- A. Maintain manufacturer's recommended clearances for service and maintenance.
- B. Install separate devices furnished by manufacturer.
- C. Install and anchor chillers plumb and level.
- D. Install vibration isolators according to isolator manufacturer's recommendations and as scheduled or specified.
- E. Insulate cooler, suction lines, and other surfaces where condensation might occur.
- F. Insulate suction lines and other surfaces where condensation might occur.
- G. Maintain manufacturer's recommended clearances for service and maintenance.
- H. Install piping connections, maintaining clearances for service and maintenance.
- I. Install flanged connections at chillers.
- J. Install flexible pipe connections.
- K. Install shutoff valves at chiller inlet and outlet connections.
- L. Provide additional unit trim as indicated on drawings and details.

- M. Electrical Wiring: Power supply wiring to equipment is specified in Division 26. Field installed control and interlock wiring required for a complete and functioning system shall be furnished and installed under this Section. Control wiring associated with the Temperature Control System is furnished and installed under Division 23 Section "Building Automation System (BAS)."

### 3.3 CONNECTIONS

- A. Comply with requirements in Division 23 Section "Hydronic Piping." Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to chiller to allow service and maintenance.
- C. Evaporator Connections: At a minimum connect inlet to evaporator with isolation valve, y-strainer w/ hose connection, P&T tap, manual air vent, controller-bulb well, thermometer, pressure gauge, drain connection valve, flex connector, and union or flange. At a minimum connect outlet to evaporator with isolation valve, control valve, calibrated balance valve, P&T tap, manual air vent, thermometer, controller-bulb well, pressure gauge, drain connection valve, flow switch, flex connector and union or flange. See drawings for additional requirements. Utilize a single pressure gauge with isolation valves across the evaporator inlet and outlet in lieu of individual gauges to eliminate gauge error.
- D. Refrigerant Pressure Relief Valve Connections: Extend discharge piping in accordance with City of Chicago Mechanical Code.
- E. Connect each drain connection with a union and drain pipe and extend pipe, full size of connection, to roof drain. Provide a shutoff valve at each connection if required.

### 3.4 CLEANING

- A. Clean units internally, on completion of installation, according to manufacturer's written instructions.
- B. Clean exterior prior to transfer to Owner.

### 3.5 CONTRACTOR STARTUP AND REPORTING

- A. Engage a factory-authorized service representative to perform startup service. Fill out start-up checklists and attach copy to Contractor Startup Report
- B. Inspect field-assembled components, equipment installation, and piping and electrical connections for proper assemblies, installations, and connections.
- C. Complete installation and startup checks according to manufacturer's written instructions and perform the following:
  - 1. Verify that refrigerant charge is sufficient and water chiller has been leak tested.
  - 2. Verify that pumps are installed and functional.
  - 3. Verify that thermometers and gages are installed.
  - 4. Operate water chiller for run-in period according to manufacturer's written instructions.
  - 5. Check bearing lubrication and oil levels.

6. Verify proper motor rotation.
  7. Verify vibration isolators and flexible pipe connections are properly installed and check static deflection including during startup and shutdown
  8. Verify pressure relief piping is installed in accordance with City of Chicago Mechanical code.
  9. Verify controls, safety interlocks and all chiller protection devices are installed and functioning properly.
  10. Verify labels and safety instructions are clearly visible
  11. Verify required clearances have been maintained
  12. Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment.
- D. Prepare a written startup report that records results of tests and inspections.
- E. Occupancy Adjustments: When requested within 12 months of date of preliminary acceptance, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to site outside normal occupancy hours for this purpose.

### 3.6 TRAINING AND DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain chillers as specified below:
1. Train Owner's maintenance personnel on procedures and schedules for starting up and shutting down, troubleshooting, servicing, and maintaining chillers. The training will occur after the startup report has been provided to the owner and the trainer will provide four Installation and Operation manuals for the use of the Owner's personnel during training.
  2. Review data in maintenance manuals. Refer to Division 01 Section "Contract Closeout."
  3. Review data in maintenance manuals. Refer to Division 01 Section "Operation and Maintenance Data." All required and recommended maintenance will be reviewed as well as operational troubleshooting. If the IOM does not include a written troubleshooting guide, one will be provided.
  4. Schedule training with Owner, through Architect, with at least seven days' advance notice.
  5. Training will occur in two (2) separate two (2) hour sessions, neither on the same day nor on a day that the chillers are started up.
- B. Demonstrate proper operation of equipment to commissioning agent or designated Owner's personnel. The scope of the demonstration shall include functional performance requirements under both local and building automation control as well as any commissioning requirements in Division 01 and 23.
- C. Video record the training sessions. The manufacturer may submit a standard training video training CD for review as an alternate to video taping of the training session. The standard video must be reviewed and accepted by the owner/commissioning authority for the alternate to be acceptable.

**END OF SECTION**